Radio Communication

June 1988

KENWOOD

TM-721E — Re-writing the specifications for dual band mobile radio

The TM-721E re-defines the concept of the 2 metre/70cm dual band rig, because it not only puts two transceivers in the same mobile package, but allows cross connection between them in all sorts of ways.

Obviously the TM-721E will operate in full duplex, with either band transmitting or receiving simultaneously, but you can also monitor both bands at the same time, and the rig itself will make the band on which a signal is received first become the main band.

You are kept fully aware of all that is going on, by the comprehensive displays. You have separate frequency readout, separate squelch controls, even separate S meters for the two bands. As for the transmitters, you get 45 Watts on 2 metres and 35 Watts on 70 cm. so you will certainly be heard. The American ads. for the TM-721E are captioned "Double Vision", and whilst I normally dislike the snappy one-liners, in this case I think it's a good description.

Why not send for details right away, and find out the full story of the newest and certainly the best dual band rig yet to appear.

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July 1968

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CONTENTS

Technical articles on subjects of amateur interest are always welcome and should be sent to: The Editor, *Radio Communication*, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

All articles received are reviewed for technical merit by the RSGB Technical & Publications Committee, or an acknowledged expert on the subject, before acceptance. Payment at high competitive rates will be made for all articles published.

A contribution will only be considered for publication on the understanding that the person submitting it is the original author and owner of the whole copyright, and that on acceptance for publication such copyright will become the property of the RSGB in consideration of the above-mentioned payment by the RSGB to the contributor.

The editor will be pleased to send intending authors a manuscript preparation guide and to give any other advice and assistance requested.

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The TS-940S from Kenwood

It's not like me to be at a loss for words, but what can I say about the TS-940S which hasn't already been written in glowing terms by reviewers and users the world over. It must be significant that so many top amateur contest operators use the TS-940S in preference to anything else, because it's in contest conditions that a transceiver has to prove its ability. As Peter Hart said in his review for Radio Communications magazine:- "Both transceivers (he was testing the TS-930S as well) gave a most impressive performance when used on the air. This encompassed operation in several taxing contests such as 7MHz SSB and CW, CQ WW 160M, and ARRL. The receive performance was excellent in all respects, giving clean results with no trace of overloading on the lower frequency bands. The synthesisers were the best that I have ever used, both tuned like analogue VFOs with no trace of steps at low tuning speeds, and clicks were virtually non-existent."

He also went on to make general comments about the transceivers:- "On ssb transmit, with the TS-940S, excellent quality reports were received with the MC-42S microphone. The speech processor added real punch to the signal without distorting. The cw note was perfect, with a total absence of clicks on both semi and full break-in."

And he wasn't alone. Chris Lorek concluded in this H.R.T. review:- "Throughout the extensive on-air testing I grew more fond of this transceiver than any other I have operated. I was sorry to see it go. This does not often happen and I think it will be a while before I find a better set of its kind." As you read comments like this I think that you can begin to get some idea of the regard in which the TS-940S is held, but you may ask why Kenwood equipment is so appealing to almost every user, be they professionals like Peter Hart and Chris Lorek, or the chap who just enjoys the hobby of amateur radio. There is no simple answer, but Kenwood certainly put every effort into researching not only the "state-of-the-art" technology, but also how to make that technology easy to use by the operator of the equipment. This of course you can only appreciate by sitting down in front of the rig, so please go along to one of our branches or your nearest Kenwood approved stockist to see if the Kenwood approach appeals to you. There's a simple test which I use myself when confronted by a new piece of equipment, and that is to try and use it without reference to the handbook – no I don't mean leave the key down with no aerial connected, just see if everything falls to hand. You will be amazed how easy this will be with the TS-940s, and also how difficult it can be with some other transceivers.

For complete details of the TS-940S, Kenwood produce a 12 page full colour brochure which tells you why I can't get all the message across in this small space. Why not drop us a line and ask for full details of the TS-940S and also the complete Kenwood catalogue. Although I mentioned before that the Penny Black was not adequate to cover postage these days, I am prepared to accept mint, unused copies of the Twopenny Blue. If you have the odd block of six lying around I may even swap you for a TS-940S.

One last point: you are considering spending a lot of money when you buy a TS-940S. For heaven's sake get it from an approved dealer and not from the "shady" sources. I have just had to console one poor chap who foolishly bought a TS-440S from such a source and sent it back to the supplier for repair. Six weeks later it had not been repaired, "We don't have an engineer" they said, and there is now a possibility that it has mysteriously disappeared. What can one say except "be extremely careful" and make sure that the man taking your hard earned money is actually an approved dealer. If you have any doubt, just ring us and we will advise who is your nearest approved source.

Caveat Emptor.

John Wilson G3PCY/5N2AAC

TM-221E

The 45 watt wonder for 2 metres. Common sense facilities, ease of use, and a massive 45 watt output make the TM-221E probably the most wanted FM mobile around. All this and an amazing receiver (see Ham Radio Today July 1987). All you need in a compact package, including all channel spacings (5, 10, 12.5, 15, 20, and 25 kHz). P.S. it also has a 70 cm brother, the TM-421E, and a remote controller available for operating them both together.
TM-221E...£317.30 (carr. £8) **TM-421E...£352.84**

TS-711E

Called by many "The perfect 2 metre Base Station", the TS-711E is as close to perfection as state of the art can make it. All mode operation, full band coverage, continuous tuning or step tuning for FM channels. Two separate VFO's, 40 memories storing frequency, mode, repeater shifts, even whether or not you need a tone burst. Optional voice synthesiser, the list of features is almost endless. (And it too has a 70 cm brother, the TS-811E).
TS-711E...£898.00 (carr. £8) **TS-811E...£998.00**

TR-751E

Versatile 2 metre multi mode mobile or fixed station, the TR-751E again shows that Kenwood magic touch in making a complex transceiver so easy to use. Virtually a miniature version of the TS-711E, the TR-751E set new standards of performance at its introduction, and has continued to win friends ever since, continuing as it did the line started by the TR-9000 and TR-9130. (And, you guessed, it has a 70 cm counterpart, the TR-851E).
TR-751E...£599.00 (carr. £8) **TR-851E...£699.00**

RZ-1

To be perfectly honest, the RZ-1 came as a surprise to us. We didn't expect Kenwood to come up with a mobile monitor receiver covering 500 kHz to 900 MHz, but here it is. Designed to fit in a standard car radio slot, the RZ-1 seems to have everything. Direct frequency entry, manual tuning, 100 memories, readout of station name on display, scanning, stepping, am/fm modes, unbelievable... Of course this level of facilities does not come cheaply, but the RZ-1 really adds a new dimension to the wide range monitor market.
RZ-1... £465.00

TS-930S

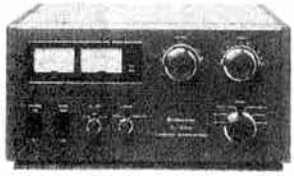
Much has been said and written about the TS-930S and it now has a place high in the affection of radio amateurs. Modes of operation are USB, LSB, CW, AM and FSK. Providing full coverage of the amateur bands from 160 to 10 metres and including a general coverage receiver tuning from 150 kHz to 30 MHz, the KENWOOD TS-930S is the ideal rig for today's crowded bands.
TS-930S...£1695.00 inc VAT, carriage £8.00

TS-140S

Kenwood common sense. The TS-140S shows the way to go in balancing performance, operating features, and ease of use; all at an attractive price. All mode amateur band transmit with an excellent general coverage receiver. Full break in CW is provided for the real operators, but so is FM for idle chatting on ten metres (although why one would use FM in preference to SSB or CW, I cannot imagine). Every TS-140S we can obtain is instantly sold. Ask around and you will find out why.
TS-140S...£862.00 (carr. £8) **TS-680S...£985.00** (carr. £8)

R-5000

Virtually the receive section of a TS-940S, the R-5000 is probably the best HF receiver right now. Notice the family resemblance to the TS-440S which gives it a clean, easy to operate look, and of course Kenwood have applied all their ergonomic skills to make you "at home" the moment you begin to use the R-5000. All mode of course, and has an optional internal VHF converter which extends you to 108-174 MHz.
R-5000...£875.00 (carr. £8)



TL-922

You brute. If it wasn't for all the safety interlocks I would operate my TL-922 with all the covers off, just to admire the sheer engineering beauty of the innards. The TL-922 is THE linear amplifier, and once you own it you will never part. The effortless ease with which the TL-922 produces RF power has to be experienced to be believed, and it is probably the world's most sought after station accessory.
TL-922...£1495.00 (carr. £8)

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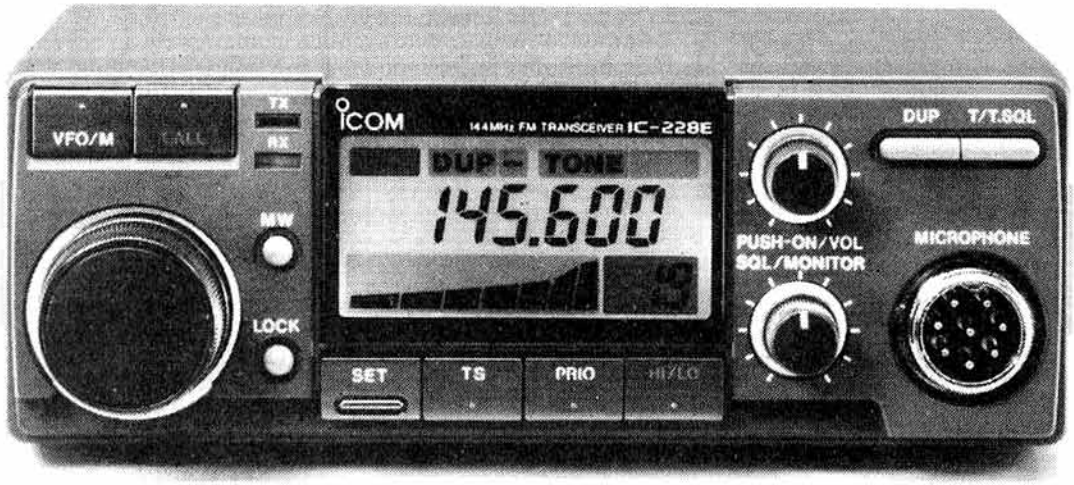
ICOM

NEW! IC-228E
2 Meter FM Transceiver



Actual size

Features:

- **Multicolour Liquid Crystal Display.**
- **25 Watt output.**
- **20 Memory channels.**
- **Scanning.**
- **Call and priority function.**
- **Compact size.**
- **HM15 microphone supplied.**

Take a close look at this easy to use and compact VHF Mobile Transceiver. It's unique orange, red and green LCD highlights the numbers and letters for easy viewing. With a 25 watt output from a custom designed power module and a extra large heatsink, this transceiver does not get too hot under your dashboard.

Each of the 20 memory channels can store frequency, offset and direction, in fact all the information to work simplex or a repeater. The memory scan function will scan the memory channels and with the skip function miss those you choose. The program scan will scan all frequencies between two programmable limits. The call channel ensures that your favourite frequency is within easy reach, and with the priority watch the call channel or memory channels can be monitored every five seconds.

This transceiver provides you with so many features, its small compact size and simple front panel design make it a superb mobile transceiver. See the IC-228E or the IC-228H 45 watt high power version at your local ICOM dealer.

Icom (UK) Ltd.
Dept RC, Sea Street, Herne Bay, Kent CT6 8LD. Tel: 0227 363859. 24 Hour.

Count on us!

NEW! IC-32E Dual Band VHF/UHF FM handportable

Features:

- **Full cross band duplex operation.**
- **5 Watt output with IC-BP7 nicad.**
- **20 Dual band memories. • Small size.**
- **Scanning. • Power saver circuit.**
- **Compatible with ICOM accessories.**

When are ICOM going to produce a dual band handportable? This has been the most asked question about new ICOM products for a long time. The IC-32E is the answer.

This exciting new handportable offers full crossband duplex operation, and with a built in duplexer allows single antenna operation. 3 Watt output is standard but with the BP7 high power nicad pack or external 13.8v, 5 Watts can be achieved on both bands. The IC-32E comes packed with features, such as the 20 memory channels which can store both a VHF and UHF frequency in one memory and also simplex duplex condition, offset direction and frequency.

There is a choice of five scanning functions, full programmed memory, memory band and priority. The die-cast frame gives a solid construction featuring rubber gaskets for splash-proof operation. The IC-32E is supplied with VHF/UHF a dual band antenna, BP3 battery pack and wall charger. OK, when are ICOM going to produce a new dual band mobile with full cross band duplex? The IC-3210E will be the answer.

NEW! IC-2GE 2 Meter FM handportable

Features:

- **Rugged and compact. • High power option.**
- **Power saver circuit.**
- **20 memories. • Scanning.**
- **Compatible with ICOM accessories.**

What's new on 2? ICOM's latest 144MHz FM handportable. The ICOM IC-2GE fulfils the most important criteria for a handheld transceiver, it is small, rugged and easy to operate.

The 3 Watt RF output is a compromise on battery life against power output, but for those who require extra punch, the set can deliver 7 Watts when used with the BP7 or external 13.8v DC. On receive the power saver circuit reduces current drain automatically, but can be overridden for packet operation.

The 20 memory channels can store all your favourite simplex and repeater frequencies, and with the programmed scan and memory scan functions, there is no need to manually search for activity. The IC-2GE utilises most existing ICOM handheld accessories plus a new line of carrying cases. If you are expecting to be outdoors this summer or looking for your first handportable transceiver, the ICOM IC-2GE will take a lot of beating.

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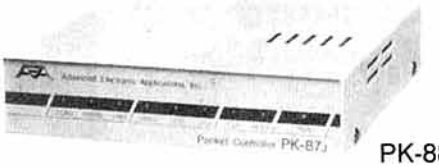

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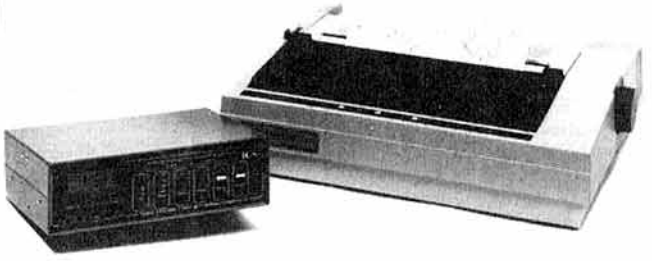

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PK-90	Commercial Packet Radio TNC	£368.40	£4.00
2400 Baud	Internal PSK Modem for the PK-90	£129.95	£1.50
PK-232	7 mode Intelligent Terminal Unit	£269.95	£4.00
HR1	144 MHz Handheld Antenna	£14.95	£1.00
HR3	150 MHz Marine Handheld Antenna	£14.95	£1.00
HR4	440 MHz Handheld Antenna	£14.95	£1.00
ISOPOLE 144	2 Metre Base Station Vertical Antenna	£39.95	£3.00
ISOPOLE 440	70 cms Base Station Vertical Antenna	£59.95	£3.00
PC-PAKRATT	IBM-PC Software for the PK-232	£19.95	£2.50
PK-FAX	IBM-PC Facsimile Software for the PK-232	£19.95	£2.50
COMM PAKRATT	Commodore 64/120 Software for the PK-232	£59.95	£1.50
PK-232/BBC	BBC Software for the PK-232	£26.95	£1.50

Product Code	Description	Price (inc VAT)	P&P (UK)
FAX OPTION	Manual, Cable, ROM for PK-232	£49.95	£2.00
NEW FIRMWARE	Upgrade for PK-232 (i)	£15.00	£1.50
FAX-1	Weather Map/RTTY/Navtex Decoder	£279.95	£4.00
FAX-1/N	As above, but with internal Navtex Receiver	£399.95	£5.00
ANT-1/N	Active Antenna for Navtex Reception	£69.00	£2.00
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SC-1200	120 cps 80 Column Printer. No NLQ	£114.94	£9.50
SC-1500	180 cps 80 Column Printer. With NLQ	£172.44	£9.50
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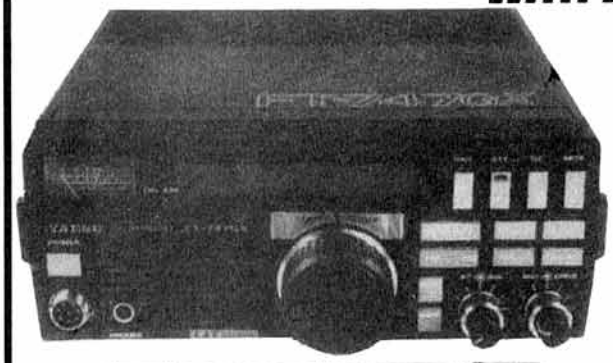

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FT736 R	*— 25W. VHF/UHF transceiver* ***£1299***
FT767 GX	*— HF/VHF/UHF All mode TCVR* ***£1395***
FRG 9600	*— 60-950 MHz Scanner Receiver* ***£449***
FRG 8800	*— Precision Gen. Coverage RCVR* ***£575***
IC R71E	*— HF multimode Receiver* ***£739***
IC 735	*— Compact HF multimode TCVR* ***£849***
IC R7000	*— VHF/UHF Communications RCVR* ***£859***
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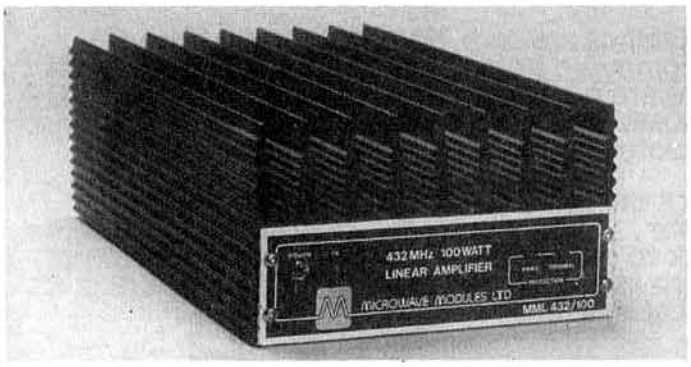
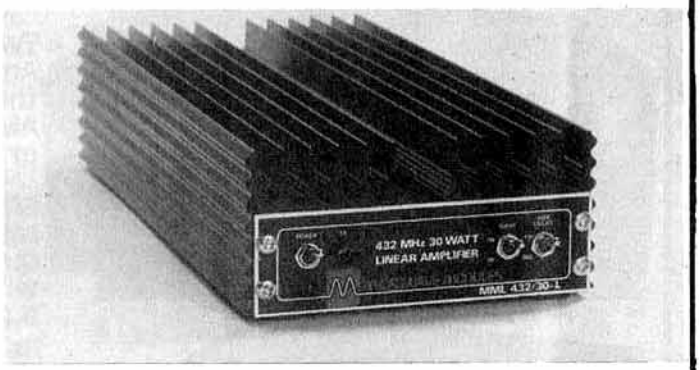
MICROWAVE MODULES LIMITED is a British manufacturing Company, established over 18 years ago, and currently employs over 40 staff in its two modern factories. The Company currently manufactures on an annual basis more than £1,000,000 of radio equipment, all of which has been designed and manufactured in the UK.

AND ITS PRODUCTS. . .

The Company offers what is probably the widest range of amplifiers and transverters available from any single manufacturer. The range of amplifiers and transverters is listed below, together with the other popular items manufactured by the Company such as preamplifiers, converters and amateur TV equipment.



MML432/100



MML432/30 L

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		TOTAL INC VAT	POST RATE
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MML144/100-S	2m 100W Linear, 10W input	149.00	C
MML144/100-HS	2m 100W Linear, 25W input	159.00	C
MML144/100-LS	2m 100W Linear, 1 or 3W input	169.00	C
MML144/200-S	2m 200W Linear, 3 to 15W input	379.00	D
MML220/80-S	1.5m 80W Linear, 10W input	169.00	C
MML432/30-L	70cm 30W Linear, 1 or 3W input	189.00	C
MML432/50	70cm 50W Linear, 10W input	155.00	C
MML432/100	70cm 100W Linear, 10W input	389.00	D
MMC435/600	70cm ATV Converter, UHF output	38.00	A
MTV435	70cm ATC 20W Transmitter	215.00	B
MM2001	RTTY to TV Converter	199.00	B
MMS1	The Morsetalker	139.00	B
MMS2	Advanced Morse Trainer	169.00	B
MMT50/28-S	10m to 6m Transverter	295.00	B
MMT50/144	2m to 6m Transverter	295.00	B

		TOTAL INC VAT	POST RATE
MMT70/28	10m to 4, Transceiver	149.00	B
MMT70/144	2m to 4m Transceiver	149.00	B
MMT144/28-R	2m Linear Transverter, 25W o/p	295.00	B
MMT144/28	2m Linear Transverter, 10W o/p	149.00	B
MMT220/28-S	220 MHz Transverter, 15W o/p	169.00	B
MMT432/28-S	70cm Linear Transverter	199.00	B
MMC50/28	6m down to 10m Converter	39.00	A
MMC144/28	2m down to 10m Converter	39.00	A
MMC432/28-S	70cm down to 10m Converter	48.00	A
MMK1691/137.5	1690 MHz WX Satellite Converter	169.00	B
MMG144V	2m RF Switched GaAsFET Preamp	39.00	A
MMG1691	1690 MHz GaAsFET Preamp	129.00	B
MMR3/25	3 dB 25 Watt Attenuator	19.00	A
MMR7/3	7 db 3 Watt Attenuator	19.00	A
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160m to 10m. *Including the 6 metre band.* The new **Kenwood TS-680S** Transceiver is a full feature HF multimode transceiver, with a frequency range of 1.8–56 MHz. Not only does it include the new 6m Amateur band, it also has a *general coverage receiver*, 100 watts output between 1.8 and 30 MHz and 10 watts output on 6m. All this! **And it is only the size of the *old* TS-440S!**
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Now available ex-stock. **The Fabulous JST 125T transceiver.** 1.8 to 30 MHz including general coverage receiver, the JST 125T offers high performance in both operation and build quality. We are pleased to announce that the superb range of JRC equipment is now available from stock. Contact us now.
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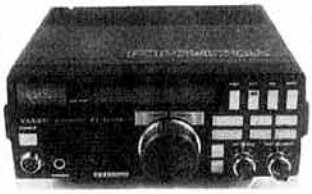
The FT747GX HF "Economy" Transceiver

Fully compatible with all FT757GX accessories. The new FT747GX is a real winner! Just look at the features:



- 160–10M HF Transceiver
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- All Mode ★INCLUDING FM FITTED★
- 0–100W Output (25W AM Carrier)
- Computer Control Display
- Large Clear LCD Display
- Simple Operation

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WAR ON 6 METRE PRICES!!

In time for the fantastic 6 metre openings. A.R.E. have yet again **SLASHED PRICES** on the NEW Yaesu FT690R mkII. Our massive bulk buying guarantees you the very best in prices and immediate delivery.

- A new boxed FT690R 6M Multimode Transceiver only **£349.00!!** (List £399.00).
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A New Standard in Technology
The full Duplex Handie from Standard

A World First. Transmit on 2 metres and receive on 70cms (or visa-versa) *at exactly the same time.*
Not only is that unique from a Handie, but with the following specification and at a fraction of the size of its nearest competitor, is there really any other rig that compares?

- Dual band operation 144-146 and 430-440MHz. Full duplex.
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- Four different scanning modes.
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All HF + 2m/6m/70cm + Gen Cov. Multimode, Semi-duplex, Keyer, Tracking 2 VFO's Ten memories, Notch/IF shift, Audio peak Filter, CW filter etc, etc.
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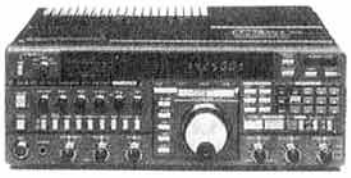

Plus 2m or 6m module worth £169 fitted Free!

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- ★ CW with Sidetone
- ★ FM bandwidth compatible with VHF/UHF
- ★ 10 Watts continuously variable o/p AM and FM
- ★ Scanning feature, up and down steps on Mic
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- ★ Ten meter band selectable in 500Khz steps
- ★ Built in VSWR Meter and protection circuit
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This product is exclusive to RayCom

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10M Band Amateur Transceiver

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+ £10 p.p.

10/2M version out soon at £399.00

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G8KW-TYPE 7.1MHz TRAP DIPOLE KIT SO239	£24.50
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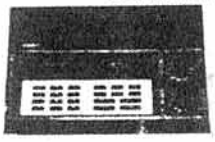
The above popular products POST FREE.
(UK mainland only)

SCANNERS

BEARCAT by Uniden



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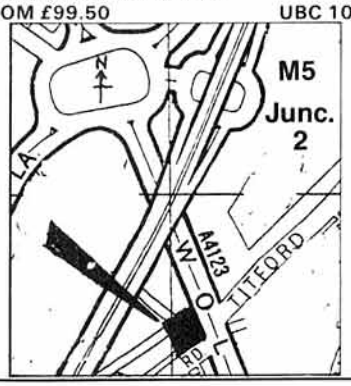
RAYCOM ARE TRADE AND RETAIL DISTRIBUTORS FOR THIS SUPERB RANGE OF QUALITY SCANNERS. THE POPULAR UBC 100XL HAND HELD HAS SOLD IN THOUSANDS, BUT IS NOW COMPLIMENTED BY THE UBC 70XCL POCKET SIZED HANDHELD. ALSO THE NEW COST EFFECTIVE UBC 50XL HANDHELD. SEE THE NEW MODELS IN OUR SHOWROOMS OR SEND A S.A.E. FOR DETAILS.

FROM £99.50 — **UBC 100XL**



SCANNERS

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Yaesu FRG9600/RWC MK3 HF 100KHz-950MHz plus Mk2 Spec.	£595.00
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Package deal on above Mk3/5 FRG9600 c/w AH7000 discone, G5RV, PA4 AC PSU, complete receicing station HF-UHF including delivery UK mainland. Add £100.00 to above price.

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UNDEN BEARCAT UBC 70XL VHF-UHF 20ch Minature H/held	£199.00
Uniden-Bearcat UBC 100XL VHF-UHF-Airband H/held Scanner	£189.00
Uniden-Bearcat UBC 175XL VHF-UHF-Airband Desk-Top	£175.00
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Many more makes and models in stock, PLEASE CALL FOR PRICES. DELIVERY COSTS and any advise or information, or send large SAE. (Insured post and packing £10.00. Carrier £12.50)

HANDHELDS

* = Extended Receiver coverage available, call for details.

YAESU FT727R/FNB4A 2.5W (5W) DUAL BANDER. C/W CHRGR	£395.00
*YAESU FT23R/FNB10 2.5W (5W) 2MTRS C/W CHARGER	£249.00
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*ICOM MICRO 2E 2.5W 2MTR HANDHELD WITH CHARGER	£209.00
CTE1600 (SAME AS ICOM IC2E) C/W NICAD CHARGER	£179.00

Many other types of handheld stocked, please enquire.

PORTABLES

FT290RMK2 2.5W MULTIMODE STANDARD ACCESSORIES	£399.00
FT290RMK2 2.5 WATT M/M AS ABOVE C/W NICADS CHRGR	£425.00
FT 290RMK2/FL2025 (STD) WITH 25W LINEAR AMPLFIER	£489.00
FT690RMK2 6MTR 2.5W MULTIMODE STANDARD ACCES	£399.00
FT690RMK2 6MTR 2.5W M/M AS ABOVE C/W NICADS CH	£425.00
FT790RMK2 NEW 70CM 2.5W MULTIMODE DUE OUT SOON	£499.00

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ALINCO Dual Bander ALD-24E	£445.00
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2M MICRO HANDHELD

★ 3 Watts FM
★ Memory Channel
★ Battery Save
★ Smallest in World

£189!

ALX-2E

The ALX-2E is a truly pocket transceiver. Capable of 3 watts output it covers the full 140-150MHz using the familiar thumbwheel dial. Features include memory channel, scanning, priority, battery saver, tone-burst, 600KHz shift etc. Supplied complete with ni-cad pack, AC charger, 12v DC charger, and helical. Accessories available include case, car cigar adaptor, headphone/mic, various batt. packs etc.

DUAL BANDER

ALD-24E

★ 2M/70cms
★ 25 Watts
★ Full Duplex
★ Built-in Diplexer/Dual VFO
★ Small size/21 memories

£449!

What can you say about this transceiver other than praise? The new ALINCO ALD-24E has bought the cost of dual banders down to a price that makes it a serious option to the 2 metre only rig. Just think of the pleasure of being able to select 2m or 70cms at the press of a button. No aerial switching (duplexer built in) and full duplex operation. The ALINCO actually has two completely separate transceivers built into its small case measuring 5.5" x 2" x 6.5". It has all the features of the ALR-22E (see below) at a huge saving over its competitors. We could mention the extended receiver coverage of 138-174 MHz & 420-454MHz at no extra charge, but then everybody would want one! So we thought that we'd simply invite you to send for the full colour brochure instead. Extended frequency range on request.

ALR-22E 2M FM MOBILE

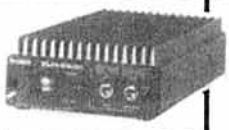
THE RADIO COSTS
£249
THE SCANNER COMES FREE!

★ 25 Watts FM ★ RX 138-174 MHz (option)
★ 21 Memories ★ Mini-size

ALINCO products are hitting the market in a big way. And the ALR-22E must rank as today's best buy. When you buy the ALR-22E you don't just purchase a 2 metre mobile, you purchase a vhf scanner as well. For no extra cost we will extend the frequency coverage to 138-174MHz. All this for a price that puts the competition in the shade! Features include 21 memory channels, programmable scan, priorty channel options, programmable splits, reverse repeater button, dual speed scanningk optional delay, back-lighted LCD display, dual vfo, lithium battery back-up, 25/125kHz steps, mini size measuring 5.5" x 1.5" x 6.5", up/down microphone control, quick release mobile bracket plus mounting hardware, superb sensitivity, 5 watt low power position, manual or electrical tuning, 12 months parts and labour warranty etc. With a specification like this we suggest you phone for colour brochure, today. Extended frequency range on request.

ALINCO 2m LINEARS

The new ALINCO amplfiers are great value. Compact, reliable and low priced. Now you can boost the power of your hand-held without boosting your overdraft!



ELH 230D$_2$	ELH260D
I-3 & 5w i/p 30w out	I-3w i/p 50w out
Gasfet pre-amp	Switch pre-amp
Vox or PTT	Vox or PTT
Full protection	Output meter
£75.00 inc vat.	£119.00 inc vat

NEW! 50-1300MHz

CLP 5130-1
50-1300Hz

CLP 5130-2
105-1300 Hz

These antennas cover the complete range to 1300MHz with a VSWR better than 2:1. They can be mounted vertically or horizontally with the hardware provided and with a power handling capability of 500 watts they are equally at home transmitting or receiving. Forward gain up to 12dBI & 13dBi and front to back ratios of 15dB are achieved respectively. Model 1 £179. Model 2 £89.00. Carriage £3.

SONY COMMUNICATIONS

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£169 FREE SECURICOR
ICF 7600DS

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2001D	AM/USB/LSB all band + Airband VHF	£329.00
AIR-7	108-174MHz hand-held plus b'cast	£247.00
PRO80	HF/VHF AM/SSB handheld plus b'cast	£329.00
AN-1	Active antenna for 7600/2001	£49.00
AN-3	VHF antenna with 50ft coax	£45.00
ACD-4	Mains AC adaptor Air7/PRO 80	£16.95
BP23	Ni-cad battery pack as above	£16.95
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Tune into the exciting World of long distance airband communications. Hear aircraft navigating the world's oceans; air and sea rescue in action; flight crews talking back to base; instant weather broadcasts from all corners of the world. It's exciting, and this book will tell you exactly where and when it all happens. £3.50 plus 60p post.

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Everything you have ever wanted to know about the short wave services, who uses them, their frequencies, callsigns and times. It's all in this book. 150 pages and some 7,000 entries plus editorial covering aerials, receivers, RTTY, FAX, TOR etc. A genuine UK publication based on the very latest information and monitoring. NOT AN AMERICAN COPY! Includes civil & military aircraft, press and meteo, embassies, maritime, emergency, broadcast, weather, beacons etc. Available April 1988. £6.95 plus £1 postage.

THE COMPLETE GUIDE TO VHF/UHF FREQUENCIES

Covering the range 26 to 47000MHz, this new edition provides full details of frequencies used within the UK. Covering emergency services, aviation, marine, PMR, beacons and repeaters, weather, space etc. The pages are full of all the information that you need in order to operate your scanning receiver. 90 pages crammed with frequencies, both simplex and duplex, plus editorial on all that you should know about VHF/UHF monitoring. £5.95 plus £1 post.

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Here's a book that takes the problem of learning Morse by the scruff of the neck and exposes the myths and mysteries that surround this most valuable skill. The author, Mark Francis, takes you simply but thoroughly through the whole learning process and shows that with his method you will quickly be able to read Morse code. Long overdue, the book is written in a non technical language which makes it a joy to read. Mark Francis covers all aspects of the subject and provides some very valuable tips on the best ways to learn and improve your code. And once you have learnt the code you can test yourself with the sample tests at the back of the book. There is even a chapter that tells you exactly what you should expect when you take your seat in the examination room for your RAE Morse test. As one reader said: "It's the most comprehensive book available on the subject today." £4.95 plus £1 post.

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- ★ UP TO FOUR BAND CAPABILITY
- ★ LSB/USB, CW & FM
- ★ FULL DUPLEX CROSSBAND OPERATION
- ★ MEMORY STORAGE OF UP TO 230 FREQUENCIES
- ★ KEYPAD FREQUENCY ENTRY
- ★ FOURTEEN VFO's
- ★ GLOBAL CALL CHANNEL
- ★ PROGRAMMABLE CHANNEL STEPS
- ★ ELECTRONIC KEYER OPTION
- ★ REMOTE PREAMPLIFIER SWITCHING
- ★ TXCO HIGH STABILITY REFERENCE OSCILLATOR

The FT-736R is a frequency synthesized amateur transceiver incorporating up to four band modules covering the 50, 144, 430, and 1200 MHz amateur bands. The standard model provides 25 watts RF power output on the 144 and 430 MHz amateur bands in SSB, CW, and FM modes. (10 watts output on the 50 and 1200 MHz bands).
Operating conveniences usually found only on HF transceivers, such as front panel adjustable IF shift and IF notch, a noise blanket, all-mode VOX and three-speed selectable AGC are included. GaAS FET receiver RF amplifiers are provided in the 430 and 1200 MHz band modules.
The innovative memory system includes one hundred general purpose memories plus ten full duplex cross-band memories, one global call channel memory that can be recalled from any band or mode and up to four band-specific call channel memories, all of which store mode and receive and transmit frequencies independently.
In addition, fourteen vfos are provided: two general purpose plus one PMS (Programmable Memory limit Scanning) on each band, two special-purpose full duplex vfos, and up to four clarifier memories, one per band. Each of the two full duplex vfos can be selected so that its receive and transmit freqencies and modes can be displayed and tuned independently, or linked to tune synchronously in opposite directions for satellite operaiton. You can retain twelve satellite uplink/downlink modes in the special vfos and ten full duplex memories at all times.
Naturally, with FM the predominant mode on the VHF and UHF bands, the FT-736R includes all manner of convenient features for both FM simplex and repeater operation, like a discrminator center tuning meter, special narrow FM mode (to cut adjacent channel interference in crowded areas) and Automatic Repeater Shift when tuned to 2-meter repeater subbands.
The FT-736R also includes a t/r switched DC supply line for masthead preamplifiers, activated from the front panel, and digital output connection directly to the modulator for high performance packet radio tnc interfacing (preamps, personal computers and packet tncs not supplied by Yaesu).

OPTIONAL ACCESSORIES

FEX 736/50	50MHz module	£239.00	XF455MC	600Hz CW Filter	£60.00
FEX 736/1.2	1.2 GHz module	£425.00	SP767	External Spkr c/w Audio Filters	£69.95
FMP-1	AQS Message Processor c/w display	£189.00	MD-1B8	Desktop Microphone	£79.00
FTS-8	CTCSS Tone Squelch Unit	£45.00	MH-1B8	Hand Scanning Microphone	£21.00
FVS-1	Voice Synthesiser Unit	£33.00	FIF232Cvan	CAT/TNC Interface for Packet & CAT	£69.85
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TV-736	Fast Scan TV(ATV) Mod/Demod Unit	£159.00	FIF65A	CAT Interface for Apple II series	£60.00

FT736R RRP £1450 C/W 2m & 70cms

NEW from TOKYO HY-POWER
The HT-100 SERIES

The HT-100 series is a series of compact light weight HF/VHF SSB/CW mono band transceivers from TOKYO HI-POWER. Despite being so compact the transceivers feature everything necessary for the dedicated HF operator, including 20W (PEP) output (10W (PEP) HT106), digital display, 'S' meter and semi break-in on CW. Options available for the radios are HP-100S external PSU c/w loudspeaker, 500Hz CW filter, noise blanker unit and mobile mounting bracket.

HT-106 6m £325.00 HT-120 20m £299.00 HT-180 80m £299.00

HP-100S	External PSU c/w Loudspeaker	£99.00	HNB-100	Noise Blanker Unit	£19.95
HBK-100	Mobile Mounting Bracket	£9.00	HCF-100	500Hz CW Filter	£45.00

All TOKYO Hy-Power products carry 1 year Guarantee

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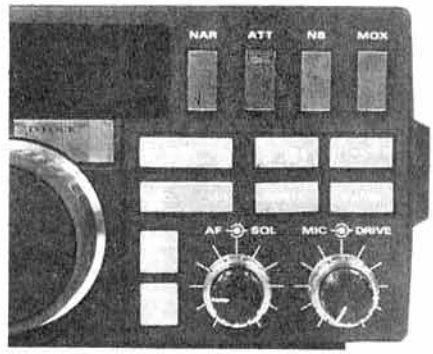

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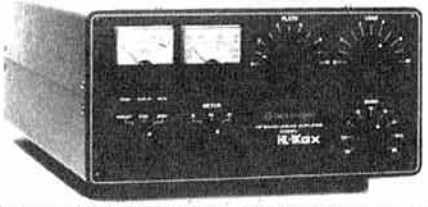

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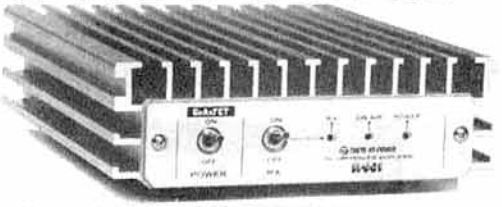

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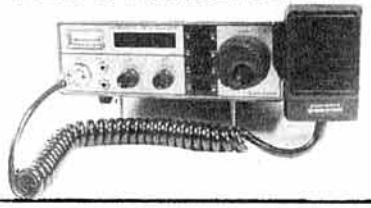

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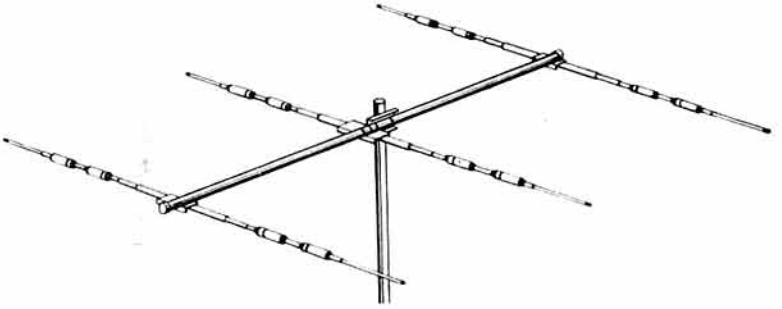

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PHASING BACK THE BEGINNERS

Most radio amateurs would surely agree that a thriving and progressive amateur radio community could benefit any country. Thriving means sustained interest and some growth; progressive implies that the community at large will benefit from amateur radio activity.

Amateur radio has a marvellous history of achievement and there is every reason to believe that radio amateurs will continue to benefit mankind both technically and sociably – not to mention the wonderful prospect of international friendships which amateur radio can foster in such a unique way. What is of concern to many national societies is that a lack of growth could lead to difficulties for amateur services in the future. The telecommunications world expects growth since decline would spell fewer frequencies on which to operate. If some growth does not occur naturally then the national societies must step in and attempt to reverse unfavourable trends. The RSGB will not be the first, or the last, National Society to want to get the best for its members by ensuring a bright future for this hobby. Do not run away with the idea that the question of growth within the amateur service dominates the Society's thinking. There are other factors as important; nevertheless growth is an important polictical factor.

At the meeting of Council in May a scheme was endorsed which aims to counter the predicted lack of growth within amateur radio. None of the ideas discussed are cast in tablets of stone, but a start has been made.

In June there will be a meeting with the RSGB's Liaison Officers in order to set out the ideas being discussed. After that more clubs and groups will have an opportunity to discuss the RSGB's plans. Most members will realise that in celebrating its 75th Anniversary the Society wished not only to look back, but more importantly to look forward. The 75th Anniversary will be synonymous with the future; an ideal opportunity to convince influential VIPs of the importance and value of amateur radio and indeed to obtain their support. It is also an ideal opportunity to publicise the hobby to a much wider audience.

Publicising amateur radio is more necessary now than it ever was and every member has a role to play. Indeed, it would be wrong if the Society did not emphasise the importance of individuals, clubs and other Groups helping the hobby to develop by showing-off the best in amateur radio.

As to the future, the RSGB Council wants prospective radio amateurs to be able to sample the hobby, perhaps by building straightforward projects involving radio or operating a station under supervision; all of which could lead to limited independent low power operation on the less crowded bands. Let's face it, the more people in the community who know about amateur radio and its good effects, the better the overall environment for radio amateurs is likely to be. The Student Licence (a working title at this stage) will provide a stepping stone which will allow more people to sample the hobby. We hope that with local encouragement many students will want to go on to a full A or B licence. Of course, many people who try something new decide not to go on. The aim of the Student Licence is to expose more people to the possibility of amateur radio. Lots of people try different things in their lives, but there must always be a proper balance between the ease of sampling something new compared with the challenge to be overcome. Council is seeking that balance by publicising its views and hearing your comments.

The situation described has evolved in many countries over the past 20 years. This cannot be changed overnight. Indeed, Council envisages a gentle growth of involvement with young people based initially on liaison with existing youth organisations such as the Guides and Scouts. Later it will require long term support and enthusiasm from the amateur community.

Having debated over many meetings, Council is convinced that these and other plans are in the best long term interests of amateur radio. In pledging to defend and enhance the status of amateur radio the Society must naturally rely on the support of its members, for it is only with the understanding and enthusiasm of amateurs that a positive future can be ensured.

David Evans, G3OUF

Technical Topics

Pat Hawker, G3VA

FRANK HUGHES, VE3DQB takes issue with the description, from time to time in *TT* and elsewhere, of amateur radio as "a hobby". He draws attention to an editorial he wrote for *The Canadian Amateur Radio Magazine* of January 1987. In this he noted that VE7AHB, in an earlier issue, had stated that "the reason why we retain our immensely valuable spectrum, despite the enormous commercial and military pressure for ever more channels is set out in the ITU *Radio Regulations* as Resolution No 640, where the only reason for exclusive amateur bands is given as the service amateurs render during emergencies . . . the glorious fun available on our bands is to be paid for by readiness to help in emergencies . . . Our bands are not there just for us to collect pretty postcards, or to see how many stations we can briefly QSO during contests, or to talk to some fool who has risked his neck to set up shop on some worthless speck of rock in mid-ocean, or to ragchew by the hour on trivialities." VE3DQB, in his letter, adds: "Amateur radio is no more a hobby than other emergency services, like St John Ambulance for instance. The best word I can think of to describe either is 'avocation'".

As someone who sees nothing much wrong – or unduly frivolous – with "hobby" (dictionary definition: an activity pursued in spare time for relaxation) I fully recognise that at the next WARC which now seems likely to be in 1992, our hf and vhf bands may indeed be under considerable threat. In 1979, at the time of the last WARC concerned with the entire radio spectrum allocations, there was a belief among many professionals that hf was rapidly losing its importance for long-distance civil and defence communications.

Pressure on hf spectrum

But now the position has changed. As many of the papers at the recent "Fourth International Conference on hf radio systems and techniques" at the IEE, London *(IEE Conference Publication No 284)* stressed, there has been a resurgence of hf for medium-distance, low-cost communications and for an increasing number of bistatic and back-scatter and surface-wave hf radars now in use or under-development in many countries. New adaptive processors and real-time channel-evaluation (rtce) techniques can provide reliable data transmission at up to about 2400 bits/second (sufficient for a secure channel of encrypted digital vocoded speech) while frequency-hopping and other pseudo-noise techniques can make the traffic difficult if not impossible to intercept. Complex error detection and correction techniques can ensure accurate copy, without the need for skilled radio operators. At the same time the problems of satellite communications, with their risks of failures during launch or in orbit, tend to have stayed more costly than was predicted. Moreover, increasingly they are seen to be vulnerable to jamming and disruption, and need to be backed up by hf if only as a fallback system.

ITU Radio Regulations

While recognising the force of VE3DQB's concern, I feel that he has put a little too much emphasis on the "emergency" value of amateur radio. Perhaps I am a little jaundiced by having once been one of several amateurs who were taken in by contacts with a station which claimed to be a ship on fire in the Atlantic and requesting help. This Tony Hancock type situation resulted in an extensive air search mounted from Canada but proved to be all part of a stupid, carefully planned hoax.

I checked the ITU *Radio Regulations* and finally traced Resolution No 640 "Relating to the international use of radiocommunications in the event of national disasters in frequency bands allocated to the amateur service". In effect, this resolution, although recognising that "the stations of the amateur service, because of their widespread distribution and their capacity in such cases, can assist in meeting essential communications needs" makes it possible for *official* stations to move into and use the exclusive amateur frequencies during "natural disasters". Certainly, the existence of Resolution 640 affords some assurance that exclusive amateur allocations will continue to be recognised, if only as emergency reserve bands for the authorities.

Instead of "hobby" we should perhaps, wherever possible, use the term "the amateur radio *service*" and recognise that this is defined in *Radio Regulations* (which has the force of an international treaty) as "A radiocommunication service for the purpose of *self-training*, intercommunication and *technical investigations* carried out by amateurs, that is, by *duly authorised persons interested in radio technique* solely with a personal aim and without pecuniary interest" (added italics). There is no role in this definition for the dabbler without any interest in radio communication technology!

Doubly-balanced product detector

In the course of an article on "Product detector performance" (*RF Design*, March 1988), Fred Brown, W6HPH, draws attention to the use of discrete cross-coupled fet devices in the convenient configuration shown in Fig 1. While this technique has been mentioned before in *TT* as a useful mixer circuit, in both bipolar and integrated form, I cannot recall mentioning its usefulness as a fet product detector.

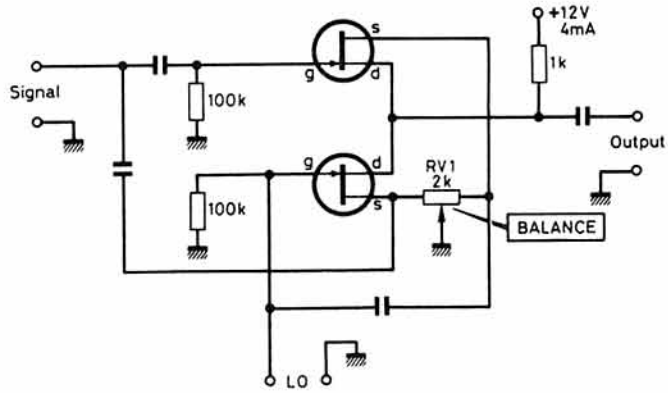


Fig 1. Doubly-balanced product detector (mixer) with unbalanced signal and oscillator drive connections based on cross-coupled fet devices (W6HPH in *RF Design*)

An advantage of this type of circuit configuration is that it has a doubly-balanced output yet does not require either a balanced input or balanced oscillator drive. Only about 1V (3mW) of local oscillator injection is needed. The signal and local oscillator impedances are 350 Ω. The output impedance is essentially that of the drain load resistor, in this case 1000Ω. W6HPH notes that the 2000Ω balance adjustment potentiometer, RV1, can be adjusted for minimum oscillator voltage at the output. The input coupling capacitor should be selected to have under 1000Ω reactance at the signal and oscillator frequencies. The value of the output capacitor depends on the lowest desired output frequency and the load impedance. Conversion voltage gain is about 2dB; a.m rejection ratio for a 100mV 90 per cent modulated signal is about 27dB.

50MHz receiver converter

The opening of 50MHz to amateurs in several continental European countries, including Holland, despite the continued use there of Band I for television, should further enhance interest in this most rewarding and valuable part of the radio spectrum. *Reflecties door PA0SE* (*Electron*, April 1988) includes information on a simple 50 to 28MHz receiver converter by PA0WFO (Fig 2) plus also some ideas for a 50MHz transverter suitable for use with a 144MHz transceiver.

The receiver-converter of Fig 2 has a noise factor of about 3dB and a total amplification of about 25dB. It should thus give excellent results when used with any reasonable 28MHz receiver. In the absence of strong local signals, for example from Band 2(88 to 108MHz) broadcast stations, it can use the simple high-pass input filter; where there are strong local signals the alternative LC bandpass filter should be substituted.

Coil and transistor information is given as: L1, L2 10 turns, 0.8mm wire 4mm diameter. L3, L4 12 turns, 0.8mm wire, 4mm diameter. The L3 tap is 2t from the earthy end. L5 is 7t, 0.8mm wire, 6mm diameter. L6 2t, 0.8mm wire, 6mm diameter. L7, L8 7t, on 5mm coil former with ▶

adjustable core. TR1 any of BFY90, BFR91, BFR90, BFW92. TR2 any of 2N200, BF905, BF900, BF960, BF981, 40673. TR3 any of 2N2222, 2N706, BC107, BC108, BC109, BF115, BF190, BF199, BF200, BF224. TR4 any of 2N2222, BC107, BC108, BC109, BF115, BF199, BF200, BF224. The oscillator section could also form part of a 28 to 50MHz transverter.

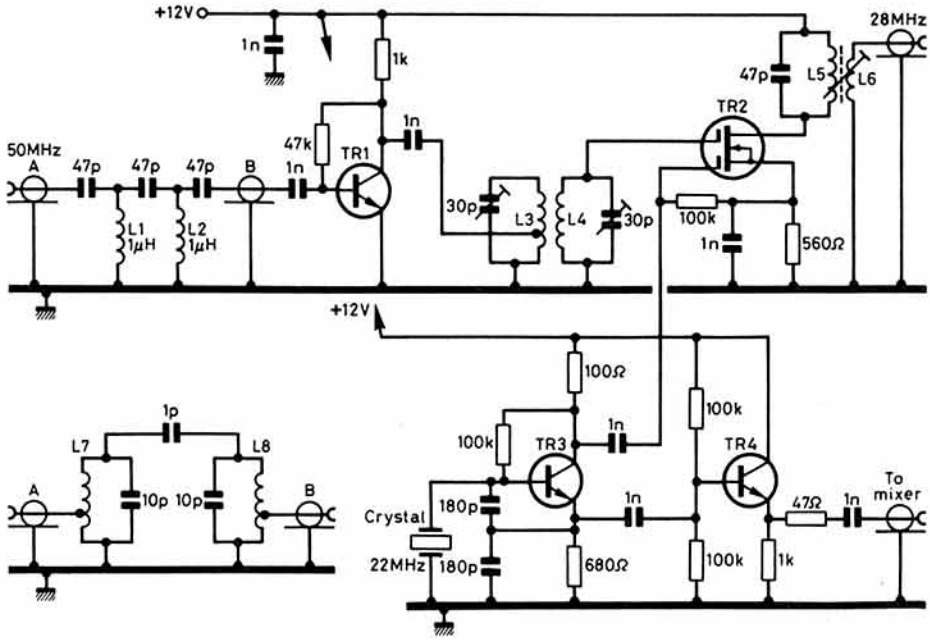


Fig 2. PA0WFO's 50MHz crystal-controlled receiver-converter with output at 28MHz. See text for coil details, etc (PA0SE, *Electron*)

Antennas for medium-haul paths

The changing role of hf for professional and military communications, with the emphasis now increasingly on its use for medium-distance links of under 2500km, has resulted in new thinking in relation to mobile, transportable and fixed antennas. The traditional whip is not suitable where maximum high-elevation radiation is required; adaptive frequency control and frequency-hoppers have similarly caused more emphasis to be given to broadband rather than sharply resonant systems. Mobility demands antennas that are easily erected.

Sky-wave radiation from a dipole only a few feet above ground is often far more suitable for distances of a few hundred miles than a 10m whip. Some broadcast antennas, particularly those for "tropical" broadcasting, have long recognised the need for antennas radiating skywards. Indeed this was once vividly described in a two-part article by Paul Sollom, G3BGL/VS7PS, "Skybeams, Moonbeams and Howitzers" (*RSGB Bulletin*, July, August 1952) where he reported his experimental work for a broadcast service from Ceylon (Sri Lanka) to Southern India with a target area some 300 to 700 miles distant. Even broadcasters aiming at world coverage are now concentrating more on "single-hop" coverage by making use of relay bases dotted around the globe, backed up by transmitters with powers climbing up to megawatt levels.

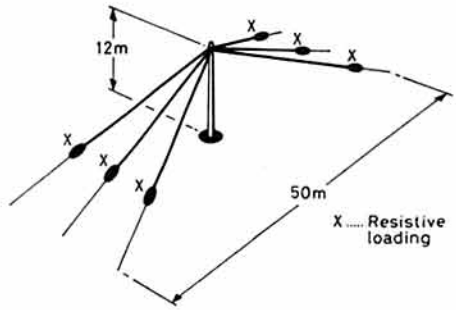
The April IEE HF Conference included a paper "Numerical modelling and design of loaded broadband wire antennas" by Dr Brian Austin (G0GSF) and Andre Fourie, describing in detail the broadband resistive-loaded antenna noted in *TT* (September 1987, p662) and also mentioned briefly in *Electronics & Wireless World* and *Ham Radio*. In the IEE paper, it is pointed out that "Radiation patterns are generally of secondary importance in applications where low-gain wire antennas are used. This is particularly so when the (transportable) antenna is frequently erected in close proximity to the ground with its orientation often somewhat irregular".

A term now being applied in professional communications is "nvis links", standing for "near-vertical incidence skywave links". A conference paper by B S Collins & B R Phillips of C&S Antennas Ltd gives the options for nvis as: compact loop antennas; horizontal low dipoles; fan dipoles; loaded dipoles; delta (half-rhombic) loops. The "most satisfactory" nvis antenna for fixed stations is given as the (sloping) log-periodic dipole array (1pda) but this is regarded as "too large and complex for transportable use."

The authors describe a new C&S professional antenna comprising a resistive-loaded broadband fan dipole supported (in the inverted-vee configuration) by a lightweight (8·2kg) 12m telescopic mast using carbon fibre reinforcement that is claimed to be capable of being erected by one person in 10min, and able to support an 8kg antenna in a wind of 100km/h. The antenna (Fig 3) is a three-wire fan dipole intended for use at any frequency between about 4MHz and about 15MHz, presenting an average and reasonably constant impedance of 450Ω. No details are given of the resistive loading devices positioned towards the ends of the dipole arms but these presumably are basically similar to those of the Australian dipole and the improved Austin/Fourie design.

The paper notes that: "the absolute gain of the antenna was compared at the lower end of its working band (ie about 5MHz) with that of a half-wave dipole mounted 0·25λ over good flat ground, confirming that

Fig 3. Practical resistive-loaded transportable fan dipole antenna with broad-band feed impedance of about 450 ohms between about 4 and 15MHz as developed for commercial and military applications by C&S Antennas Ltd (*IEE Conference Publication No 284*)



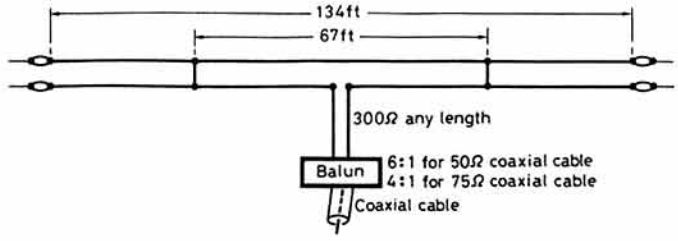


Fig 4. Dual (harmonic) band dipole. As shown it acts as folded half-wave dipole on 7MHz and as a T-matched dipole on 3·5MHz but dimensions can be scaled for 7/14 or 14/28MHz (VK1PM reported in W6SAI's *Ham Radio Techniques*)

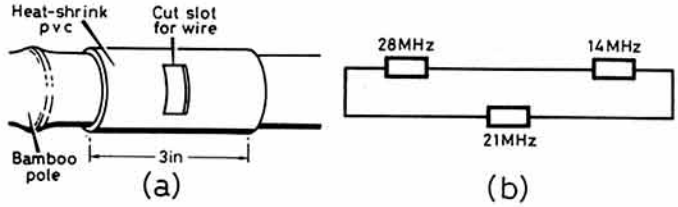


Fig 5. Construction hints for quad antennas: (a) pvc heat shrink tubing as wire support. Glue wire to quad arm with pvc cement. Two-wire wraps will hold it securely after the glue has dried. Stagger the quad wire supports on each side of the arm to distribute the stress more equally; (b) it can be better to use two smaller booms spaced about 1ft apart as supports. The wire supports shown in (a) are staggered on quad arms to distribute wire stress.

the target of -4dBi was met. At 5MHz, a 1200km ssb voice link was set up in a clear channel using a 1kW transmitter, but was still operable when the transmitter power was reduced to 7W." The antenna uses kevlar-covered conductors fitted with stainless-steel snap-hooks and fasteners. The antenna kit weighs 16kg including the mast and it has been erected single-handed in 15min.

It could be argued that hf amateurs traditionally seek long-distance rather than nvis links. Yet in practice, for the majority of us, inspection of the log-book will tend to show most hf contacts on 3·5, 7, 10, even 14 and 21MHz are, in practice, single-hop medium-distance contacts for which nvis-type antennas can provide very strong signals. Of course, the real dx-fanatic will turn his nose up at such a heresy and insist on calling dx-only on a flat band!

For those who want to increase low-angle radiation from vertically polarised antennas, right down to the horizon, another hf conference paper "Launching of hf surface waves" was by a team at the University of Birmingham who are concerned with developing hf surface-wave radar. This discusses a technique for obtaining a 3-6dB improvement in hf signal strength at ground level, when used with a coast-located vertically-polarised dipole already equipped with extensive radials filling in the space between the antenna and the sea-plane. The new technique consists of using a very large number of vertical monopole rods connected to the ground mat to provide "inductive ground loading" and thus forming a "two-layered ground". An interesting technique but, since the number of vertical rods appears to be over 500 in the trial installation, not one likely to be copied by many amateurs, although there are interesting possibilities in surface-wave rather than just ground-wave propagation over sea paths.

On the other hand, one can imagine quite a lot of locations where the dual-band (harmonic bands) antenna shown in Fig 4 could be used. This system was spotted in *Ham Radio* (March 1988) and apparently stems from Ron May, VK1PM. With the dimensions shown the antenna is for 3·5 and 7MHz, but it could be scaled down for 7/14MHz or 14/28MHz. The central 67ft portion forms a 7MHz folded dipole with the end pieces acting as decoupled quarter-wave linear traps. On 3·5MHz it functions as a half-wave dipole with T-match feed. There is of course no technical reason why the 300Ω feeder should not be brought down to a suitable atu with balanced output in the shack to avoid the need for a balun to match to co-axial feeder.

Also in *Ham Radio Techniques* (April 1988) Bill Orr, W6SAI points out that the rising sun-spot count means that it is time again to think seriously about 28MHz antennas. He writes:

"It's not hard to build a quad, but it is difficult to construct one that will stay up in bad weather. They are floppy affairs at best, and you must put a lot of thought into the physical arrangement of the antenna.

"Lloyd Hosor, W9YCB, has some interesting ideas on quad construction. He says the best quad arms are made of 'Calcutta bamboo' with pvc heat shrink tubing slid over the bamboo between the joints. The end of the arm is also sealed with a short piece of heat shrink. An acceptable alternative for the quad arm is a fibreglass (grp) drapery pole. Lloyd has found a lot of these at garage sales.

"The poles should not be drilled for the quad wire after they've been protected with heat-shrink tubing. Instead, cut a piece of pvc lengthwise to fit the pole. Cut a slot in the tubing to hold the wire and glue it to the quad arm with pvc cement. Two-wire wraps will hold it securely after the glue has dried (Fig 5(a))

"Lloyd staggers the quad wire supports on each side of the arm to distribute the stress more equally (Fig 5 (b)). He uses two smaller booms spaced about one foot apart as supports because a single boom for a four element quad will not stand the gaff in bad weather."

John Levesley, G0HJL passes along what he refers to as "just a minor but I hope helpful tip to those operators who, like me, use a tapped coil vertical hf multiband antenna (or conceivably tap a 'sloper' to change its centre resonant frequency). It is well-known that it is convenient to mark the tap points on the coil for future quick retuning of an antenna such as my Hi-Gain 18V-2. With this particular antenna care is also needed to ensure that the feeder clamp is secured outwards at 90° to the coil, otherwise there is a possibility that the close spacing of the coils will allow the feeder clamp to connect with the sections of the coil above and/or below the feed point required. The answer to both problems has proved to be the little plastic pegs sold to hang Christmas Cards from. These mark the tap points clearly and permanently, and even have ridges on the outer surface which help lock the peg between the turns of the coil. An additional benefit is that they force the coil open that extra millimetre at the tap points, preventing unwanted taps above or below the feeder clamp."

Cleaning up tvi/bci

Jim Cookson, G4XWD, draws attention to what he feels is one of the most informative articles written on the subject of advising viewers how to improve their reception that has appeared in a non specialist magazine. This was an article "Clean-up campaign" by David Martin in the April 1988 issue of *Practical Householder*. It is a well-balanced article that makes it clear to viewers that in cases of tvi "often the fault lies in your own tv set and not the transmitter".

The impression I have is that the author has studied carefully the useful DTI booklet *How to improve television and radio reception* which should be available free, from main post offices. This booklet, was introduced at the time when DTI ruled that the Radio Investigation Service could no longer undertake to respond by personal investigations to tv and radio interference complaints without making a minimum charge of £21. Among the most useful appendices to Part 2 are details on: toroidal chokes; braid-breaker and high-pass filters; fitting of ferrites and rf bypass capacitors; characteristics of filters; and available filter types. There are informative "check charts" giving guidance on determining the cause of interference, etc. Braid-breaker and mains filters in the booklet are shown in Figs 6 and 7, but there is little reason to reproduce or digest much of this information in *TT*, when UK readers should be able to

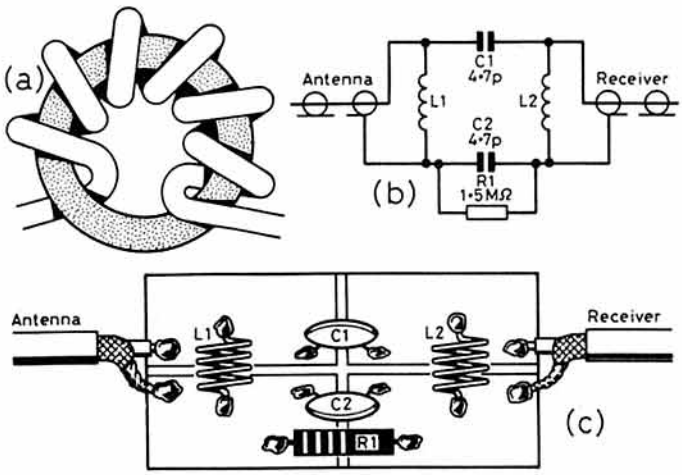


Fig 6. TVI suggestions from the DTI's booklet *How to improve television and radio reception.* **(a) "Braid-breaker form of toroid choke for use on tv antenna feeder or as a mains filter. As a braid breaker the choke should be made using small diameter (standard) co-axial cable and the ring should not be wound more than two-thirds full to reduce capacitance between the ends of the coil. The assembly should then be taped to secure the turns, and a co-axial connector fitted at each end. The coil can then be readily interposed between the co-axial downlead and the television-set's antenna socket. As a mains filter it can be made in the same way by threading the mains cable through a ferrite ring. Again wind only two-thirds full. Ferrite rings of suitable material such as Mullard FX1588 (see also TT, August 1987). (b) Combined braid-breaker and high-pass filter. L1, L2 4 turns 20 swg 6mm i/d, 6mm long. Single-sided pcb 2in by 1in. Scrape grooves approx 1·5mm wide in copper to leave four areas as shown in (c).**

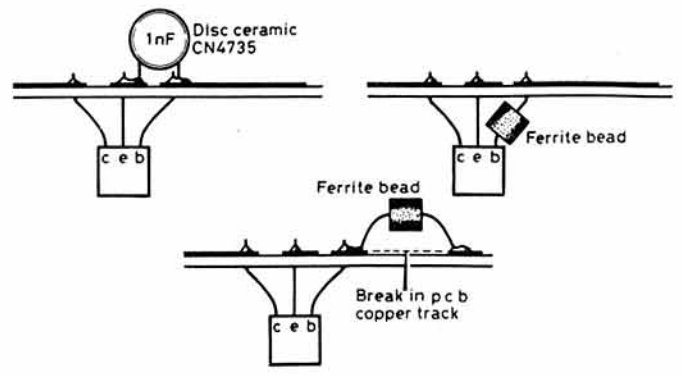


Fig 7. Fitting of ferrite beads and rf bypass capacitors as recommended in the DTI booklet. Capacitors should be disc ceramic and fitted with the shortest possible leads in order to minimise the lead inductance. The ferrite bead should preferably be fitted on the base lead of the transistor, but where this is not possible it should be fitted in the printed-circuit copper as shown. ▶

obtain a copy of this excellent 28-page (A4) booklet from any main Post Office. Even if the staff claim they have never heard of it, or that there is none in stock, it is worth pleading with them to get more from the DTI. Very large numbers have been printed – and every UK amateur should have his own copy.

G4XWD is one of those who agree that there is an obligation that all licensed amateurs should take seriously the need to "self-train" themselves to deal with technical matters. He writes: "As many are now appliance operators and openly profess no real technical interest or knowledge, how can the authorities, when they hear the inane conversations, continue to resist the pressure from legitimate business users, the military and the broadcasters etc for some of our frequencies. The sooner we all start the self-training and behave in ways which merit the retention of frequencies, the sooner our bands will be assured."

Second thoughts on G4DTC's i.f strip

Mike Grierson, G3TSO, was surprised to read in the March *TT*, in connection with the use of the Plessey SL621 agc device, the comment: "Plessey do not stress the point that it is important to decouple the agc line adequately". He points out that, on the contrary, the Plessey applications note states quite categorically that "the total decoupling on the agc line should not exceed 15nF or the impulse suppression will suffer". This means in effect that a total of three 4·7nF capacitors is the maximum practical decoupling capacitance. The total of 320nF used by G4DTC would have the effect of destroying the noise impulse suppression characteristics of the SL621. He writes: "I have constructed three separate transceivers using the SL600/1600 series of devices, all using the SL621 agc system, and none of them use more than 15nF decoupling on the agc line. Performance is excellent. All too often the SL621 is blamed for other circuit deficiencies which manifest themselves as low frequency oscillation of the agc system. The two major causes are: pick-up of local oscillator signals by the high gain i.f strip causing a residual agc bias under no-signal conditions, common on both the well-known G3ZVC and G4CLF boards, and a 6V supply to the SL621 that is high impedance. If the latter is in excess of 2Ω at lf, the 621 can be starved of current when a sudden input is made to pin one. It is also important in G4DTC's design to ensure that the local oscillator signals are removed from the SL623 during a.m reception if the agc system is to function correctly.

Ray Howgego, G4DTC, has commented: "I agree with all that G3TSO says, particularly the excessive decoupling of the agc line. This oversight, on my part, arose as follows: the prototype was constructed on separate pcbs on an open chassis and incorporated only two 10nF decoupling capacitors close to the 612 devices, in awareness of Plessey's recommendations. However, it was found that some instability appeared to be present, and was traced to the presence of local oscillator voltage on the agc line. At that point, totally forgetting Plessey's advice, an attempt was made to crush this voltage by heavy decoupling. My notes and circuits were prepared at this point. However, when the receiver was rebuilt as a permanent installation, the improved layout and screening did not necessitate the use of the extra capacitors and they were subsequently omitted, reverting to just 20nF of decoupling (even this could be reduced to advantage). Apologies to anyone who used the excessive decoupling, though constructors would probably not have noticed the difference in performance."

Components for home-brew projects

Recently, I received a letter from a Californian amateur who has visited England several times in recent years commenting how difficult it had become in the USA to obtain the parts for home-brew projects. He felt that, by comparison, UK amateurs are still well served. I was reminded of this lament by an article "Home-brewing equipment, from parts to metal work: helpful hints to get you started" by Paul Johnson, W7KBE (*Ham Radio*, March 1988, pp26-28). His introduction began: "Why are so few hams building electronic gear these days? To find out I conducted a survey among my friends. Three major reasons are: (1) Lack of parts and difficulty in finding the necessary materials at reasonable prices; (2) Choosing the wrong projects. Some pick projects that are of no use to their ham operations or that are too difficult for them to complete; and (3) The challenge of metal work can be overwhelming". He offered the following sources of inexpensive parts: (a) Local club sales and auctions. Heavy second world war equipment (often called boat anchors) usually sells at give away prices. Strip down for usable parts and hardware. Keep all screws, nuts, spacers, and small parts such as capacitors and resistors. (b) Garage and silent-key sales. Look for wire, solder, tools, coaxial fittings, connectors, etc. Store for future use. (c) Hamfests (and mobile rallies), electronic surplus houses, junk yards, ham friends, on-the-air swap meets.

Start with useful projects like field strength meters and antenna tuners before tackling more complex projects such as linear amplifiers. Remember that the foundation of any project is a panel, a chassis and a cabinet.

In *Amateur Radio* (VK), Drew Diamond, VK3XU, offers some practical tips on vfo construction. He writes: "There is a puzzling tendency these days for some builders, especially manufacturers, to make a vfo using sloppy techniques, and then to tack on a phase-locked loop (pll) to stabilise the thing, so adding unnecessary complexity (and phase noise) and reducing the overall reliability of the device. If the amateur is prepared to put a little thought, effort and material into the job by following some pretty well established guidelines, the result will be a quality vfo without the need for the pll panacea." See the May *TT* for hints on building stable vfos.

QST (March 1988) carries Part 1 of an informative contribution by John Grebenkemper, KI6WX, "Phase noise and its effects on amateur communications". He points out the phase noise of oscillators is a subject that remains a mystery to many amateurs yet is an important performance parameter of our equipment. I recall attempting to introduce the subject of oscillator noise and its importance in amateur equipment as long ago as April 1968, based on some notes from Walter Schreuer, K1YZW/G3DCU, and the text-book *Vacuum Tube Oscillators* by Edson. KI6WX points out that hissy interference from off-frequency local signals is often the result of reciprocal mixing brought about by oscillator phase noise, and that on a transmitted signal it causes effects identical to phase noise generated in the receiver. Phase noise on an oscillator signal has exactly the same effect as frequency modulating the oscillator with noise.

He notes that there is no theoretical reason that prevents a phase-locked oscillator from having as good as or even better phase-noise characteristics as a free-running oscillator using an lc tuned circuit – although this is most unlikely to be achieved in practice with low-cost pll oscillators. He illustrates the significant difference in phase-noise between the IC751A, the TS-930S, and the FT-767GX.

Howarth Jones, GW3TMP, of TMP Electronic Supplies, Unit 27, Pinfold Workshops, Pinfold Lane, Buckley, Clwyd CH7 3PL (telephone Buckley (0244) 549563) noted the information in *TT*, August 1987 on the different ferrite core mixes and their uses for interference suppression. This was based on information from K6NY of Palomar Engineers of California. It seems opportune to repeat a note included many years ago, that TMP is a UK source for Amidon toroidal cores in the various mixes. GW3TMP mentions that although he has had small advertisments running for many years, he continues to be surprised at the number of letters he receives saying "I've been trying for years to find out where I can obtain a T50-2 core, etc". He feels that there must be many readers who wondered how to get hold of cores, split cores and beads similar to those mentioned last August without writing to the USA. Hint taken?

Tips and topics

Zack Lau, KH6CP, in the March issue of *QST* illustrates how a matched dummy load for those really high-power amplifiers (up to 1,500W) can be formed from four lower-power dummy loads by means of two quarter-wave coaxial matching sections: Fig 8. The only problem is that the load becomes frequency sensitive and suitable for use only on one band. On that band, however, it should be possible to obtain an almost perfect 1:1 vswr. The coaxial matching sections should be **electrical** not physical quarter waves and must be capable of handling the power.

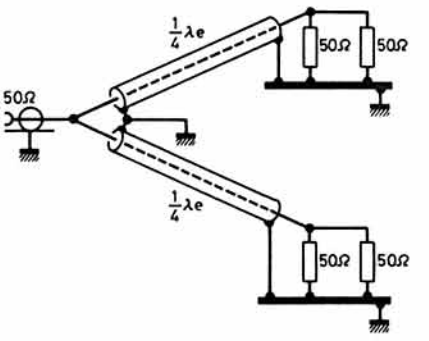


Fig 8. Forming a matched high-power dummy load from four lower-power dummy loads by the use of quarter-wave (electrical) matching sections of co-axial cable. But note that such a dummy load is effective on only one band (KH6CP)

Mobile installation check-list

In his "fm/rpt" column in *QST* (January, 1988, p67), Stan Horzepa, WA1LOU, includes a useful list of points to be taken into account when installing amateur-radio transceivers in vehicles. He writes:

1. Radio controls, microphone and tone pad should be located so that they can be reached by the driver without the need for changing position or detracting attention from the road.

2. For safer operation, leave both hands free for driving by using a headset microphone that can be activated by a ptt switch mounted on the steering wheel (Remember the UK's revised Highway Code – *G3VA*)

3. Cords and wires should be routed so that they will not entangle the driver's hands or feet or interfere with steering, braking or shifting gears.

4. Before taking a drill in hand to make holes for mounting the radio equipment or for routing cables, check to see what is on the other side of the drilling site; in today's compact vehicles, almost any spot that you pick to drill will have something on the other side of it.

5. Use a pair of heavy cables to supply sufficient current from the battery to the radio equipment.

6. Install a fuse near the point of connection to the battery or to your vehicle's electrical system.

7. Wherever a cable passes through a wall or partition in your vehicle, the cable should be protected by a grommet.

8. For best omnidirectional coverage, a mobile antenna should be located on the roof in the centre of your vehicle.

9. Use a magnetic-mount antenna if you shudder at the thought of drilling an antenna mounting hole through the exterior of your vehicle.

10. Eliminate spark plug noise by using (a) resistive spark plug suppressors, (b) resistive spark plugs and/or (c) resistive-wire cabling between the distributor and the ignition coil. (c) is the most effective method of suppressing this type of interference.

11. Today, many vehicles come off the assembly line with resistive-wire cabling already installed; however, after a few years, this cabling may deteriorate (as evidenced by cracked insulation) and should be replaced for continued effectiveness.

12. To protect your equipment against theft, use a sliding mobile mount that allows the radio to be quickly removed and stored out of sight or carried away with you when you leave your vehicle unattended.

While, as noted before in *TT*, difficult cases of electrical interference from accessories or digital electronics may require additional measures, the American list of do's and don'ts seems a useful starting guide.

Using the PL519 and other tv valves

By coincidence, Del Arthur, G0DLN, has come up with a number of points to consider when using PL519 and other television "sweep" (line-output) valves just in advance of the publication of the item in the May issue, provided by G4DTC, on using these valves in linear amplifiers. In effect, G0DLN's remarks were prompted by "misconceptions in linear valve amplifiers" by G3RZP in the April *TT*, p265 but can usefully be considered as adding to both items. G0DLN writes:

"I have recently built an hf amplifier using three PL519s and agree with G3RZP that it is essential to use separate bias potentiometers when using tv sweep valves. The constructor **must**, however, be cautious in the choice of such potentiometers. Most carbon-track pots are rated only 1W or less and the probable dissipation must be worked out beforehand, and a good safety margin allowed. **Never** use secondhand carbon pots or you may lose one of your valves in a matter of moments. If the bias supply voltage is high enough to cause problems with dissipation, the pots can usually be padded with external resistors using Ohms Law. I also use a wirewound 'master' bias control pot on the front panel. The obvious way to adjust these pots is to equalise the currents at the intended operating point. However, a simpler, and I believe better, way is to start with all pots set for low current and then adjust them one by one until each anode is just starting to cherry up (in semi-darkness). The operating point should turn out to be just below this level. I have found this latter procedure produces the best two-tone envelope at maximum power.

"G3RZP wonders if anyone has tried series feeding the pi-filter as shown in the April *TT*, Fig 5. After many experiments I have recently been using this method rather than the more common shunt-fed method with its attendant problems of unwanted resonances. In the series-fed circuit the rf choke is in no way a critical item. The only disadvantage that I can see (apart from the high-voltage variable capacitors) is that you end up with the full ht voltage on the tank coil.

"Anyone thinking of using sweep valves should be warned that owing to the very high input capacitance of these valves there will be a high vswr between the transceiver and the amplifier when a passive-grid input arrangement is used. This can affect 14, 21 and 28MHz quite badly in the case of solid-state tranceivers. However the problem is easily overcome by shunting the dummy-load grid resistor with a parallel tuned circuit of low-L and high-C. The high-C will swamp out the input capacitance of the valves (which varies with temperature) and it is quite easy to adjust to the operating frequency. This has the useful by-product of acting as a harmonic trap.

"PL519s are plentiful, cheap, and altogether good news for those wishing to work ssb at high power. However, they do not like accepting a single tone at high power for any length of time. Tune-up should start at low-input levels and full-power tuning done in short bursts of only a few seconds duration."

Background to the Eddystone 940

The recent references to the 'sixties Eddystone Radio receiver type 940 has prompted Bill Cooke, now G0ION but for more than 50 years' successively chief engineer, managing director and chairman of Eddystone Radio, though recently retired, to fill in some details of how the 940 came to be born. He writes:

"Eddystone for many years had a very good market overseas for what was termed the discriminating swl but by the 'sixties were concentrating on professional models for Sweden, Germany, Canada, Australia and the USSR as well as the MoD in the UK. The success of that side of the business had left our agents without a really saleable receiver for the 'discriminating swl'.

"Lack of really volume business on some early designs had resulted in some considerable surplus of many items held in the Eddystone stores. At that time Harold Cox was technical director and he set me the task, as chief engineer, of designing a receiver using what we had in stock with only minimum additional purchasing. An inventory indicated that this should be possible; and a target of less than six months to the start of production was set. It was not the intention to consider this as a 'professional' Eddystone receiver since these were normally all designed to meet various government specifications and 'approvals'.

"Several hundred 940 receivers were manufactured initially for sale to agents throughout the world. Few if any problems arose during production and it was rare indeed to come across a faulty 940, though I feel sure that some of the other Eddystone valve receivers of that period could equally be considered as 'classic' designs."

Bill Cooke recently took the RAE and morse test and has now become an active amateur. But he looks back on his 50 years spent alongside many well-known amateurs, arguing and enjoying every minute spent discussing the design of receivers and transmitters, not to mention Eddystone's little-known approach to the television receiver market.

G0ION's letter reminded me of a pleasant day spent at the Eddystone factory in the 'sixties after which I wrote some notes on the early history of a firm that played a dominant role for many years as a UK manufacturer of high-grade communications receivers and components. Even now few of the many who have used Eddystone products know that it all started when women began to cut their hair short in the period following the end of the first world war.

The Eton crop, the bob and the shingle meant a dramatically falling demand for the once popular wire hair-pins. This was a disturbing trend for the Birmingham costume-jewellery firm of Jarrett, Rainsford and Loughton who had a factory turning out six tons of hair pins each week. In 1922, G Stratton Loughton took this part of the firm into the new "wireless" business as one of the companies associated with the original British Broadcasting Company.

The competition proved intense and some five years later Harold Cox and Arthur Edwards changed the emphasis from medium to high frequencies. This soon resulted in such models as the Eddystone "All-World Four" which in its "ant-proof" aluminium die-cast case brought the BBC Empire Service and other early short-wave broadcasts to many tea and rubber planters in the Far East, so helping to pioneer the concept of "tropicalised" radio equipment. For amateurs the modest "All-World Two" with its ingenious bandspread plus bandset tuning was an extremely popular "first model" in the late 'thirties – as many of us still remember.

Later Eddystone helped pioneer the use of vhf for police radio, providing an emergency communications network for the London police just a few weeks before the outbreak of the second world war in September 1939. The company suffered severely in the blitz and were finally forced to move into the old West Heath Lido swimming baths (known as "The Bath Tub") where it became the first radio company to operate from a swimming pool – still I believe their home as a subsidiary of GEC-Marconi. □

400 WATTS, AND COASTS ALONG

STEP-BY-STEP INSTRUCTIONS FOR BUILDING G0DZU'S POWERFUL HF BAND 4CX1000A LINEAR AMPLIFIER WHICH STANDS UP AGAINST ANY "JAP-PACK"

For me, Amateur Radio is about experimentation and discovering the best way of achieving good results with minimum expenditure and resources. This often means that a lot of time needs to be spent hunting down that rare component and trying out new circuit ideas. This is all part of the enjoyment of the hobby. There are, alas, few major construction projects these days which allow you to feel that what has been achieved will work as well as that 'Japanese black box' but one of the exceptions to this is the hf linear amplifier, where the valve still reigns supreme.

This was to be a once-only project so the final design needed to have high reliability with excellent performance to match. The power rating was an important decision, considering the possibility that the legal limit may be increased in the future.

In the process of constructing this amplifier, a lot of information has been accumulated which should be of use to other amateurs wishing to construct a similar project, as well as being of general interest. I have attempted to write this article in such a way that it emphasises the pitfalls, which are not always apparent from reading text books. There are also a number of features which depart from normal practice.

I make no excuse for the size of the finished amplifier, which consists of two 19in by 10·5in racks in a floor mounted cabinet. The glowing reports of excellent signal quality more than compensate for the size and weight. Besides which my wife Tricia regards it as a "nice piece of furniture", (perhaps this is because she is also licensed). On a more sobering note, this project should only be attempted if you feel confident in working with high voltage circuits.

It must be emphasised that the voltages involved should be treated with considerable respect. Do not be tempted to work on the live circuit, particularly if you are tired, for this is when accidents can occur. If you are making any adjustments inside the cabinet, always discharge the capacitors with a large resistor first and then a shorting bar, before touching anything.

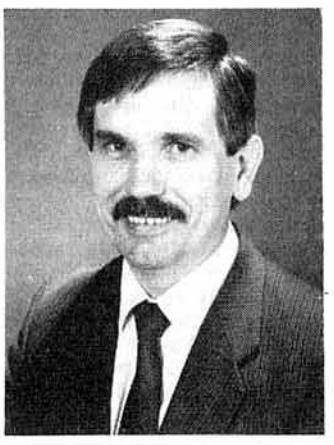
THE CHOICE OF VALVE

In studying valve specifications, the 4CX1000A beam tetrode appears to be an ideal choice. They are capable of achieving high gain with excellent linearity and were specifically designed for use in Class AB1 rf linear amplifiers.

Cost is always an important consideration. I have obtained a stock of twelve ex-equipment valves from various sources at reasonable prices. Eight of these were in excellent condition and three suffered from high negative screen current but were still usable. Only one was useless owing to a short circuit between the grid and screen. It has since been discovered that the grid construction of English Electric valves is not as mechanically rugged as Eimac. When buying secondhand it is advisable to check for obvious faults before handing over the money.

I noted comments in past issues of *Rad Com* which emphasise the care required to protect the 4CX series valves from damage, particularly with regard to the switch-on procedures. Although a number of features have been incorporated which limit the possibility of damage, the design has been kept as simple as possible.

As I had accumulated a good stock of valves, it was decided to sacrifice one of them in an attempt to discover what damage can be caused by a range of abuses. As it turned out, this valve remained in good working order, even when on one occasion a screen to anode flashover occurred.



Peter Barker has been interested in radio and electronics since his school days in the sixties and became licenced in 1978 with the callsign GW80SY. He moved from North Wales to Southern England in 1979. With the help of fellow amateurs and morse classes at the Salisbury Radio and Electronic Society, he obtained his A licence in January 1986. Much of his radio equipment is home constructed and the station is also operated by his wife Tricia under her own callsign G0HLA. Professionally, Peter is Technical Director of a Romsey-based company who manufacture capacitors and mains filters. He has several patents to his name and is also a member of UK and International committees involved with the preparation of safety and performance standards.

AMPLIFIER CONNECTIONS

The circuit of the complete amplifier chassis is shown in Fig 1. Connections are made to the power supply chassis by plugs and leads. The high voltage plug (A) is the main ht supply and (C) is the ht negative which provides a return to ground through an ammeter M1.

There is an interlock link (D) and (E) which prevents a latching relay on the power supply chassis from holding in should, the plug carrying (B) to (E) become disconnected. The mains plug (F) to (H) is also connected to the power supply chassis. RF input (L) and Output (M) together with (I), (J) and (K) are connected to the relay changeover circuit.

THE AMPLIFIER GRID COMPARTMENT

Input (L) is connected to a low pass filter circuit C32 and L1. This is necessary to compensate for the high input capacitance of the 4CX1000A (81pF) which would otherwise result in high VSWR at 28MHz.

A passive grid arrangement was chosen for its simplicity and inherent stability. No neutralisation is required provided that the leads to the grid are kept as short as possible.

Power from the driver transmitter output is terminated in the 50Ω resistor R5. This resistor is positioned in the main air flow and needs to be of sufficient wattage rating to dissipate the maximum input drive of 30W. If your transmitter delivers 100W and is difficult to adjust to 30W then you can use the power attenuator (Fig.6).

RF voltage is fed to the grid of the 4CX1000A through a coupling capacitor C4 and bias voltage is applied through RFC4. As the amplifier operates in class AB1 the grid is driven by voltage only and under normal conditions there should be negligible current flow.

The connections to the valve starting with the bottom set of fins are: heater, heater/cathode, control grid and screen. Heater decoupling capacitors C5, C6 and C7 are connected across the first and second set of base terminals. It is necessary to earth the second set by soldering 3 separate wires direct to ground.

The valve base has a built-in bypass capacitor Cx and it is important to protect this from damage due to disconnection or failure of the screen supply, which would otherwise result in the screen assuming the same potential as the anode, probably destroying the valve in the process. For this reason I have placed three separate screen supply bleed resistors directly across the screen terminals of the valve base and these are kept cool by the main air flow. There is also a transient voltage protector connected from screen to ground as it is possible for negative screen current to exceed the current drawn by the resistors. All supply leads are decoupled to ground through 1000pF lead-through capacitors.

HEATER, GRID AND SCREEN SUPPLIES

A single transformer is used for the heater, grid and screen circuits. This could be either a secondhand transformer, dismantled and rewound with new secondary windings or a kit transformer. Toroidal transformers are not recommended, as the low leakage reactance would result in high switch-on surges and would subject the valve heater to excessive thermal shock. I used a 200VA RS Components transformer system. Information on how to wind the secondary to produce 270V – 0 – 270V, 20V and 6V is detailed in the parts list.

The Eimac recommended heater supply is 6V+ or −5 per cent at 8A to 10A. The heater voltage across the base with the valve in place measured 5·8V with 240V primary and this is ideal for long valve life. The heater voltage may be adjusted slightly by altering the length or gauge of the connecting wires between the power supply and valve base. Adjustments should be made using an accurate digital voltmeter making appropriate compensation for the mains voltage at time of measurement (in the UK the 240V nominal mains can vary between 226V and 254V).

The 270V – 0 – 270V ac is full-wave rectified by diodes D7 and D8 and smoothed by C20 and C21 to provide a positive supply for the screen

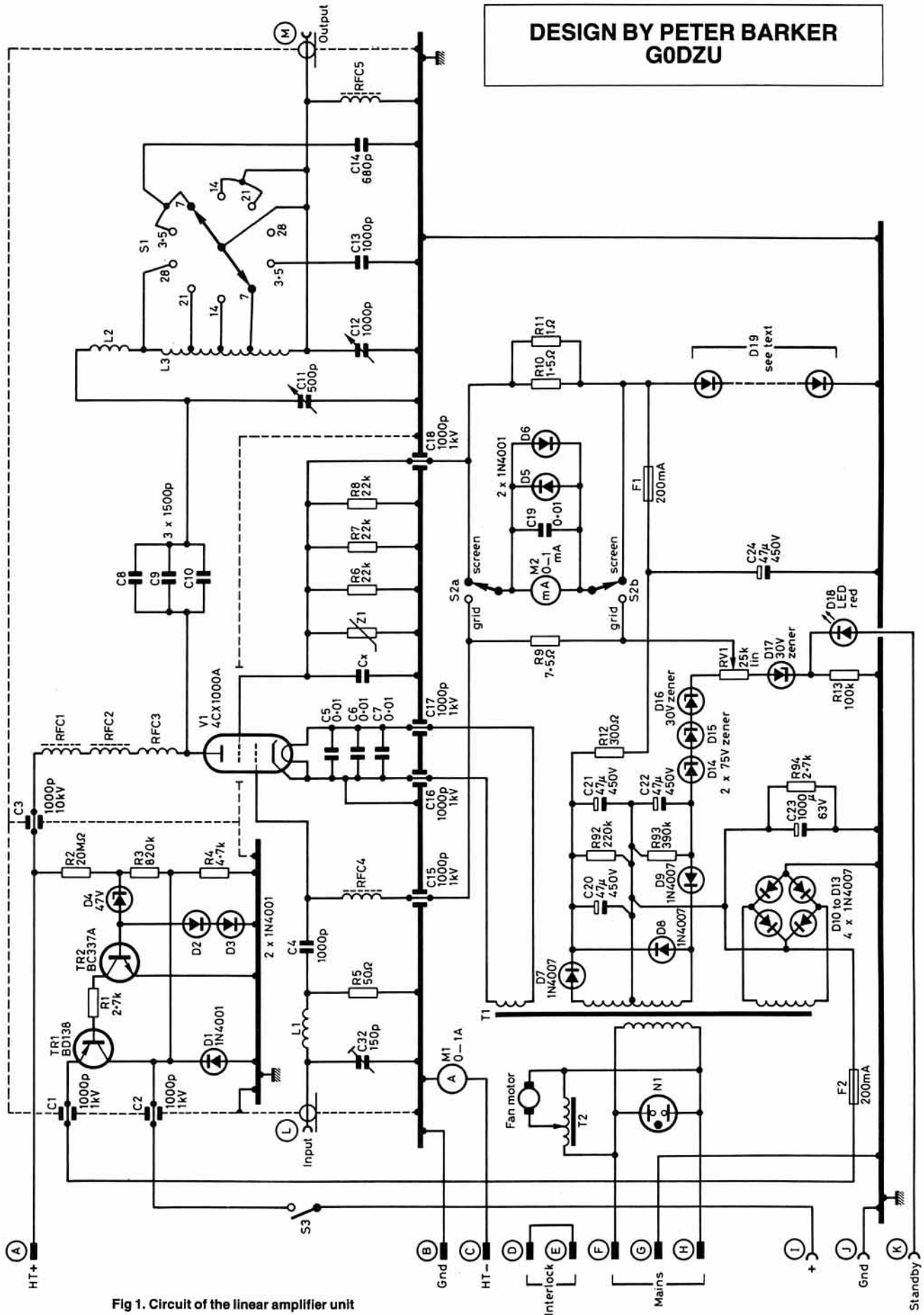


Fig 1. Circuit of the linear amplifier unit

circuit. The same winding is half wave rectified by D9 and smoothed by C22 to provide a negative supply for the grid base. A 28V DC supply is derived from the 20V winding, bridge rectifier D10 to D13 and capacitor C23. This supply powers the changeover relay circuit shown in Fig 7. The 28V supply is also connected in series with the grid bias and screen supply to increase the voltage to R12 and reduce the voltage to O14.

The required grid bias voltage is approximately −60V during operation and −150V during standby. To reduce from −150V to −60V the standby terminal is connected to ground causing the led, D18 to illuminate. The bias is adjusted with RV1 which is part of the potential divider chain D14, D15, D16 and D17. The D17 zener diode voltage was chosen to provide the greatest stability of standing anode current with normal fluctuations in mains voltage. Reducing the D17 zener diode voltage causes a reduction in anode current with increased mains voltage. The diode referred to in the parts list was found to be optimum.

Stabilisation of the screen supply caused many problems during the development of this amplifier. Various circuits were tried including power transistor regulators and series connected 56V 20W zener diodes. These either produced poor linearity or gave reliability problems during fault conditions. The zener diode arrangement also suffered from poor thermal stability, ie as they became hot the screen voltage increased due to positive temperature coefficient. The 4CX1000A has a tendency to "pull" the screen supply towards the anode potential producing further temperature rise and although this problem could be reduced to manageable proportions if a large heatsink is placed on the zener diodes, I decided to search for an alternative solution.

It became clear that the 4CX1000A requires a low impedance screen supply which must source or sink large amounts of current. The final arrangement consisted of a bank of 420 diodes (D19), series connected in their forward conducting mode, giving a forward voltage drop of 325V. This directly replaced the zener diodes. On the face of it this may appear to be an expensive and laborious approach, but suitable diodes such as the IN4001 cost only 50 per cent more than my zener diodes.

Construction of the supply

Construction is easy using 0·1in matrix board assembled in a zig-zag pattern as illustrated in Fig 2. The diode assembly was resin potted in a shallow box made from aluminium sheet; this was then screwed to the chassis near the blower inlet. A number of taps on the diode bank near one end were included to provide adjustment of the screen voltage.

The finished screen supply gave all the properties required with rock solid stability, the ability to withstand large current surges without damage and the advantage of negative temperature coefficient which causes the valve to reduce power should overheating occur. Note that the screen supply fuse F1 is on the power supply side of the diode bank. This is to ensure that the screen is firmly tied down by the diodes even if the fuse should blow. Valve damage may occur if the screen is not protected against excessive current resulting from bias failure. F1 must be a fast blow fuse of 200mA rating. Many of the fault conditions simulated have caused F1 to blow without damage to the valve, but only because the correct rating has been used.

The capacitor C24 was found to improve linearity slightly by decoupling the screen supply to ground at audio frequencies. R12 was adjusted to 300Ω to provide a standing current of 100mA through F1. As 40mA is drawn by the screen bleed resistors, the meter, when switched to the screen position will be offset by this amount allowing both −ve and +ve screen current to be monitored. The meter is scaled to read −40 to +60mA screen current and 0 to 10 mA grid current.

It may be necessary to adjust R9 and R10/R11 to calibrate the meter and I found it easier and safer to carry out this calibration against an accurate multimeter before installing the resistors in the circuit. It may appear as if I have the connections from R9 to S2a and S2b the wrong way round but during tests on my "sacrificial valve" I found that reverse grid current occurred with excessive input drive and this was the only condition that produced grid current.

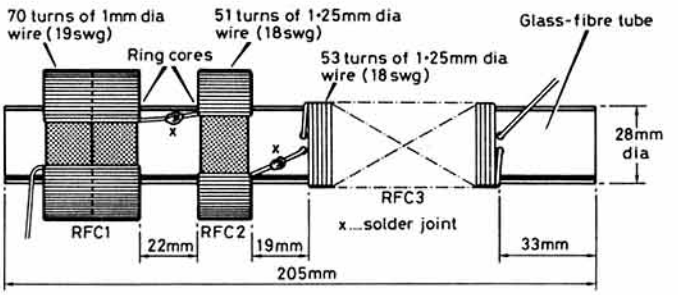


Fig 3. Anode choke

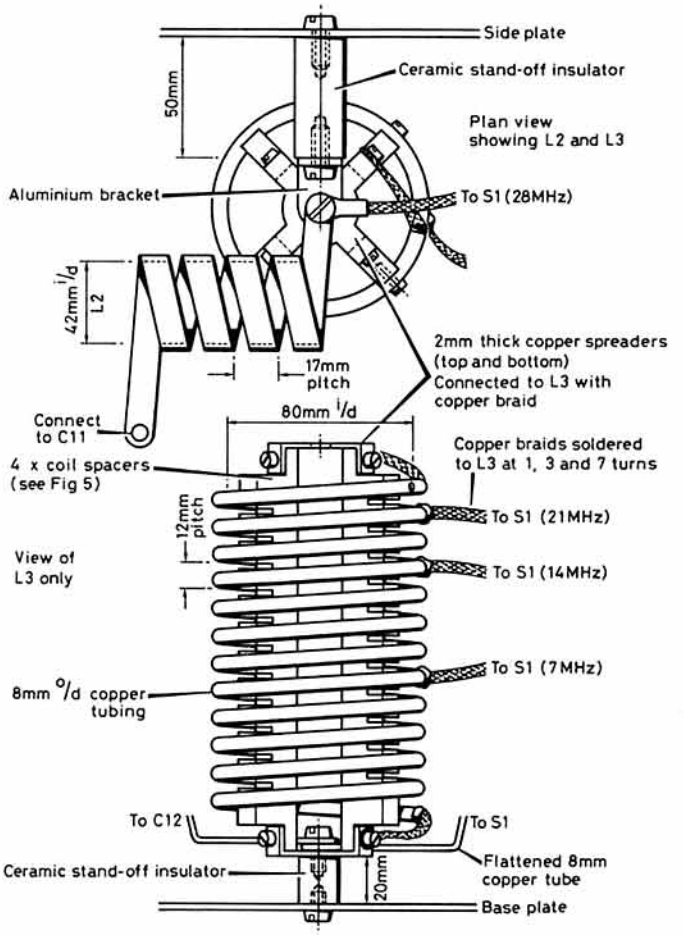


Fig 4. PI tank coils

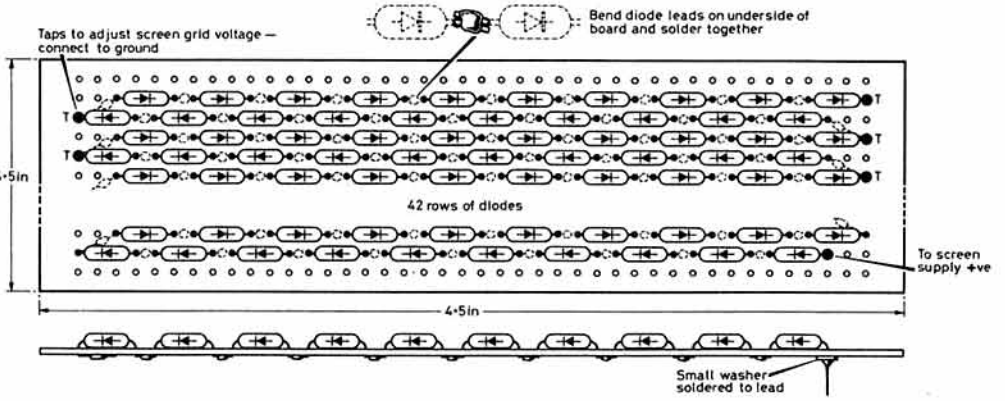


Fig 2. Diode bank for screen supply

ANODE COMPARTMENT

The anode circuit is a conventional arrangement but construction of some of the components differs from normal practice. The anode choke proved to be the most troublesome item. The first design tried was wound by the traditional method of gaps between progressively shorter sections. This was checked by a spectrum analyser which revealed that there were six resonant frequencies, but despite careful adjustment of the turns to prevent resonance within the amateur band this was shown to be unsuitable as overheating occured at the higher frequencies. A second choke was wound with no gaps, reducing the number of resonances to five. This performed better than the first choke, but again fell short of an acceptable solution as overheating still occurred

Multi-band choke – the solution

After a great deal of experimenting with different diameter formers and various wire gauges, it became evident that it was relatively easy to design a choke for only one band, but the difficulty arose when a single choke was required to cover all bands. The problem was finally resolved by producing three independent chokes mounted on the same former. This is illustrated in Fig 3.

A low inductance choke RFC3 was wound on one end of a glass fibre tube; this was adjusted to give high impedance on 21 and 28MHz. A second choke RFC2 was wound on a low permeability ring core which was salvaged from a junk Decca Voyager marine radio. The core fitted snugly over the opposite end of the glass fibre tube. Adjustments were made to RFC2 at 14MHz with RFC3 and RFC2 connected in series. A third choke RFC1 was added to cater for the 3·5MHz and 7·0MHz bands. This consisted of two of the cores used for RFC2. The final assembly was checked on the spectrum analyser and was found to have only two resonant frequencies. With the choke in place the amplifier was driven to full output into a dummy load for 10 minutes on each band in turn. The maximum temperature of any of the chokes did not exceed 85°C.

"Mini-bore" coils

Connection to the 4CX1000A anode was made with an 80mm diameter clamp constructed from flattened 8mm od "minibore" tubing to form a copper strip. This tubing is readily available from DIY stores. One end of the strip extended by 80mm to enable connection to the three capacitors C8, C9 and C10. A second strip made by the same method connected the other end of the capacitors to C11 and L2. Construction details for the pi tank coil are shown in Fig 4. L2 and L3 are also constructed from 8mm od "minibore" copper tubing.

For L2, a 750mm length of tubing is flattened in a vice to form a 12mm wide strip which is then wound on a temporary 42mm former. For L3 a four metre length of tubing is fully filled with water and each end flattened and folded over twice. Wind the tube around an 8φmm former and then cut off the ends, to produce a neat coil. The water is simply a means of preventing the tube from collapsing. L3 is mounted at right angles to L2 on ceramic insulators. Four internal supports are required for L3, one of which is shown in Fig 5. The remaining three have the castellations positioned 3mm, 6mm and 9mm off centre to match the coil spiral.

A vacuum variable capacitor was chosen for C11 because of the much reduced size and lower minimum capacitance compared to air spaced types. If an air spaced capacitor was used it is doubtful whether the amplifier could function on the 28MHz band. A 10kV capacitor was used but a 5kV would suffice. A vacuum variable capacitor was also chosen for C12 but this is not essential as the voltage at this point is less than 250V. A multi-section air spaced capacitor of the type used in valved receivers would be suitable. Connection between S1 and the capacitors C13 and C14 were made using copper braid stripped from UR67 cable. To reduce losses, the braid was doubled by stretching one length and threading it through the middle of another. RFC5 is not critical, but must be capable of carrying ht fault current. Its only function is to cause the ht fuse to blow in the event of capacitors C8, C9 or C10 becoming short circuit, thus preventing dangerous dc voltage from reaching the output.

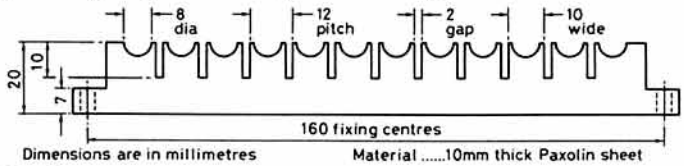
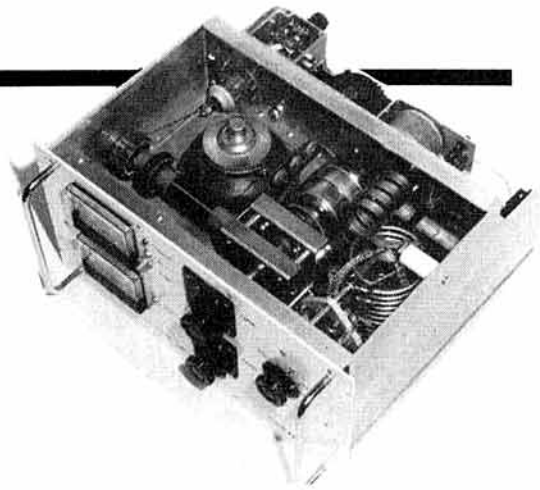
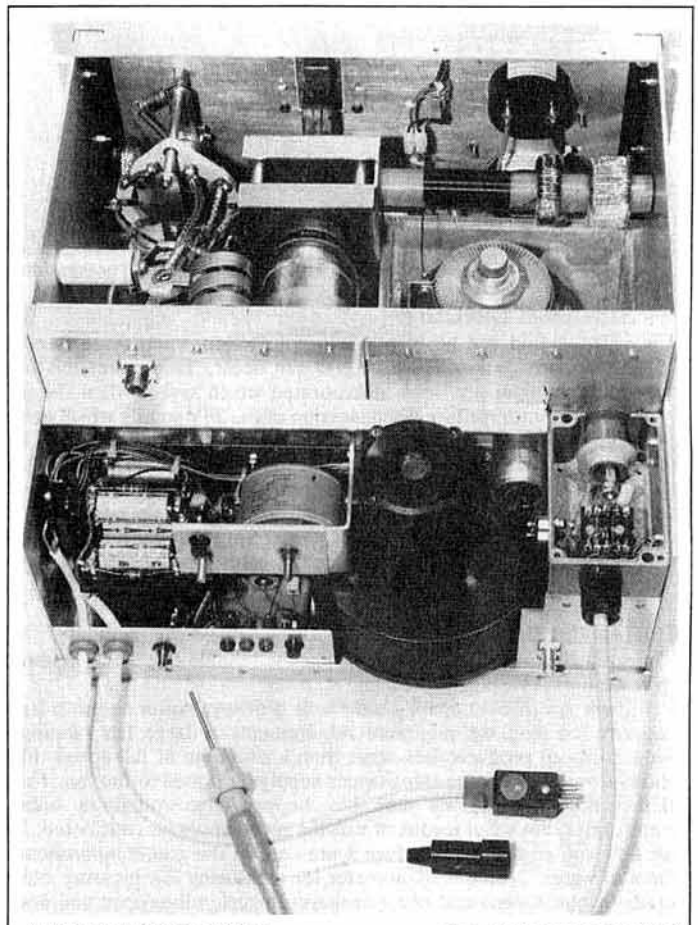


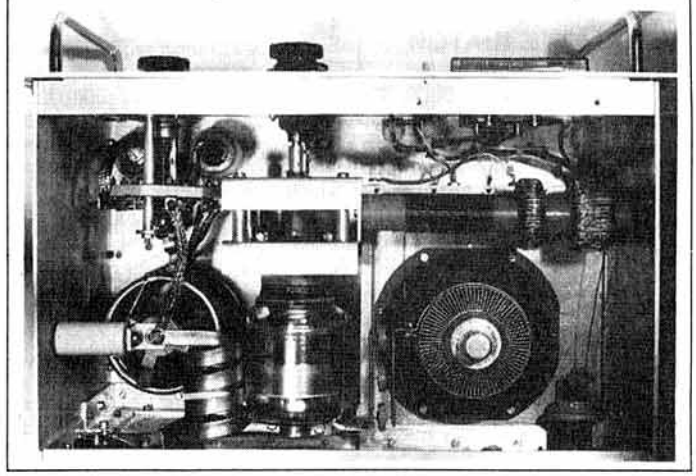
Fig 5 One of the four spacers for L3

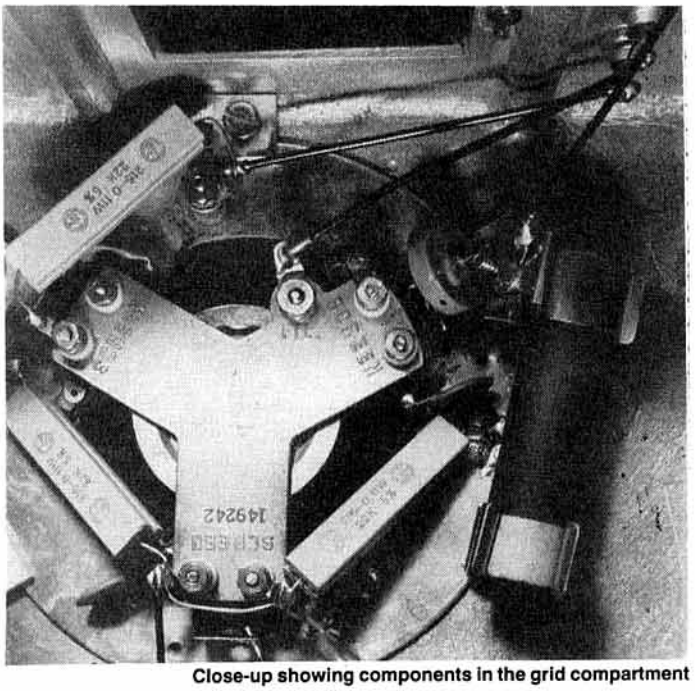




▲ Rear view of the amplifier

The anode compartment ▼





Close-up showing components in the grid compartment

HT SENSING CIRCUIT

The valve should not be biased into conduction when there is no ht present or damage to the screen grid can occur. To prevent this from happening a circuit has been incorporated which senses when the ht is below 800V. This results in disconnection of the 28V supply which in turn prevents the amplifier from being operated. The sensing circuit is in a separate screened box which contains one side of the high voltage leadthrough capacitor C3. The circuit, consisting of TR1, TR2, D1 to D4 and R1 to R4 is built on a tagboard. Feedback between the output and R4 ensures clean switching action. The linear amplifier may be manually disabled by means of switch S3 which is connected in series with the output of the sensing circuit.

THE COOLING FAN

The size of the cooling fan is important for reliable operation. It should have a minimum capacity of 25cfm.

If there is sufficient space available it is always better to use a larger capacity fan than the minimum requirement. A large fan running at reduced speed produces less noise than a small fan at full speed. Fig 1 shows a variable voltage transformer supplying power to the fan. I used this method because my junk box happened to contain a suitable transformer, but other means of varying speed could be considered. The air flow was adjusted to produce a pressure in the grid compartment of 5mm of water. A simple manometer for measuring low pressure can be made by placing one end of a transparent plastic tube (open end down) alongside a ruler in a jar of water. Displacement of water in the tube can then be measured.

INPUT ATTENUATOR

Construction details for a 6dB power attenuator are given in Fig 6. This will enable the output from a 100W transceiver to match the 25/30W input required by the linear amplifier. The only component worthy of comment is the 50Ω solid resistor which was obtained from one of the stalls at a recent rally. SWR of the assembled unit is better than 1·1:1 at 30MHz. □

NEXT MONTH

Full details for constructing the power supply, plus instructions for firing up and aligning the linear amplifier

COMPONENTS LIST – AMPLIFIER

R1	2·7kΩ 0·25W
R2	20MΩ 2W 3kV minimum, or 6-off, series connected 3·3MΩ 0·5W carbon film
R3	820kΩ 0·25W
R4	4·7kΩ 0·25W
R5	50Ω 30W solid carbon (see text)
R6, 7, 8	22kΩ 11W wire sound
R9	7·5Ω 3W wire wound (see text)
R10	1·5Ω 3W wire wound (see text)
R11	1·0Ω 3W wire wound (see text)
R12	300Ω 11W wire wound
R13	100kΩ 1W
R92	220kΩ 2W
R93	390kΩ 1W
R94	2·7kΩ 1W
RV1	25kΩ 3W wire wound, lin, pot
Z1	Transient voltage protector Z250G or equiv
C1, 2, 15, 16	1000pF 1000V lead through
17, 18	1000pF 10kV lead through
C3	1000pF 1000V ceramic
C4	0·01µF 1000V ceramic
C5, 6, 7, 19	1500pF 10kV ceramic
C8, 9, 10	500pF 5KV min. Jennings vacuum variable
C11	1000pF 250V min. Jennings vacuum variable or air spaced variable (see text)
C12	1000pF 10kV screw mounted ceramic
C13	680pF 10kV screw mounted ceramic
C14	47µF 450V electrolytic
C20, 21, 22, 24	1000µF 63V electrolytic
C23	150pF low voltage air spaced variable
C32	IN4001
D1, 2, 3, 5, 6	47V 1·3W zener
D4	IN4007
D7, 8, 9, 10, 11	75V 5W zener
12, 13	30V 1·3W zener type BZX61
D14, 15	Red LED indicator
D16, 17	420 IN4001 or similar diodes – see text
D18	BD138
D19	BC337A
TR1	4CX1000A Eimac or English Electric
TR2	28mm dia × 205mm glass fibre tube. 1·0mm (19swg) enam copper. 1·25mm (18swg) enam copper. 3 off 52mm OD × 31mm ID × 14mm wide, Low loss, Amidon ring core (AL=14nH) (see text)
V1	470µH choke
RFC1, 2, 3	2·5mH 2A choke
RFC4	200VA transformer system (RS Components stock no 208-579). 568+568t, 0·2mm (35/36swg) enam copper, 42t, 0·25mm (33swg) enam copper. 13t, 4 × 1·25mm (18swg) wound together. Windings separated with glass fibre tape. Output 270V-0-270V, 20V and 6V respectively.
RFC5	0·5A 240V variable or multi tapped auto transformer or variac (see text).
T1	5t, 14mm ID, 20mm long 1·5mm (16swg) enamel copper.
T2	4t, 42mm ID, 17mm pitch. Made from flattened 8mm OD, "Minibore" copper tubing.
L1	12t, 80mm ID, 12mm pitch. Made from 8mm OD "Minibore" copper tubing.
L2	200mA fast blow fuse
L3	Heavy duty RF type switch, double pole 5 way (see text)
F1, F2	DPDT toggle switch
S1	SPST toggle switch
S2	240V neon indicator
S3	0 – 1A moving coil meter
N1	0 – 1mA moving coil meter
M1	centrifugal type, 25CFM minimum
M2	Valve base – Eimac SK800B, SK810B or SK890B
FAN	
Miscellaneous:	

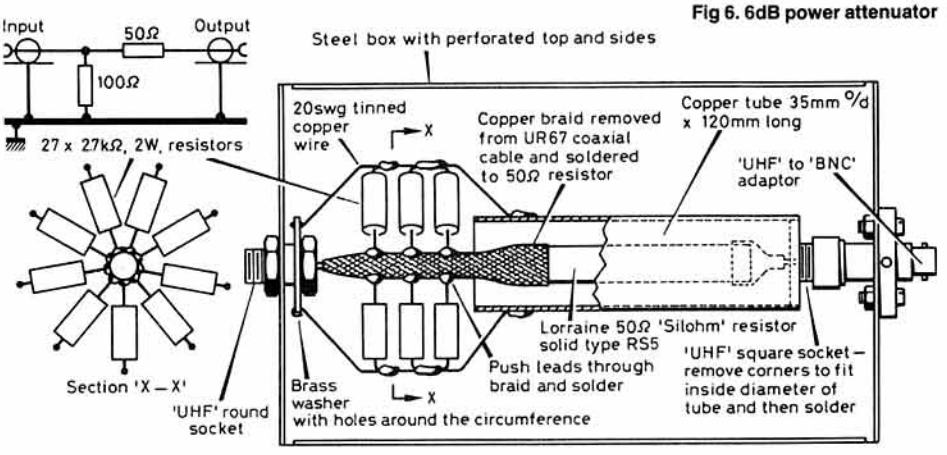
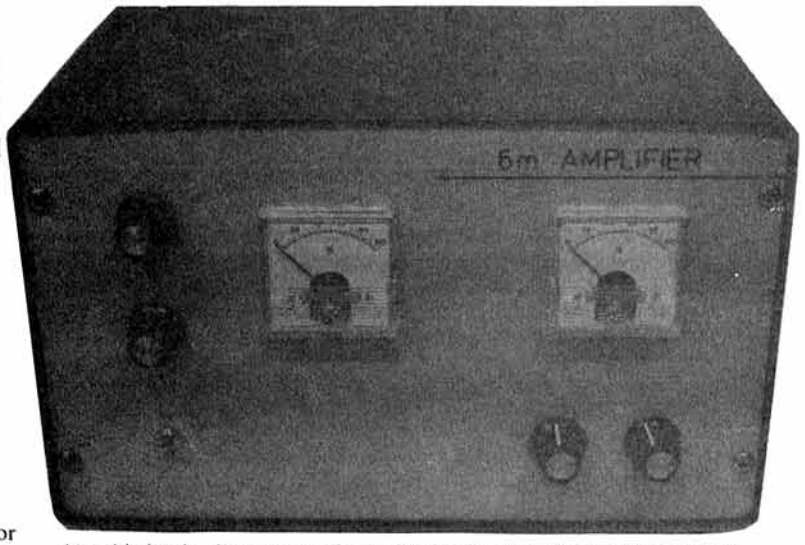


Fig 6. 6dB power attenuator

MORE MUSCLE FOR 50 MEGS



A SIMPLE AND CHEAP SOLUTION FOR UPPING THE OUTPUT FROM A 50MHz EXCITER TO 75 WATTS

*BY J TAYLOR, BSc (Hons), G8DYK**

On completing the design and construction of a transmit converter for 50MHz, it was decided to improve upon the relatively low output of the exciter (1-1·5W). Various semiconductor designs were considered, all entailing a relatively large expense with the choice of transistor(s). It was finally decided to use a valve design based on the well documented use of a QQV06-40A double tetrode. Previously, a 144MHz linear had been built using this type of valve, obtained at a rally for £2. This linear proved to be very stable and provided good results on 144MHz for many years. The lessons learned when building this linear were put into practice in this 50MHz version, which gives an rf output of approximately 75W.

DESIGN

Input from the exciter is fed to the grid circuit of the amplifier via a coaxial changeover relay. The grid circuit is tuned by an air spaced capacitor (C3). It was found that unles this capacitor was insulated from ground, the amplifier was not completely stable. In addition to this, a 0·01μF capacitor (C2) is connected between the centre tap of the grid tuned circuit and earth. Grid bias is permanently connected to the valve (approx 30V) and the valve is "silenced" on receive by disconnecting the screen grid voltage. The anode circuit is tuned using a surplus 25+25 pF wide spaced variable capacitor. The output from the circuit is taken from a two turn link in the anode circuit via another coaxial relay to the output connector.

With an anode voltage of 850V and a drive power of 1·5W, approx 75W of rf is available at the output. With a reduced anode voltage of 460V, an rf output of 30W can be achieved.

The power supply circuitry is standard and is not described in great detail. The ht supply is taken from the 600V secondary of transformer T1 to a full wave bridge rectifier, which is fitted with equalising resistors (470kΩ). Resistors are fitted across each capacitor (output), both to equalise the voltage across each capacitor and to provide a capacitor discharge path when the supply is switched off. The screen grid supply is also taken from a full wave rectifier and is stabilised using OA2 and OB2 gas-filled regulator tubes. A variable grid bias supply is taken from another winding of the ht transformer.

CONSTRUCTION

The anode circuit is screened from the grid tuned circuit by enclosing the valve base in a die-cast box. The valve base is set down approx. 0·5in into the box on spacers so that the internal valve shield is level with the upper face of the enclosure. A separate internal screen is fitted in the grid enclosure to shield the heater and screen grid connectors from the grid circuit. Slow motion drives are fitted to both the grid and anode tuning capacitors, as, in the case of the grid circuit, the resonant frequency is altered by fitting the enclosure cover.

The anode clips are fabricated using the centre brass connector from a 20A choc-block mains connector. These clips are each drilled on one side to enable the anode tuned circuit to be fitted prior to soldering. The output coupling loop, like the input loop, is supported on insulated pillars. The ht from the psu is connected to the amplifier via a bnc socket. It was considered to be prudent to use a different type of socket to the

COMPONENTS LIST-AMPLIFIER

R1, R2	100Ω w/w, 3W
R3	10Ω w/w, 3W
C1, C8	50pF Variable, type C804A
C2, C5	0·01μF, 100V, ceramic
C3	25pF variable, type C804A
C4	30pF 2-gang variable
C6, C9, C10	1ø00pF feed through, 750V
C7	0·0027μF, 1kV, ceramic
L1, L4	2 turn, twisted link, 15mm i/d, 0·8mm wire (L1 7cm, L2 10cm)
L2	3 + 3 turn, 15mm i/d, 0·8mm wire
L3	6 + 6 turn, 15mm i/d, 1·0mm wire
V1	QQV06-40A
M1	1mA fsd moving coil
M2	300mA fsd moving coil
MISC	Die cast box, 170mm × 55mm, Farnell type 143-416
	2 × slow motion drives 6:1
	4 × spindle couplers
	B7A valve base
	4 × ½" spacers
	2 × Magnetic Devices, antenna change/over relays (RLB, RLC)
	Nuts, bolts, solder tags
	1 × 6 way locking DIN plug/socket
	1 × bnc socket
	2 × PL259 sockets
	1 × Farnell type 170-895 12V spco relay (RLλ1)

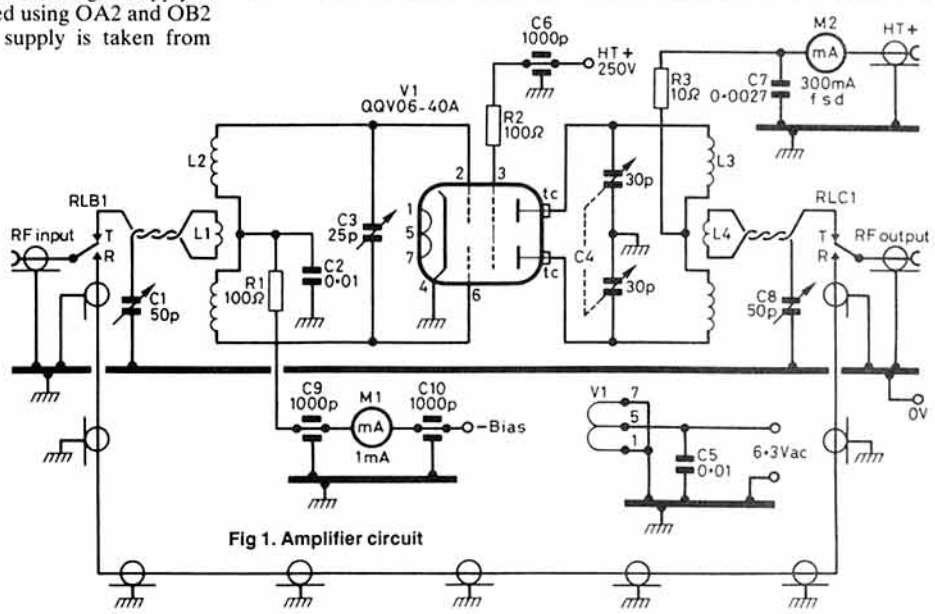


Fig 1. Amplifier circuit

John Taylor became a licensed radio amateur in 1970 while still at school. Initially, he operated on 144MHz ssb using a home-made phasing exciter, before the advent of the infamous Japanese '2 metre Black Box'. With the release of 50MHz to class B licensees, he has designed and constructed a 50MHz transverter and the amplifier which is described above. By profession, he is an engineer with the Central Electricity Generating Board, System Operation Department.

output socket so that the ht and the rf output leads cannot be interchanged.

OPERATION

Initially, the amplifier ht was lowered to 460V to enable circuits to be tuned to resonance. A standing anode current of 35mA with no drive is set by adjusting vr1. No increase in anode current should be detected at any capacitor setting. A small amount of drive is then applied while monitoring the rf output. All circuits are then tuned for maximum rf output into a dummy load. The drive level is then slowly increased and circuits are re-tuned where necessary. The ht can then be increased to the final value and circuits again re-tuned. The anode circuit should be fairly heavily loaded and once maximum rf output is achieved, the drive to the capacitor should be adjusted so that no more than 100μA of grid current exists on speech peaks.

ALTERNATIVE CIRCUIT ARRANGEMENTS

(1) The grid tuning capacitor can be replaced with a 30pF air spaced trimmer, supported directly on L2. This eases the problems associated with insulating the capacitor from earth, the capacitor then being adjusted with an insulated trimmer tool through a hole in the bottom of the grid enclosure.

(2) An alternative stabilised screen supply is shown using 2·5W Zener diodes. The circuit shown is a direct replacement for the OA2/OB2 gas-filled regulator tubes.

(3) As described previously the author used a bnc socket to connect ht to the amplifier.

If bnc connectors are already in use for rf connections, to avoid confusion a different style connector could be used eg Belling Lee three pole 10A type L1722A.

CONCLUSIONS

This amplifier has now been in use for some months now and has proved to be very effective. It should be noted that the rf output possible from this amplifier, when coupled to a dipole antenna, gives an erp close to the current limits and if a larger gain array is used, the drive/anode voltage will have to be reduced.

REFERENCES

a) *VHF/UHF Manual* fourth edition. RSGB.
b) *Radio Amateurs Handbook* 1980. ARRL.

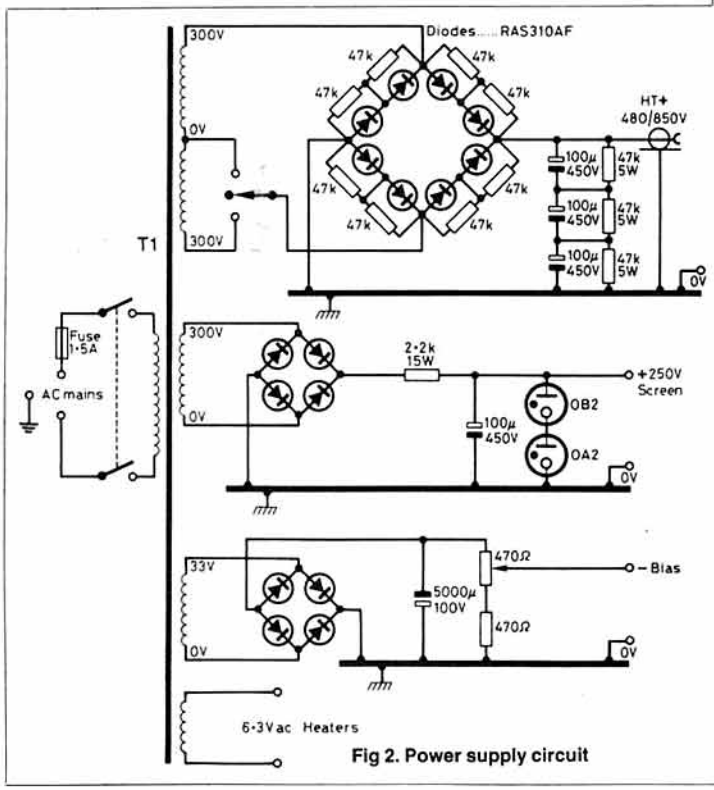
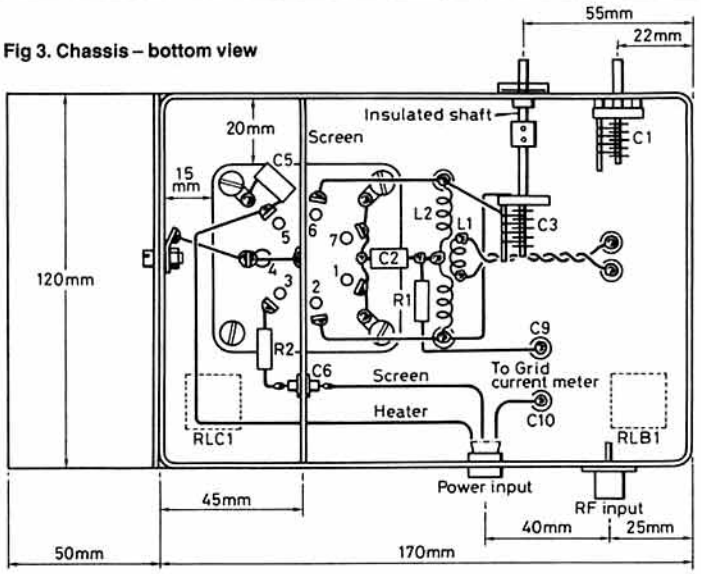


Fig 2. Power supply circuit

Fig 3. Chassis – bottom view



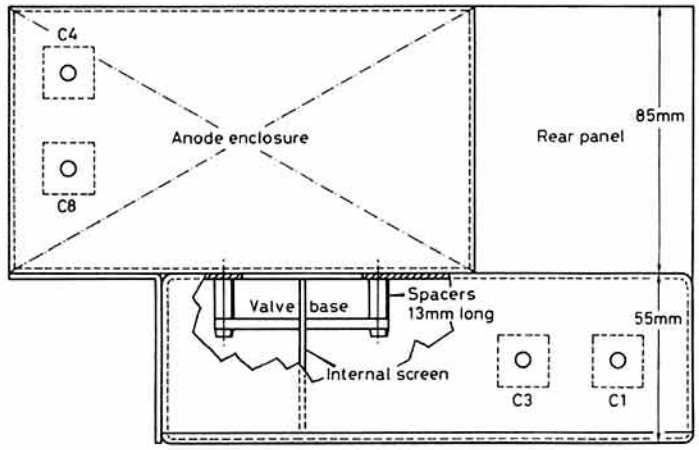


Fig 4. Chassis – side view

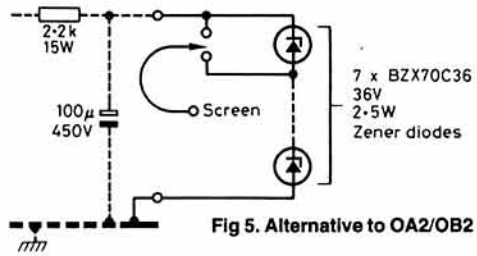


Fig 5. Alternative to OA2/OB2 screen regulator

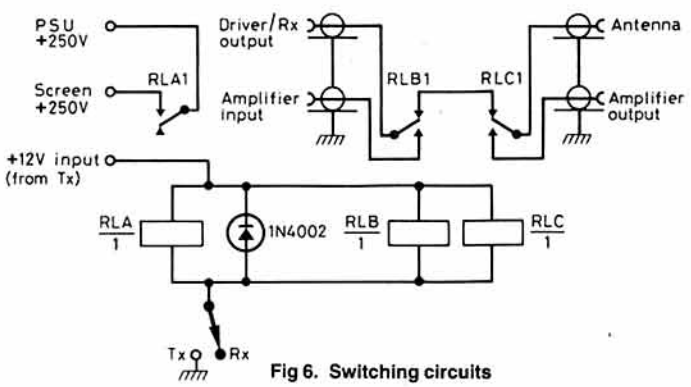


Fig 6. Switching circuits

NEWS
BULLETIN

50 MHz

First Es DX this year!

We're off! The first 50 MHz sporadic E opening of 1988 took place on 4 May, when 9H1FL had contacts with G3JVL, G3SED, G4DEZ, G4DBL/A and G3GLK - all in the south of England. Even better, G3KNU and G1YNR in South Humberside worked 9H1BT at 2055 GMT on 6 May, with reports of 53 both ways. Apparently, 9H1FL was running just 10W to a dipole - and G3GLK was using a 120' long wire! Well done all, also mni tnx G3SED for the info. More in G8VR's column later.

SPORADIC E TESTS

You may remember that in recent Bulletins we've passed on requests for information on sporadic E contacts from TV weatherman Jim Bacon, G3YLA. Jim is involved in a study of this fascinating propagation mode, and in this connection he's asked the Society and its members to assist him with some tests he'd like to try. Here's what he'd like us to do in his own words;

"Firstly, I would like to thank all the readers who responded to my request for information on last season's sporadic E openings, especially for 30 June. The results are very promising for anticipating the behaviour of future seasons. However, despite the density of amateur radio observations, there is still much that depends on chance operating. The data so far suggests that we may greatly increase our knowledge of the phenomenon by being rather more selective in how, when and where we search for Es.

"The RSGB has therefore agreed to ask its members to take part in a series of tests during the middle of this years' Es season. The test periods will consist of three weekends (Saturday and Sunday) centred on the weekend of VHF NFD. The dates for your diary are:

25/26 June
2/3 July
9/10 July

"I very much hope that as many members as possible will take part in the tests, of which the aim is basically to nominate preferred directions in which to search for Es DX. What will happen is that I will come up with regions where the Es cloud might be located and pass the information to a special British Telecom "Voicebank" number at 1430 local time on both the Saturday and Sunday of each test weekend. More than one region might be given on some days. You will then have to work out which way to point the beam to take advantage of it!

"The information I need for the study is as follows:

a) Time spent listening with no results (note beam heading)
b) Time of contact, or time at which you heard the DX
c) Beam heading (of both stations, if possible)
d) Signal strength
e) How long the DX station was audible
f) Whether any DX beacons were audible in the nominated direction
g) Fading characteristics
h) Locator of DX station
i) Locator of your station
j) Equipment used
k) Time you heard other stations working Es DX

"I would greatly appreciate it if the information could be sent to me at my home address, which is:

Highways
East Tuddenham
Dereham
Norfolk
NR20 3AH

"As is often the case in a scientific study, a nil result is as valuable as a positive recording of an Es event, so

(over)

The Radio Society of Great Britain is delighted to be able to announce that its Patron, His Royal Highness Prince Philip, Duke of Edinburgh, has accepted the Society's invitation to open the 1988 RSGB National Convention at the National Exhibition Centre, Birmingham. After the opening ceremony His Royal Highness will attend a special anniversary luncheon.
(Photo: Barry Iddon)

please let me know about occasions when you listened as a result of the information I come up with but hear nothing at all.

"A study of last year's data shows that the peak period for Es was generally between 1600 and 1800 GMT for 144 MHz, with lower frequencies starting earlier and finishing later. Incidentally, don't think this is an exercise for the big-signal operator only; when Es is present, very limited power into a modest antenna will be enough to hear and work the DX.

"Thank you in advance for taking part. After I have used the data I will pass it on to Serge Canivenc, F8SH, the IARU co-ordinator, so that it will become part of the large European Es data bank.

"73 es gud Es dx"

Amen to that, and we must confess that the Headquarters station will be standing by with the rest of the UK to take part in Jim's tests.

Here's how to get the information..

The "Voicebank" number is a Birmingham one - 021-400 0977 - and you simply have to dial and listen for the information at any time after 1430 local time on the days mentioned above. Jim may be able to update the information in mid-afternoon, so feel free to call the Voicebank later on each day to see if there have been any changes. We're also aiming to get the information out on the packet network and Prestel if we can - more on this via GB2RS and the Headline News nearer the time. Incidentally, one reason for using Voicebank is that the system can handle a large number of incoming call at once - so you can get the most up-to-date information without waiting for about a million years for a line to come free.

So remember the number - 021-400 0977 - and see if it helps you work some amazingly exotic DX on 50 or 144 MHz! Don't forget - Jim would appreciate any information, even if you heard nothing except white noise, and if you do wind up having the first G-to-somewhere contact do let us know about it ASAP.

50 MHz - OVERSEAS LATEST:

More good news on 50 MHz - it seems as though Finland is about to release 50 MHz to the amateur service, although no further information had come our way by press time. We also keep hearing from generally reliable sources that Sweden is likely to issue a "....small number" of permit-type licenses for the band. Finally, it's apparently possible that Jordan will open up 50 MHz some time this year. In other words that's one "probable" and two "possibles".

Nothing new on the 50 MHz scene in France as we went to press, although REF sources tell us that matters are still progressing nicely. Apparently the French presidential elections slowed things down somewhat. Rumours about Austria and Germany going in for a 50 MHz allocation seem to be in the "wishful thinking" category at the moment, however - as does the rumour doing the rounds of the DX chasers on 144 MHz last week that UP2, UQ2 and UR2 stations are shortly getting 50 MHz! Sounds about as likely as getting 300 kW out of a single BC107 on 50 GHz.

NO UK BROADCASTING IN BANDS I & III

The Government has decided not to introduce broadcast services into Bands I and III. In case you're wondering whether we're writing this piece the wrong way round (i.e. didn't the Government phase out broadcasting in Bands I and III in January 1985?) the answer is that they recently gave the idea of bringing it back again some thought in the context of pondering the prospects of a fifth television channel.

Originally the "feasibility study" commissioned by the Home Office and the DTI confined itself to UHF only, but a month or so later it was announced that Bands I and III would be considered as well. The conclusions of the UHF feasibility study were due to be announced any day now, although they hadn't materialised by press time.

Anyway, here's the official word on why broadcasting isn't going back whence it came;

"The technical feasibility study has shown that there is insufficient scope within Band III to accomodate a broadcast channel without the risk of serious mutual interference with adjacent mobile services. In Band I there is potential scope for a single broadcast channel covering at most some, but not all, major conurbations. But even this restricted coverage could not be achieved unless a number of existing mobile radio services were to be moved at very substantial expense.

"Additionally, the re-introduction of high power broadcasting in this band could be very difficult and costly to negotiate with our international neighbouring administrations, who would regard a policy reversal by the UK as a serious disruption of the international understandings on which their domestic planning over the last few years has been based.

"VHF Band I also suffers from a seasonal pattern of interference known as sporadic E whereby broadcasts from 1000 km or further away can be reflected from the ionosphere, completely obliterating the wanted signals for prolonged periods. Finally, the Civil Aviation Authority have advised us that the re-introduction of broadcasting could pose some threat of harmonic interference to aircraft navigational and communications systems.

"With so many actual or potential disadvantages in return for, at best, an extremely restricted coverage, we have concluded that the re-introduction of broadcasting into VHF Bands I and III is not a viable option and that it is in the interests of all concerned to make that conclusion public at the earliest possible date".

HF AWARD CHANGES:

A couple of amendments should be made to the item on the WAC certificate which appeared on p.208 of the March issue of Radio Communication.

The requirement regarding contacts being made within a 25 mile (40 km) radius no longer applies, nor does the starting date for the five- or six-band awards.

The Heard All Continents (HAC) Award is in fact issued by the Japanese society (JARL) but the RSGB HF Awards Manager, Steve Emlyn-Jones, GW4BKG, can provide a statement that the necessary cards have been checked. Steve askes that anyone applying for the awards should list the contacts in log-book format as this makes checking very much easier and enables a permanent record to be kept.

IN PRACTICE:

We're very sorry that there's no "In Practice" this month - no, we haven't blown up the workshop, we just had a production problem which in the end couldn't be overcome in time. Never mind - it's summer, beautiful weather, you wouldn't want to be indoors messing about with radio on a day like this would you? (crash of thunder, heavens open, garden floods to depth of 6" in no time at all, no let-up for a week, etc, etc....) Back next month, weather permitting.

COVER STORY - GB2LO, CITY OF LONDON FESTIVAL:

In 1968, the RSGB ran a special event station with the callsign GB2LO during the City of London Festival, 8-20 July. It was located adjacent to the Daily Mirror building in Holbourn, London EC1, about 200 yards from the premises at 107 Hatton Garden where some of the earliest meetings of the RSGB (when it was known as the London Wireless Club) were held in the late summer of 1913.

At the time no one realised just how big and ambitious the project would be and, with the limited resources of the Society many thought that GB2LO would never get on the air. However, the Doubting Thomases did not reckon with the dedication of the small team of members and staff led by the Society's PRO, Mrs Sylvia Margolis. The main problem was to find a suitable location within the City's 1.03 square miles where the antennas could be mounted very high, where the public could have controlled access, where security could be maintained day and night and which would limit the strain on Society resources. Quite a tall order. But, when all seemed lost, the Daily Mirror latched on to the event. They obtained permission to mount an aerial on their roof and to erect a temporary building on the pavement at Holborn Circus. They obtained a suitable building, installed it, carpeted and furnished it, provided a direct telephone line, all the display material, graphics, publicity handouts and QSL cards. They also arranged police protection by day and Securicor at night. When it was mentioned that traffic noise would impede the efficiency of the station, they arranged for elaborate double glazing to be fitted and when it was said that it might be too hot, they installed extractor fans.

Commercial rather than home-brew equipment was used in the station and this proved to be the right decision since few visitors showed any interest in the equipment itself; the main interest was that amateurs were privileged to be able to talk to people around the world in the cause of international friendship. There was only one major hiccup during the whole event - the mic began to play up an hour before the Lord Mayor was due to visit the station and the operators thought that the whole station had failed. The equipment was substituted within minutes and all went well. The KW equipment, loaned by Rowley Shears, G8KW, of KW Electronics Ltd, behaved impeccably considering the bashing it was getting.

Although radio conditions were not the best, 108 countries - including some interesting DX - were contacted in just over two weeks. The station was open to the public between 11am and 4pm each day and once the station closed to the public, the real amateur operation, as opposed to exhibition operation, took place. The difference between the two techniques is obvious to anyone who has operated both special event and contest stations. G3UML did two all-night stints, chased by some of the biggest pile-ups he'd ever experienced. G3MWG and G3OUF did some useful early-morning and late-night operation, including some CW.

At the end of the event, the Daily Mirror threw a party for all those involved and, thanks to their valuable assistance, the whole operation cost the Society less than £40!

A full account of the event can be found on pages 506 and 507 of the August 1968 issue of Radio Communication - if you've still got yours, that is!

RSGB 75 AWARD

— *Full details*

Earlier in the year, we mentioned the possibility of offering an award to commemorate the 75th Anniversary of the RSGB. After several month's discussion we finally came up with the requirements for the award, which we think will be challenging enough without being completely impossible to obtain! The difficulty was to find a way of including the special GB75 prefixes run by the clubs as well as involving the membership at large. In the end we've come up with the following;

UK Amateurs & SWLs:

One contact with any of the following stations -

GB75RS - throughout 1988
GB75HQ - July 1988
GB75AC - 9-17 July 1988
GB75ER - 9-17 July 1988
or 10 other GB75 calls...

...plus contacts with a total of 75 different RSGB members.

Overseas Amateurs & SWLs:

A total of 75 points made up from any of the following -

GB75RS - 10 points
GB75HQ - 15 points
GB75AC - 15 points
GB75ER - 15 points
(operating periods above)
Other GB75 calls - 5 points
RSGB members - 1 point

Contacts may be made on any band using any mode including satellites but must NOT include any duplicate contacts or contacts via repeaters. Short wave listeners in both categories will be able to apply for the award on a "stations heard" basis.

When you have the required number of contacts or points, you should send a certified log entry (QSL cards not required), to:-

Mr John Harvey, G4IVJ
RSGB 75 Award Manager
38 Bodenham Road
Northfield
Birmingham B31 5DS
England

Claims must be postmarked no later than 1 April 1989 and be accompanied by a cheque or postal order for £1.50, made out to "RSGB", to cover postage and packing (10 IRCs for overseas applicants). There is NO charge for the award itself.

CRIME PREVENTION AT NEC:

The West Midlands Police Headquarters' Crime Prevention Department will be on hand at this year's RSGB National Convention to offer advice to members on protecting their amateur radio equipment in both the home and in vehicles.

With the steady increase in thefts of amateur radio equipment, the Society decided to invite the Crime Prevention Department to put on a display as a service to members visiting the convention. Officers from the Department will be available to discuss particular problems with individual members and to offer specifific advice. Although they are not able to offer a property marking facility, they will have a number of commercially available property marking systems on show.

This is the first time that such a service has been offered at an RSGB event and we hope that members will visit the stand and gain benefit from expert advice.

RSGB DATA SYMPOSIUM:

By the beginning of May, the following lectures had been confirmed for the RSGB's First Data Symposium which will be held at Harrow School in north-west London on Friday & Saturday 22/23 July. Other lectures were still awaiting confirmation but, as you can see, there'll be plenty to talk about.....

"The Other Side of the Coin"
by Gwyn Reedy, W1BEL

"Packet Radio Developments in France"
by Remy Jentges, F6ABJ

"Keeping in Touch"
by John Kirk, G4LPQ

"High Speed Linking in the Amateur Packet Network"
by Ed Harland, G3VPF

"Packet Systems, Which Way Now?"
by Ed Harland, G3VPF

"RTTY Night Owl Theatre (RTTY Pictures)"
by Lindsay Rohrlach, G1XPG/ VK3KAF

"A Short History of Telegraphy"
by Alan Hobbs, G8GOJ and Sam Hallas, G8EXV.
(presented by G3GJW)

"The Irish Packet Scene"
by EI5CI

"Rail Block Signalling"
by Mr Giles of British Rail

"Commercial Aspects of Data Transmissions"
by John Coll of Xon Software

"UK Data Network Strategy"
by Mike Dennison, G3XDV

"The Application of AMTOR in the Amateur Radio Global Message Handling Network"
by Peter Martinez, G3PLX and Mike Dennison, G3XDV

"The Trials and Tribulations of Being a Mailbox"
by Andy Witt, G1DIL

"Reconciling Legislation with Experimentation"
by Mike Dennison, G3XDV

"Overture & Beginners"
(plus a packet video)
by Phil Bridges, G6DLJ

"9600 Baud Packet Radio Modem Design"
by James Miller, G3RUH

"Satellite Digital Communications"
by Jeff Ward, G0/K8KA, of AMSAT-UK

"AMPRNET"
by Gareth Howell, G6KVK

In addition to the titles listed above, there will be a talk by John Pearce of BT Mobile Communications.

Registration will commence at 8.45am each day and at the end of each day's lecture programme there will be an open forum enabling delegates to put questions to the lecturers.

Full details of the various packages and costs were given in a special insert in the April issue of Radio Communication. If you'd like to attend and have not yet booked for this important event, please do so as soon as possible. 'Day Only' tickets will be available on the door at £3.50 per day but, although tea and coffee will be provided, they will not include lunch.

3rd AMSAT-UK COLLOQUIUM:

Ron Broadbent, G3AAJ has just sent us the final programme for this year's AMSAT-UK Colloquium which takes place on 29-31 July at the University of Surrey, Guildford.

Friday 29 July:

1800 - Registration in Lecture Theatre, Lower Concourse.
1900 - Social evening UoSAT Mission Control Centre Tours, Videos, Films in Bar
2300 - Close

Saturday 30 July:

0830 - Registration
0930 - COFFEE
1000 - Welcome by Directors of UoSAT & Chairman AMSAT-UK
1015 - Opening Address
1030 - Report of IARU meeting on amateur satellites
1040 - The Amateur Satellite Programme, History and 1987/88 review
1055 - Introduction to Amateur Satellites in Practice
1130 - Tracking Topics
1210 - Typical Amateur Satellite Stations and Operating Techniques
1245 - LUNCH
1415 - Fuji-OSCAR 12 and Future Japanese Satellite Projects
1500 - AMSAT-OSCAR 10 and Phase 3C Overview
1535 - UoSAT-1 and C Overview
1600 - TEA
1610 - RS Satellite Overview
1640 - Project HART
1650 - Ballon Carrying Amateur Radio, AMSAT-SA
1710 - Chinese Space Programme
1800 - DINNER
1945 - AMSAT-UK AGM UoSAT Mission Control Centre tours
2100 - Fun junk sale, massive raffle, films, videos
2130 - Social evening and bar until midnight

Sunday 31 July:

0900 - Packet Radio Satellites Rudak, FO-12, UoSAT-2, Microsat, UoSAT-C
1000 - QRP-EME
1055 - COFFEE
1105 - AMSAT Phase 3D Satellite Technologies
1200 - AMSAT Phase 4 Spacecraft Technologies
1300 - LUNCH
1400 - UoSAT Technologies
1500 - Swedish Space Programme
1530 - OPEN FORUM Panel question time
1630 - CLOSE followed by tea/coffee

A "Satellite Workshop" will run in parallel with the single lecture stream throughout both Saturday and Sunday. It will be moderated by well-known satellite 'experts' to provide a forum on a wide range of topics for both beginners and experts.

As we went to press, the following 'leading lights' in the field of satellites had accepted invitations to give talks and demonstrations at the Colloquium;

Dr M S Sweeting, G3YJO
Dr A C Gee, G2UK
Geoff Perry, Kettering Group
Max White, RGO
Dr Karl Meinzer, DJ4ZC
Jan King, W3EGY
Terry Carrell, ZL3QL
H Groenendaal, ZS6AKV
Jeff Ward, GO/K8KA
R McGwier, N4HY
Sven Grahn, Sweden

Others, not yet confirmed, may include - P Karn, R Limebear, Dr Leonid Labutin, D Rowan and M Takki (JAMSAT).

Between 40 and 60 senior members of the world's national radio societies are expected to attend the Colloquium following the International Satellite Meeting to be held on the previous day, 28 July. A record attendance is expected this year and, since there are only 280 places available for delegates, you are advised to book as soon as possible if you intend to be there.

Full details of the cost of the Colloquium can be obtained by sending a large stamped addressed envelope to "AMSAT-UK, London E12 5EQ" or by telephoning Ron Broadbent, G3AAJ on 01-989 6741, during social hours only please.

Incidentally, Ron has received a number of requests from amateurs wishing to attend the Colloquium on the Saturday and to attend the Colloquium Dinner in the evening. This was not one of the options available but Ron is now able to offer;

OPTION 10 - As per 8 , plus tours of the UoSAT Command Station, Colloquium Dinner and Social Evening until midnight. Cost per person is £27.50.

Please remember when sending your cheques or Postal Orders for any of the Colloquium options to make them payable to "AMSAT-UK" and NOT the University of Surrey.

GB75SAT/GB2SAT
29-31 JULY, 1988

MORSE TESTS

The following list shows the dates and locations of all the available test centres from early July to mid August, as we went to press. Because of space limitations, we cannot print a complete list of all the test centres notified to us, but these can be found on the application form itself.

Morse tests will be carried out in groups of three and will be of half an hour's duration. Details of the test, the venue and how to get there will be sent to you as soon as your application has been processed and your place confirmed.

COUNTY	TOWN OR LOCATION	DATE
South Glamorgan	Penarth	05/07/88
Dyfed	Haverfordwest	07/07/88
Jersey	St.Clement	07/07/88
South Yorkshire	Sheffield	07/07/88
Greater London	Dartford	09/07/88
Greater London	Wood Lane, London W12	09/07/88
Isle of Wight	Binstead, Ryde	09/07/88
Mid Glamorgan	Rhydyfelin, Pontypridd	10/07/88
West Sussex	Horsham	10/07/88
Central	Stirling	12/07/88
West Midlands	RSGB 75th Anniversary Convention, NEC	15/07/88
West Midlands	RSGB 75th Anniversary Convention, NEC	16/07/88
Dorset	Dorchester	16/07/88
Norfolk	Norwich	16/07/88
Leicestershire	Mkt Bosworth	16/07/88
West Midlands	RSGB 75th Anniversary Convention, NEC	17/07/88
Merseyside	Liverpool 15	19/07/88
Isle of Man	Onchan	09/07/88
Berkshire	Reading	20/07/88
Kent	Dover	20/07/88
Lincolnshire	Lincoln	20/07/88
Bedfordshire	Luton	21/07/88
Devon	Tiverton	21/07/88
Powys	Montgomery	22/07/88
Surrey	Guildford	23/07/88
Essex	Colchester Rally	24/07/88
Gwent	Newport	25/07/88
Shropshire	Telford	26/07/88
Greater London	Wanstead, London E11	29/07/88
Hertfordshire	Watford	29/07/88
West Midlands	Sandwell	30/07/88
North Yorkshire	Scarborough Rally	31/07/88
Cambridgeshire	Haslingfield, Cambridge	05/08/88
Dumfries & Galloway	Stranraer	06/08/88
Wiltshire	Swindon	06/08/88
Cumbria	Penrith	07/08/88
Humberside	Goole	07/08/88
Somerset	Burnham-on-Sea	07/08/88
Greater Manchester	Cliofton, Manchester	08/08/88
Fife	Glenrothes	09/08/88
Derbyshire	Clay Cross	10/08/88
Suffolk	Ipswich	11/08/88
East Sussex	Hailsham	13/08/88
Hampshire	Winchester	13/08/88
Lincolnshire	Grantham	13/08/88
Greater London	Wood Green, London N22	17/08/88
Co.Durham	Great Lumley	17/08/88

We receive notification of new centres almost daily and the application form gives a full list of those currently taking advance bookings for Morse tests.

CSPI REPORT - THE RADIO COMMUNITY BITES BACK

You'll remember that in March last year Her Majesty's Stationery Office published the report commissioned by the DTI on the possibility of turning market forces loose in the radio frequency spectrum. A London-based firm of management consultants - Communications Studies and Planning International (CSPI) Ltd - produced the 182-page plus appendices "Deregulation of the Radio Spectrum in the U.K", and interested parties were invited to comment on its contents. It fell to the Society's Licensing Advisory Committee to absorb the contents of the report and produce a response - and given that reading and fully understanding such a complex and closely-argued document is pretty time-consuming, let alone producing a proper response to it, the Committee had a major job on its hands. Coming on top of the work associated with the U.K licence review, it's not surprising that LAC members were almost overloaded.

The Government initially set a deadline for responses from interested parties. Most of us in the radio community - including even the Government-sponsored Civil Land Mobile Radio Committee, no less - felt that the deadline was far too tight to allow us to produce a proper response, and the Government duly extended it last year. In the event many organisations, including ourselves, sent in our responses early in 1988.

How did we all respond? Basically, we all seem to have thoroughly criticised the CSPI report as being irrelevant, impractical and unworkable. We haven't the space here to reproduce all our reply (if you'd like a copy you're more than welcome to have one if you send us £1 in stamps to cover packing, postage, etc - write to the "Circulation Department - CSPI") but we thought that economists weren't really qualified to deal with regulation of the radio frequency spectrum, that the idea of bringing market forces to bear was therefore misconceived and that in general terms the exercise has been interesting but ultimately not wholly relevant. We also pointed out a very large number of mistakes of technical fact and concluded that if CSPI couldn't get those right, how could we be sure that their conclusions as a whole were justified?

Just for interest, here's what some other radio users felt about it - it's worth noting that we saw these after we produced our reply but almost every point made is made in our own response:

BRITISH RAILWAYS BOARD - Was not consulted by CSPI. Suggests that European authorities will not wish to deal with FPOs as non-government bodies. Report is ignorant of costs related to non-security of tenure.

INDEPENDENT BROADCASTING AUTHORITY - The accuracy and interpretation of Exhibits 8.1, 8.2, 8.3 and 8.6 is questionable.

BAND III NETWORK OPERATOR'S COMMITTEE - Strongly criticise the methods used to obtain information for the report. Rejects the Report's conclusions and is critical that no alternatives to deregulation were investigated.

MOBILE RADIO USER'S ASSOCIATION - Only one model of deregulation was considered. MRUA was not consulted by CSPI. Extension of choice for users claimed as a result of this deregulation is not apparent. There are weaknesses in the basic data used and the conclusions drawn are also suspect.

SCOTTISH OFFICE - The report makes a case for its proposals rather than reviewing the matter dispassionately. Speculations and parameters used in argument are incorrect and ill-based. MoD should be treated like any other user if spectrum is to be traded.

HOME OFFICE - Report treats the concepts of re-use in a questionable way. More FPOs mean more sub-bands leading to inefficient planning and a greater need for co-ordination. In a free price market, spectrum would go to the highest bidder and so squeeze out the small business user. A central authority and database will still be needed.

ELECTRONIC ENGINEERING ASSOCIATION - Multiple FPOs are impracticable. Report provides an inadequate basis on which to make the necessary fundamental procedural changes necessary for de-regulation.

GEC TELECOMMUNICATIONS LTD - Report fails to meet DTI's objective. Is inconclusive and provides little foundation for statements made. It draws conclusions without giving supporting information. Use of multiple FPOs plus a co-ordinating body must lead to increased costs in spectrum management.

(tnx CLMRC Spectrum Deregulation Sub-Committee)

Probably what best summed it all up was the CLMRC's dry comment that "A major move to privatisation of spectrum allocation such as is proposed by CSPI would be more an act of faith than a result of an economic study. Successful acts of faith are not without precedent in history but they are not a normal component of modern business management methods".

Of course, the only real way to reply to a report like this is to produce a report of your own. We're not in the business of writing 200-page reports, and neither have we the time and resources to produce a new and wonderful way of regulating the radio frequency spectrum. We have made it quite clear to the DTI that if the Government intends to implement ANY elements of the CSPI report,the RSGB requires to be fully informed and consulted. The Society's Council also acknowledges the fact that the present Government is ideologically committed to allowing market forces free play wherever possible. If the Government chose to ignore high-quality advice to the effect that market forces and regulation of the radio spectrum were not compatible, users could realistically do almost nothing about it except protest in the strongest possible terms.

Members should be in no doubt that the Society intends to defend the interests of its members on the basis of the great merits of the amateur service from the point of view of its benefits to the community. Although CSPI didn't explore it, there is a very powerful economic argument for the retention and expansion of the amateur radio service; Great Britain Limited desperately needs electronic and radio engineers, and today's newly-licensed G7 is tomorrow's scientist, engineer or technician. If amateur radio inspires just a few people a year with a lasting interest in electronic technology it's done something of profound benefit to the community. It's very difficult to fight abstract economic arguments, but it's easy to point to the large number of people in the electronics industry who followed a natural progression from a G callsign - and that's a message we'll keep sending out to anyone who'll listen. In the meantime, we take comfort from the fact that the CSPI report seems to have received an emphatic thumbs-down from everyone in the business.

NEWS & VIEWS

Talking Point

Direction-finding — a sport for all, part 2

Last month our 'Talking Point' feature was the introduction to an article by Robin Pearce-Boby, G3JLE, on amateur radio direction-finding (ARDF). Hopefully that piece whetted your appetite for the main article by Robin, which we're publishing this month. Here it is - now read on.....

OUTLINE OF A COMPETITION

As we've seen, the purpose of amateur radio direction finding is the location of one or more transmitters in an unknown direction or distance from the starting location. The most common bands currently used for the purpose are 1.8, 3.5 and 144 MHz, and there are several different forms of competition used in the UK and Europe. The times, lengths and numbers of transmission periods vary according to the type of event. Some have fixed times, some have variable times, a few have both and others have continuous transmissions. CW, ICW and AM are the usual transmission modes. A steady carrier is usually required to take a bearing, and it it normally taken on the "null" of the antenna radiation pattern. This is generally considerably sharper than the maximum signal strength peak. A simple demonstration of this fact can be done by locating a signal - preferably a carrier - with a simple broadcast-type transistor portable. You'll find that if you rotate the set the strong signal point is very broad in comparison to the null, which is usually very well defined when the set is turned so that it's at a right angle to the direction of the transmitter or the direction of maximum strength.

Let's now look at the three broad categories of events. Incidentally, the writer is prepared for indignant letters which extol the virtues of other types of event and indeed looks forward to receiving any new information for the sake of historical records and the furtherance of knowledge!

THE FOXHUNT

First of all there's the "foxhunt". This form of competition takes place in several different forms and combinations, viz.

a) on foot, bicycle or motor vehicle
b) the transmitter can be hidden, obvious or even mobile (a true "fox"). In fact a transmitter in a moving car has been tried, making a contest a bit like three-dimensional chess.
c) there may be one or several transmitters
d) 144 MHz is the usual band: 3.5 and 1.8 MHz have been tried but do not seem to be popular in the UK
e) events are organised locally or by clubs, and as far as is known no national events appear to have been held. In consequence there is little co-ordinated knowledge of UK- style foxhunting, although there have been a few articles in the amateur radio press

TOP BAND DIRECTION-FINDING

Top-band DF is a mainly British form of event, largely because for a long time the UK was the only country able to use 1.8 MHz for DF. This band has an advantage insofar as its propagation characteristics are reasonably consistent compared with others. Because top band was not generally available in Europe until relatively recently, the use of 3.5 and 144 MHz for DFing on the Continent became widespread.

Much top band DF in the UK is "sponsored" by the RSGB, and at this point a considerable tribute is due to the late G6AGE, who was the corresponding member for direction finding on the HF Contests Committee. However, the actual organisation of national qualifying rounds each year, the National Final and many other open and local events is carried out at club and individual level; a good deal is co-ordinated by the corresponding member on behalf of RSGB and organisers so that clashes with each other and with major amateur radio events are avoided. The rules and guidelines are regularly re-appraised and amended as required to keep them up-to-date and abreast of the latest thinking, taking into account competitor's attitudes, methods of keeping them away from the transmitter for longer and - most importantly - ensuring that development of the sport is kept alive and as far as possible free of restrictions.

Those taking part in 1.8 MHz DF events in the UK range from young teenagers to octogenarians, of both sexes; all tend to be very competitive and good results are achieved in spite of (or perhaps because of) individual characteristics. In moments of frustration competitors are heard to mutter quite vehemently about the extreme masochism of the whole business, but they keep coming back for more! The development of 1.8 MHz DF over the years has progressed quite dramatically, both in the skills of finding transmitters and hiding the equipment, not to mention the positively satanic methods of deception perfected by the organisers to confuse and confound the poor competitor. In the early events of the 1920s it often took many hours before a competitor located the one transmitter, even though it wasn't really hidden from sight. Today, in spite of massive deceptions and bizarre antennas, together with camouflage techniques which would put those of the SAS to shame, three transmitters will be found by many of the competitors during the three and a half hours of the National Final each September. Only the distance between transmitters stops them taking even less time.

Competitions of this type use the standard Ordnance Survey 1:50,000 scale maps, and the transmitters are positioned at any location which is accessible to the general public. The time available and the distances to be covered mean that some form of mechanical transport is required if the desire to be competitive is to be satisfied. Helicopters haven't yet been used.....Most competitors have a team of up to three helpers, who navigate and generally render assistance. The only information available to the competitors until just before the competition commences is the location of the start and the "fixed" transmission periods. The frequencies and callsigns of the hidden transmitters and the meeting-place after the competition will be issued about half an hour before the first scheduled transmission. For fixed-time transmissions all transmitters will be on together and in the same modes, although their frequencies will be at least 10 kHz apart.

The friendliness, the wish for others to join in and the sociable and helpful attitudes which prevail in the British top band DF world are very clear to outsiders.

(over)

However, be warned - once the competition starts it's every man for himself, and the list of deceptions practised on fellow competitors by one another would be extremely long! In spite of this it's all great fun and certainly helps keep you physically and mentally fit.

Variations on this basic style of DF event have been and probably continue to be carried out on other bands. The problem of interference to and from other activities on higher frequencies can make competitions rather interesting, to say the least; fairly low-power transmitters, less sensitive receivers and short distances appear to be the usual ingredients for operation on other bands.

E-ARDF

This version of DF has developed in IARU Region 1 over the course of many years into a very controlled form of "on-foot" direction-finding in which the 3.5 and 144 MHz bands are used, separately and at different times. Both bands are often used in a competition, which may take place over one or more days. The transmitters are not usually manned or hidden but have automatic timing devices to control their transmitting periods. The competition distance will not exceed 7 km and up to five transmitters may have to be found along the way.

Competitors do not leave the start together but are sequenced in groups of the various categories of competitor. It is clear that to be competitive a high standard of physical fitness is the predominant attribute, and in fact the contest could be closely likened to orienteering with a radio to lead the competitor to each check point; no doubt at that level it is very enjoyable. It appears that many of those taking part at the top level in Europe have a very serious attitude towards the sport, with the armed services, reservists and similar organisations forming teams and it forming part of their Service training.

Whilst the receivers used are very simple, usually direct conversion, the technical standard of transmitters - with their automatic timing, etc - is more advanced than that required for top band DF. Clearly there are lessons here to be learnt.

CONCLUSION

Many forward-thinking members of the 1.8 MHz DF fraternity believe that a simplified form of E-ARDF could form a sound basis for a beginner- and intermediate-level version of the sport in the UK, since it might be considerably less demanding than the existing UK variant. At the same time, this could allow we in this country to build up expertise and knowledge (not to mention stamina) to enable us to compete in full E-ARDF competitions with some success. We might also be in a position to run World Championships when our experience has become sufficient. The working Group is actively looking for suitable receivers in kit or complete form (present estimates suggest that a kit could cost less than £20) to support those who would like to take part in this activity and also those who are willing to help organise local DF groups. The working group has also prepared a set of simple rules so that a consistent approach can be achieved; in turn this will enable a National Contest to be organised as soon as required.

If this article tempts you to consider "having a crack" at DF, both the Society and the writer will be delighted to receive enquiries, comments, information or offers of help. Please write to RSGB HQ in the first instance, marking the envelope "DF Initiative". An information pack will then be sent to you, although we'll also be pleased to answer any queries not dealt with in it. Come and join us!

ARDF GB-STYLE - Draft rules.

1. Competitors will take part in competitions on foot.

2. The 3.5 and/or 144 MHz amateur bands will be used.

3. There will be no fewer than two or not more than five transmitters to locate during a single "band" competition. Two-band events will be run as two separate parts of the same competition, but not at the same time, allowing competitors to take part in both.

4. Competitions will be based on 1:25,000 or larger scale maps, which may be O.S. or purpose-prepared for the location.

5. Wooded and/or overgrown locations are to be preferred and must be accessible to the general public along "rights of way", or written permission must be obtained for such activities from the owner and/or tenant of "private" land.

6. The competition distance from start to finish will not be less than 2 km or more than 7 km.

7. There will be two classes of competitor:

   a) under 25 years old
   b) over 25 years old

   It may be sensible to subdivide into men and women.

8. No transmitter frequency will be closer than 10 kHz to any other in the competition.

9. Each transmitter will transmit for 60s followed by a 60s gap before the next 60s transmission and alternating thus for the whole duration of the competition. The mode of transmission for all transmitters will be CW, "modulated" by ICW for identification purposes.
   A competition will thus cater for 30 competitors per hour, or greater if multiple competitor starts are used (see Rule 17).

10. The first 15 seconds of each transmission will have an identifying component, either Morse or speech.

11. The organiser will stipulate whether the transmitters have to be found in a particular order or will be left to each competitor to decide.

12. Transmitters will not be concealed or camouflaged and will be obvious to any competitor within 3 metres of the transmitter.

13. Each competitor will sign the entry log at least 30 minutes before being allowed to start the competition, and each competitor's receiver will be impounded when signing in.

14. The running order of competitors will be the order of signing in, but if tactical or other delaying actions are, in the opinion of the organiser(s), likely to cause problems in the orderly running of the competition, competitors will be directed when to start.

15. The task sheet and - when provided - a map will be given to each competitor when the receiver is impounded.

16. Except for the first competitor (who will be given 60 seconds' notice) the competitor's receiver is returned at the end of a transmission, allowing one minute to prepare for the start of the next transmission period - which is that competitor's start time.

17. Each competitor (or group of competitors, if required by local conditions) starts the competition independently at two-minute intervals.

18. Each transmitter may be manned by an operator and, if required, a helper.

19. Each competitor may have one helper.

20. Receivers may be of any form but must not emanate any transmission that can be detected by any other receiver within ten metres.

21. If the competition includes provision for a post-competition get-together and food, which will be paid for on signing in.

22. The winner of each class will be the competitor who:

a) after finding all of the transmitters and has had the "check" card marked by each transmitter crew, has taken the shortest time from the start to reach and cross the finishing line

b) other competitors will be ranked according to the time taken and the number of transmitters properly found.

NOTE: These are suggestions; experience and usage may well require changes.

WOT, NO CALLBOOK?:

After a great deal of deliberation, Council has decided not to publish an edition of the Call Book this summer. The main reason is that the Society is at present in the throes of a major re-organisation of its book production programme, including the installation of a desk-top publishing (DTP) facility. In the longer term this will mean quick and efficient production of new publications, but at present we need to have a moratorium whilst we get the new system up and running. The first books to be published with the new system will be the new editions of the HF Awards Book and Radio Amateur Examination Manual.

The new edition of the Call Book will be published in the autumn, hopefully in time for the Leicester Amateur Radio Show in October. If you wish to amend your Call Book entry, the deadline for receipt of letters is 19 August 1988.

DTI PHONE NUMBERS:

For reasons best known to our word processor, something weird and wonderful went wrong with one of the numbers given for the DTI in the March Bulletin. The number for the general switchboard was correct but the numbers for the amateur radio section (there are two numbers, not just the one) are 01-215 2316 or 2217. The number 01-215 2072 is for publications only and is an answerphone; 2316 is also an answerphone outside office hours. Quite what the number we gave for the amateur radio section is for we don't know - probably the Waterloo Bridge House boiler room.....

DYING OF OLD AGE?

If, after last month's editorial, you're still in doubt about the need to attract more and younger amateurs, take a look at these figures provided by the Canadian Department of Communications....

a) Only 4.6% of all Canadian amateurs are under 30 years of age
b) 15.1% are aged between 30 and 40 years old
c) 20% are between 40 and 50
d) 20.6% are between 50 and 60
e) 22.2% are between 60 and 70
f) 17.5% are over 70

A little bit of simple arithmetic shows that just over 60% of all Canadian amateurs are over 50 years of age and their present mean age is around 55. (CRRL News)

"OK", you might say, "that's in Canada". But a similar pattern is emerging in almost all countries. Karl Meinzer, of AMSAT-DL, pointed out at last year's AMSAT Colloquium that this was already happening in Germany. The RSGB had already begun to lay plans for its 'Youth into Electronics via Amateur Radio' project in the early part of last year and the official launch of the project will take place at this year's National Convention in July, along with the presentation of the DTI-sponsored 'Young Amateur of the Year Award'. A considerable amount of thought has gone into the Y.E.A.R. 88 Project, some of which has been outlined in recent editorials, and much more still needs to be done. In the meantime, perhaps all clubs should consider appointing a "Youth Co-ordinator" and look at the possibility of providing additional meetings say, on a Saturday or Sunday, aimed at a younger age group; a sort of junior amateur radio club. Since the RSGB can only set the wheels in motion and can't hope to tackle such a mammoth task alone, local RSGB Liaison Officers and local clubs form a vital part of the overall plan in getting the message out around the country.

We are at a very crucial stage in amateur radio and if we are to prevent our hobby 'dying of old age', we must all do our bit to protect what we have worked hard to achieve in the last 75 years. Because if we don't act now to bring new blood into the hobby it'll be even more a case of No amateurs - No amateur radio!

RADCOM EDITOR RETIRES:

On Friday 29 April 1988 another era at RSGB HQ came to an end with the retirement of Alf (Hutch) Hutchinson, the Editor of Radio Communication for 19 years. Hutch joined RSGB in 1969 and saw many changes in Radio Communication during its time at Doughty Street, Chelmsford and, more recently, Potters Bar.

During his retirement party at RSGB HQ, Mr Hutchinson was presented with an engraved crystal decanter and glasses from the staff and Council of the Society by David Evans, G3OUF, the Society's Chief Executive. Later on in the proceedings a kissagram girl arrived to deliver a farewell message, but good taste prevents us from publishing any of the photographs.....

Helplines

BITS & PIECES:

As part of this year's RSGB National Convention, the Society will be mounting an exhibition of radio equipment from the last 75 years. The exhibition will be located in the Lucas Centre near the main entrance to the NEC and will consist of typical amateur radio stations from the 1910s, 20s, 30s, 40s, 50s, 60s, and 70s, culminating in a range of the most up-to-date amateur equipment from leading suppliers.

Although we've managed to locate almost all of the chosen transmitters, receivers and transceivers from each era, we now need other items to dress each display. After all, there's more to a shack than just rigs!

In particular, we're looking for microphones, headphones, Morse keys, old maps, charts and the like for the 1910s to the 1940s. If you have any good clean examples of items which you feel would enhance the displays and which you'd be willing to lend to the Society, please get in touch with Mr John Crabbe, G3WFM, on Potters Bar 51532. John is co-ordinating the display items on behalf of the Society.

GB75AC OPERATORS WANTED:

GB75AC, the 75th Anniversary Convention station, will be active from the National Exhibition Centre in Birmingham for nine days between 9 and 17 July. Operation will be 24 hours per day on all HF, VHF and UHF bands using phone, CW, RTTY, AMTOR, SSTV, satellite and auto 2m AX25 packet.

To meet the needs of continuous 24 hr operation, additional class A or B operators and swls are being sought by the Solihull ARS. If you are a member of the RSGB and are interested in joining the team of operators for this prestigious station or would like further details, please contact Warwick Hall, G4WMH, as soon as possible on 021-705 0488.

HF PACKET RADIO - INPUT PLEASE:

The Society's HF Committee has recently been putting together thoughts on HF packet radio for discussion at the IARU Region 1 HF Working Group meeting to be held in September. The key topics are likely to be band planning, transmission speeds and standards, the role of HF mailboxes, and the place of packet radio alongside RTTY and AMTOR.

The HF Committee would welcome input especially from those with direct experience of HF data modes. If you would like a copy of a paper summarising the Committee's thoughts to date, please send a large stamped addressed envelope to:-

Don Field, G3XTT
105 Shiplake Bottom
Peppard
Henley-on-Thames
RG9 5HJ

PINK 456:

The Barry College of FE Radio Society has written to say that at its recent rally on 6 March, a raffle prize of a 2m or 70cm handheld transceiver or cash equivalent was offered. The winning ticket was PINK 456 but, after extensive searching, the holder of the ticket has not been found. If you went to the rally and bought a ticket, empty out your pockets; you may be the proud owner of a new handheld. If, by any chance, you have the illusive PINK 456, get in touch with Mike, GW8CMU as soon as possible. His telephone number is 0446-711426.

358 WIRELESS UNIT - WHERE ARE YOU?

Mr R A Warren, GOIEL, is would like to hear from any radio amateurs who served in the RAF's 358 Wireless Unit during the last war. If you were part of that unit Mr Warren would love to hear from you and he can be contacted at:-

48 High West Road
Crook
Co.Durham DL15 9NS

AIRCRAFT ARTEFACTS:

Godfrey Manning, G4GLM, is looking for any aircraft radio, navigation or other equipment including navigation charts; he's particularly interested in acquiring any instruments which were fitted to the Avro Vulcan delta-wing V-bombers which have just retired from RAF service. Godfrey is seeking these items to supplement his private collection of aircraft artefacts. Godfrey has been building his collection for over four years and it contains many interesting items from mainly civil aircraft at present.

The collection is located near Edgware in north London and is open to visitors by prior arrangement. Further details can be obtained from Godfrey on 01-958 5113 and talk-in can be provided for visitors on 144 MHz.

CALLING ALL DXers:

We've just received a short note from Spyros, 5B4MF, who informs us that he'll be moving to England in October 1988 to begin University studies. Spyros is QSL manager for number of callsigns and stresses that anyone who needs a QSL card for any of the following should write to him direct as soon as possible;

5B4MF	- 1982-88
5B4XX	- 1988 ARRL 10 Contest
5B4PG	
5B25MF	- Aug-Nov 1985
H25MF	- 1987 IARU World Championship
	- 1987 European DX
H22H	- 1988 CQ WW WPX

QSL cards not received by August 1988 will be answered in the summer of 1989 when Spyros returns home for his summer holiday. The address to which you should send your cards is:-

Spyros Stavrinides, 5B4MF
PO Box 9129
Nicosia
Cyprus

You have been warned!

ATHENS CALLING:

During a recent QSO between RSGB HQ and Agi, SV1ACS, a general invitation was given to all London-based amateurs and SWLs who intend to visit Athens. Agi is a member of the Athens-London Society which is devoted to promoting correspondence and contacts between people living in the London area and Greeks living in Athens. Anyone who would like to correspond with or meet members of the Athens-London Society should write to:-

Dr Agi Sarakinos, SV1ACS
4 Chiou Street
Athens 15231
Greece

Remember.... 'Helplines' is here to help you. When sending items for this column, please mark your envelope "HELPLINES - BULLETIN".

NEWS & VIEWS

Around the Groups

This section of the Bulletin has been expanded to include more items of interesting news from clubs, groups and societies. We are looking for the kind of news which will be of interest to other amateurs and clubs - such as special awards, DXpeditions, user groups, special interest groups, etc. In addition, we'd like to know if your club has an interesting project on the go or is doing something to encourage youngsters into amateur radio. Basically, we'd like to hear about anything which might inspire fellow amateurs and clubs to do something similar. Have a look at the items below for examples of what we have in mind.

If you have any interesting items of news, with good black & white photographs if possible, please send them direct to HQ marked "Around the Groups - Bulletin". We may not be able to use all items sent in because of space limitations but we'll try and fit in as many as possible.

The deadline for the AUGUST issue is Monday 20 JUNE, but if you can send items in earlier it would be much appreciated.

GB75ER - WINDSOR CASTLE:

The Burnham Beeches Radio Club will be running the special event station GB75ER adjacent to the Devil's Tower in the grounds of Windsor Castle, Berkshire, by the gracious permission of Her Majesty the Queen.

The station will be one of a number of special stations set up to celebrate the 75th Anniversary of the RSGB and, in particular, will emphasise the Royal connection with the Society. The station will be active from 9-17 July and will be open to visitors from 9am until the Castle closes in the evening. Operation will be in the HF bands from 80m-10m and in the VHF 2m band during the daytime and early evening with the possibility of some late evening or nightime operation later in the week. In addition, there will be a packet radio mailbox active in the 2m band which will provide a regular bulletin board giving details of the operating schedules etc. All contacts will receive a special QSL card and GB75ER will be one of the stations required for the RSGB 75 Award.

The Burnham Beeches Radio Club was privileged to run a special event station from Windsor Castle in 1977 to celebrate the Queen's Silver Jubilee. The callsign on that occasion was GE3WIR.

Further details of GB75ER can be obtained from Dave Chislett, G4XDU or Eileen Chislett, G6EIL on 0628-25720.

GB75WS:

The Willenhall & DARS in the West Midlands will be running the special event station GB75WS on four weekends in July from its HQ, the Cross Keys Inn. The dates are, 2/3, 9/10, 16/17, and 23/24 July. The station will be active in the HF bands and will, of course, count towards the 'RSGB 75 Award'.

RAFARS GOLDEN JUBILEE RALLY:

The Royal Air Force Halton RAFARS Golden Jubilee Radio Rally and Air Show takes place on Saturday 18 June at RAF Halton, near Aylesbury, Bucks.

The event opens at 10am and, in addition to the air show, there will be the usual rally stands, an RSGB stand, demostrations of radio and computers all located in Hangar 4. There is ample car-parking space and escorts will be provided for blind and disabled visitors. Talk-in will be provided on S22 by G1RAF and the site can be reached via the A4011, off the A41. Follow the signposts marked "RAFARS/Air Show".

The special event station GB50RAF will be active from RAF Halton throughout the weekend and further details can be obtained from Terry, G4PSH on 0296 85760.

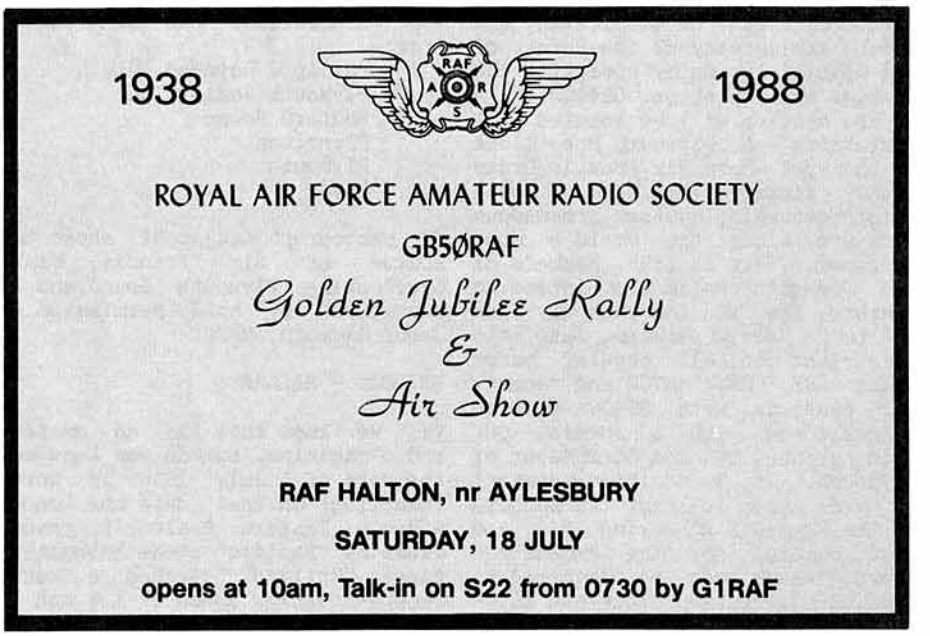
LYNX DX GROUP CONVENTION:

If you happen to be in Spain around 10-12 June, you may be interested in attending the 10th Anniversary Convention of the Lynx DX Group which will be held in the Hotel Alameda in Madrid on those dates. A wide range of lectures and video presentations have been planned as part of the celebrations. To reserve your place or obtain further details please contact:-

Enrique Herrera Arce, EA5AD
Apartado 219
03500 - Benidorm
Spain
tel: 96-5851142 or 96-5864510

BYLARA AGM AT NEC:

The British Young Ladies' Amateur Radio Association will be holding its annual general meeting on Sunday 17 July during the RSGB's 75th Anniversary Convetion at Birmingham's National Exhibition Centre. All BYLARA members are urged to attend and further details can be obtained from Alison on 0384-279769.



GB2ACO - AIKERNESS CAMP ORKNEY:

A special event station, GB2ACO, will be active between 2 and 8 July from the International Girl Guide Camp at Aikerness, Evie, Orkney. Operation will be in the 80m, 40m, 20m and, hopefully 15m bands using SSB and will take place mainly in the evenings. A special QSL card will be available for all contacts and WABers will be pleased to know that the area is HY32, Orkney. Further details can be obtained from Anne, GM6WPA or Bill, GM3IBU, both QTHR.

PLYMOUTH RC - ARMADA 400:

Throughout next month, the Plymouth Radio Club will be celebrating the 400th Anniversary of the defeat of the Spanish Armada by operating the special event station, GB400A.

The station will be located in a Portakabin on Plymouth Hoe, close to the spot where Sir Francis Drake calmly finished his game of bowls before embarking against tremendous odds to fight the world's most fearsome fleet in 1588. Members of the Plymouth Radio Club intend to operate the station each day from 21 to 28 July, operating late into the night in all popular bands using SSB, CW, AMTOR and packet. All contacts with GB400A will be acknowledged with a special QSL card signed by the Lord Mayor of Plymouth. If, in addition, contact is made with at least two members of the Plymouth RC during 1988, you will qualify for the Armada 400 Award, which can be obtained by sending a certified claim and three IRCs to the Awards Manager, G3VCN (QTHR).

GB400A is likely to be found on one or more the following frequencies between 2000 GMT on 21 July and 2359 GMT on 28 July:-

1835 kHz CW
1935 kHz SSB
3535 kHz CW
3605 kHz Packet
3735 kHz SSB
7035 kHz CW
7065 kHz SSB
14.035 MHz CW
14.105 MHz Packet
14.290 MHz SSB
21.035 MHz CW
21.290 MHz SSB
28.035 MHz CW
28.790 MHz SSB
144.325 MHz SSB
144.650 MHz Packet
145.500 MHz (listening) FM

On the final day of operation - 28 July - it is hoped that the Lord Mayor of Plymouth will be able to exchange greetings messages with stations located in the many 'Plymouths' in the USA and Canada.

Her Majesty The Queen will be visiting Plymouth during the month of July but it is not yet known whether Her Majesty's itinerary will allow time for a visit to the station.

To give amateurs the opportunity of working the club stations, G3PRC and G8PRC, the Plymouth RC will be on the air on Monday evenings during its regular meetings. The Plymouth RC is known to have been affiliated to the Wireless Society of London (later to become the RSGB) in 1921, when it was then called the Plymouth Wireless and Scientific Society and it is thought to be one of the olest clubs in the country.

Further information about the club and, in particular, the Armada 400 celebrations can be obtained from:-

Philip J Daymond, G1WVH
Plymouth Radio Club
Radford House
Plymstock
Plymouth
Devon

The photograph (adjacent) shows the statue of Sir Francis Drake overlooking Plymouth Sound and is reproduced by kind permission of James Daymond, MRPS.

GB75MAL - MALLARD:

Yes we know this is an amateur radio magazine, but do you know why the date of 3 July 1938 is worth recalling? On that date the London & North Eastern Railway's famous Class A4 'Pacific' steam locomotive named "Mallard" reached a world record-breaking speed of 126 mph in the course of what was supposed to be a "brake test" (nudge nudge). The venue for this epic feat was Stoke Bank, between Grantham and Peterborough. "Mallard" is preserved in the National Railway Museum at York and was recently restored to full working order thanks to a donation from the town of Scarborough. To celebrate the 50th anniversary of the establishment of the record (which still stands for steam traction, by the way) British Rail has arranged for the locomotive to run from London to Scarborough on 3 and 9 July this year. To mark this historic occasion, the Scarborough Special Events Group will be on the air on both dates using the callsign GB75MAL. Operation will be around 3725 and 7055 kHz SSB and in the 2 metre band using FM. Special QSL cards will be available and further details can be obtained from Roy Clayton, G4SSH (QTHR).

RAIBC ON THE ROAD:

The Radio Amateur Invalid & Blind Club will have stands at the following rallies this summer:

RNARS Mobile Rally -	12 June
RAFARS Mobile Rally -	18 June
Longleat Rally -	26 June
RSGB National Conv. -	15/17 July
McMichael Rally -	24 July
RSGB Woburn Rally (AGM) -	7 Aug
RSGB HF Convention -	25 Sept
Harlow Mobile Rally -	25 Sept

The Barry College of Further Education RS celebrates its 21st anniversary this year and it was decidedto award life-membership to Colin, GW3WSU and his wife Margaret, GW4GSH, in recognition of their valuable efforts to both the club and its members. The certificate was presented by Glyne, GW0ANA (right), during a recent club meeting.

ROY DROPS IN TO CLAIM RECORD:

Roy Andreang, G4CMT an enthusiastic radio amateur and member of the Haltemprice District Scout Fellowship, made a second bold bid to get into the record books on Easter Saturday, 2 April, whilst descending by parachute from 14,200' into RAF Weston-on-the-Green near Oxford.

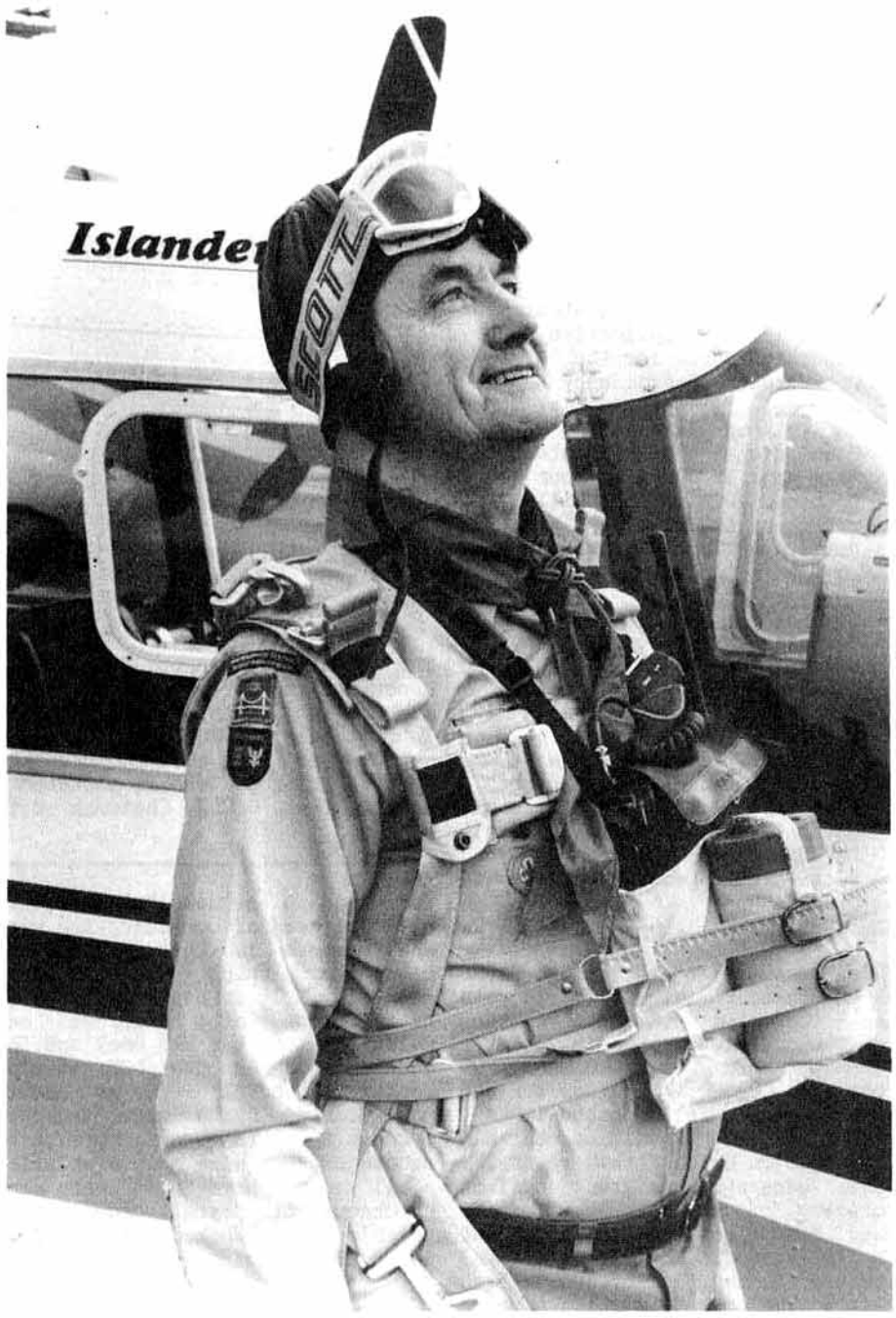
Roy, now aged 64, first went into the record books at the age of 55 when he contacted amateur stations using speech during a parachute jump. On this more recent jump he was to attempt contacts with amateur stations on CW but this intention was thwarted by a number of technical problems. However, he did manage what he believes to be another first; brewing-up tea on the way down!

After waiting around for three hours, Roy and Parachute Training Instructor Dave Emmerson from the RAF, took off at 1300 hours GMT when a clear blue patch of sky appeared over the airfield. Pausing to drop off two groups of parachutists from the Royal Air Force Display Team on the way up, the aircraft finally reached 14,200' and Roy emerged to make his tandem drop on the back of the instructor. Many stations who had been following the build-up to the drop through ground stations on 80m and 2m quickly returned to S22 to listen for the signals from the FT290 MkII transceiver, loaned to Roy by SMC (Northern) in Leeds. His initial call from GB4CMT/Parachute Mobile was easily heard but then only bursts of carier were audible until Roy was practically on the ground. On landing, Roy completed a few more contacts via the GB3VA repeater before explaining that on leaving the aircraft he suddenly realised that the digital frequency read-out on the rig was changing constantly unitl, on reaching the ground, it clearly showed the correct frequency. He also experienced difficulty in operating the Morse key strapped to his thigh as it appeared to have frozen solid.

During the morning, stations listening on 80m were kept informed of progress by John Gudgeon, G4MDU of Northampton, Ian Rivett, G8WPU and Karrl Richardson, G7AAY using the Northampton Radio Scout Amateur Radio Group station G6NDS. Links from the airfield were provided by Scout Association PRO John Fogg, G3PHZ and Roy's brother Keith Andreang, G4GZN. The Northampton Scouts came in to assist at very short notice after the jump had to be transferred from Bridlington to Oxfordshire.

Roy, who celebrated his 64th birthday just four days after the jump, was the first person to transmit from the Humber Bridge using amateur radio when he climbed to the top of the north tower in 1974. His latest parachute jump was made in order to raise funds for the Raywell Park Scout Training Centre near Hull. Watching him make what he has promied will be his last jump were his neice and her husband, John and Susan Davidson, both of whom are Cub Scout leaders with the 1st Erith Group in Kent.

Although the amateur radio operation was not the success he had hoped for, Roy's claim for the record books is that during the descent he brewed a cup of tea - certainly on reaching earth he was proudly brandishing a flask of steaming tea having left the ground with hot water and tea bags only.



The photograph (above) shows Roy looking with anticipation for a patch of blue sky, just before taking off for his jump.

JOTA COUNTDOWN:

The United Kingdom Jamboree On The Air Team has compiled a very useful "Calendar of Preparations for JOTA" which is designed to help Scout Leaders and radio amateurs to plan for this annual world-wide Scouting event and avoid some of the things which often get overlooked. This year's JOTA, the 31st, will be held over the weekend 15/16 October and copies of the calendar can be

obtained by sending a large stamped addressed envelope to:-

UK JOTA Team
The Scout Association
Programme & Training Dept.
Gilwell Park
London E4 7QW

In the meantime, here's what to do during July -

Scouts:

a) Liaise with a radio amateur about licence application and possible course for the Communicator Proficiency Badge etc.
b) Notify your District Commissioner that you intend to take part in JOTA. If your proposed JOTA station will represent the county, also notify the County Commissioner.

Amateurs:

a) Make absolutely certain that you have been asked by the Scouts to operate a JOTA station before proceeding further; it is a Scouting event.
b) Make an application for a special-event callsign to the Membership Services Deptartment, Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

WAB NEWS:

This month's "first" goes to RB5MF as the first Soviet station to gain the Counties Award. Another notable achievement is G4WZA's WABEMA Award as Alan has now activated 2,000 WAB areas for the benefit of his fellow enthusiasts.

The GB1OVA expedition to WAB area OV00 in North Yorkshire on 2/3 April generated a great deal of activity on 144 MHz. Despite poor band conditions and the fact that the 13-element Yagi at 15' was located at the foot of a 150m high cliff, the operators still managed 40 valid contacts in a total of 6.5 hours. The best contacts were with G8MFV in Kent, G6HCV in Staffordshire, PE1LVU, ON1CAK and ON1CDQ.

Interest in WAB is growing in the USA and Andy, GW0ECO/K5, has attained the Winter Activity Award on 21 MHz. Andy reports that Jim, K9KQ, is QRV on weekdays from 1400 to 1600 GMT on 21.310 MHz. Andy himself is QRV on the same frequency at weekends and would like to remind mobiles of the interest across the pond and requests that they might occasionally QSY to 21 MHz during the afternoon. The same goes for fixed stations too.

Although WAB is regularly featured in the News Bulletin, the official mean of communicating with WAB members is through the WAB Newsletter which is published quarterly. It is used for official notification of additions and deletions to the WAB Book and for events such as the AGM. It also contains general articles and is now printed by a much improved process. The subscription proceedure has also been simplified - all you now have to do is to send a cheque or postal order, made payable to "Worked All Britain Awards A/C", to:-

Jim Martin, G4ULM
16 Queens Gardens
Eaton Socon
Huntingdon
Cambs PE19 3BY

Finally, a reminder of some forthcoming WAB Contests;

144 MHz QRO SSB - 19 June (0900 - 1600 GMT)
144 MHz QRP SSB - 10 July (0900 - 1300 GMT)
430 MHz SSB - 10 July (1400 - 1800 GMT)

Further details and logsheets can be obtained by sending a 9"x4" stamped addressed envelope and 3 First Class stamps to the Contest Manager, G6XLL (QTHR).

The RSGB's President, Sir Richard Davies KCVO (G2XM), was guest of honour at the Sutton & Cheam Radio Society's 39th annual dinner. Some 81 members and guests attended the event which took place at the Stoneleigh Inn, Stoneleigh, Surrey on Saturday 26 March.

The guest list also included the Mayor of Sutton & Cheam, Councilloi Kenneth Bishop, who is pictured (left) with Sir Richard (centre) and Roddy Clewes, G3CDK, Chairman of the Sutton & Cheam RS.

(Photograph by Gordon Allis, G1LRS)

GB4WHT RAISES £650 FOR CHARITY:

From 15-17 January, the North Cheshire Radio Club ran the special event station GB4WHT to raise money for the Wythenshawe Hospital Heart Transplant Unit. Although propagation was not as good as had been hoped, some 540 contacts were made during the 48-hour operating period including JW8FG on Bear Island.

A total of £5,200 was raised for the Unit, £650 of which came from the North Cheshire RC in the form of private sponsorship and donations. A 10 Ore coin was sent, attached to a QSL card from short wave listener Crisi, SM7-7394, in Hollviken, Sweden. So far, 122 QSL cards have been received, many of which were accompanied by donations for which the club is very grateful.

BBC ARIEL RG's PATRICK CUP AWARDED:

Dennis Booty, G3KKQ, of the BBC's Equipment Department at Avenue House, Chiswick has been awarded the BC Club's Ariel Radio Group Patrick Cup for coming first in the 1988 contest.

Dennis was the leading station in Section A, second was Ron West, GW2DPD and third was Bob Smith, G3LVW. Section B was won by the Club Station, G3PPG, at the

The RSGB's President, Sir Richard Davies, KCVO (G2XM) seen here in the shack of Fred Ward, G2CVV, GB2RS newsreader for the Midlands. Sir Richard visited Fred in order to read the announcement on GB2RS that His Royal Highness Prince Philip, Duke of Edinburgh would be performing the official opening ceremony of the Society's 75th Anniversary Convention on Friday 15 July.

(cont. from previous page)

Engineering Training Dept., Evesham for the second year.

This annual contest is open to all current and retired staff and takes place in the HF bands, with signal reports and staff numbers being exchanged. The organiser, Brian Bower, G3COJ, winner of this year's BBC Club Award (see last month's News Bulletin) said that propagation was better than last year, especially at 7 MHz.

Brian is hoping to retire shortly and is looking for a willing volunteer to take over the running of the event.

GB4SCC:

On 17 June, the Sutton Coldfield Radio Society will be running the special event station GB4SCC at the Sutton Coldfield Carnival, which is an annual event to raise money for local charities. Members of the club will be sponsored on the number of contacts made during the period of the special event and will be putting on a display to promote amateur radio to the general public.

Following an agreement with the Sutton Rugby Club, the Sutton Coldfield RS will now meet at the Rugby Club's premises. This provides a secure venue at which the club can run nights on the air and even car boot sales (subject to permission from the local Council). Both old and new members will be made very welcome at the new venue and further details can be obtained from Mike, G4MFN (QTHR).

YLs DOWN UNDER:

The Australian Ladies' Amateur Radio Association (ALARA) has an award for all YLs, OMs and SWLs who have contacted or heard ALARA members on or after 30 June 1975.

To qualify for the award, stations outside Australia and New Zealand must log 10 contacts with ALARA members, 4 of which must be from different VK call areas. All contacts must be made from the same call area of your respective countries and official ALARA Net contacts will not count. Endorsements are available for Mixed, CW, Phone, All 28 MHz, etc and for each additional 5 members contacted. During 1988 - the Australian Bicentennial Year, a special Bicentennial sticker will be given with every award or endosement applied for.

Applicants must submit a log extract, certified correct and signed by two other amateurs, which includes the following information - date, time UTC, band, mode, callsign & name of ALARA member contacted, and reports sent & received, together with the full name, address, signature and callsign of the applicant. If the log extract is not certified, QSL cards must be sent.

The fee for the award is 7 IRCs and applications should be sent to:-

ALARA Awards Custodian
Mavis Stafford, VK3KS
16 Byron Street
Box Hill South
Victoria 3128
Australia

GB75PI - PIEL ISLAND:

The South Lakeland ARS will be running the special event station GB75PI to celebrate the 75th Anniversary of the RSGB over the NEC weekend 15-17 July. The station will be located on Piel Island near Barrow-in-Furness, Cumbria (locator IO84JB, WAB square SD26).

It is an ancient tradition that the landlord of the the Ship Inn, the only pub on the island, is called the 'King of Piel' and the current holder of the title is Mr Rod Scarr who was 'crowned' on 25 May 1986. The island is very small and, as well as the one pub, it has an ancient castle and a row of five houses. The island is reached by ferry from Roa Island or by crossing the sands at low tide.

GB75RPP:

The Trowbridge & District ARC will operate the special event station, GB75RPP on 18/19 June from North Townsend Farm, Melksham, Wiltshire. The callsign celebrates the 75th Anniversary of the RSGB and will be privately sponsored in aid of Rotary Polio Plus; a two-year world-wide programme to eliminate polio and five other child related deseases. Actvity will be in the HF, VHF and UHF bands and special QSL cards will be issued. Further details can be obtained from Ian, GOGRI on 0380-830383.

GB2PCS:

In response to recent editorials and letters in Radio Communication on the need to encourage youngsters into amateur radio, 22 young people at Preston School in Yeovil will be partiipating in an "Electronics Construction and Communications" activity as part of the school's Project 88.

The pupils build electronic hardware, including a simple short-wave receiver as well as listen to and with encouragement, participate in the operation of an amateur radio atation set up in the school. Craig Douglas, GOHDJ, Head of Science at the school and G4WMV are well supported by members of the Yeovil ARC which also sponsors a competition for local schools where electronics forms part of the GCSE Course.

Craig would like to ask for the support of fellow amateurs that when they hear GB2PCS (Preston Comprehensive School) they try to work the station and let the youngsters enjoy some of the pleasures we get from our hobby. After all, ".....from these young sparks do 4-element quads atop 60' towers grow".

(over)

The Three Counties Amateur Radio Club celebrated its fifth anniversary on 16 March with champagne, a buffet and a splendid cake. The cake was decorated with a quartered shield depicting the crests of the three counties of Hampshire, Surrey and Sussex with the RSGB 'diamond' logo in the fourth quarter. Seen in the photograph are - (L to R) Alan Hayter, G4UWJ, Secretary; Jan Bloodworth, G4VMO, Vice-Chairman; Bill Applebee, G4ZKJ, Treasurer; Dave Lawrence, G4VKC, Chairman; and Ralph Hodgson, G3TBT, President.

RADIOACTIVE IN DUBLIN:

Activity the like of which is seldom seen or heard in EI abounded in the capital city of Dublin on St.Patrick's Day, 17 March.

Dublin amateurs came out of the woodwork and not only in EI but also in Dublin Australia, New Zealand, Virginia, Pennsylvania, Texas, New Hampshire, Georgia and even Dublin village on Banana Is off Sierra Leone. The reason for all of this activity was that Dublin is celebrating 1,000 years since its foundation as a city.

A special millennium group from the Irish Radio Transmitters Society (IRTS) re-activated the callsign EI1000 and began a 24 hour operating period at 12 midnight. The entire event took months of planning and considerable research and correspondence. Detailed propagation forecasts were also needed to facilitate the operation. The station, which consisted of a Yaesu FT707 and 757GX plus two linear amplifiers, was located on the top floor of an office block. A Mosley 3-element Yagi towered over the surrounding landscape.

Another station, which was open to the public, was operational from the General Post Office on O'Connell Streetand the live VHF to HF patch system to the main station worked well. A comprehensive display of all the facets of amateur radio created much public interest in the hobby. A third station was operational from the Fingal Radio Club on VHF and UHF.

The Lord Mayor, Carmencia Hederman, arrived at the GPO station topass on best wishes to the IRTS and congratulate the group on a fine effort. A unique pre-stamped QSL card was provided by the Irish Postal Service and is available direct from PO Box 2223, Dublin 1.

The next event planned for the Dublin Millennium will take place on 10 July and it is hoped to run a portable special event station in Pheonix Park, situated in the centre of Dublin, to coincide with an Amateur Radio Emergency Network exercise.

The photograph, adjacent, shows some of the members of the Millennium Group operating EI1000.

LATE NEWS.....

Finnish amateurs definitely getting 50-50.45 MHz, CW and SSB, initially on permit basis. More next month.

NEWS & VIEWS

Events Diary

CLUB NEWS

In an attempt to reduce the number of pages previously used for Club News, we are using a more abbreviated format listing clubs alphabetically under counties and giving the date and subject of the meeting. As in GB2RS, natter nights and committee meetings are not listed. The full details of when and where clubs meet, the frequency of meetings, the contact person and telephone number will be published twice yearly in the UK Callbook and Radio Communication. However, any changes to these details or details of any new clubs, will be included in the list below. If news is received by the published deadline, it will appear in the listing. It is your responsibility to ensure that items are sent to HQ in good time, either direct or via your RLO. News items should be sent in writing, preferably typed or written legibly, and be signed by the club secretary or the person responsible for publicity.

Co ANTRIM:
* Ballymena RC - 11, GI3FFF/P HF/VHF/UHF field activity.

AVON:
* Bath & DARC - 8, lecture; 22, Longleat planning.
* Bristol ARC - 2, lecture "GB3ZZ Bristol TV Repeater".
* Bristol RSGB Group - 12, mobile picnic at Ashton Court Park; 20, lecture "HF Antennas for the Small Garden", GW4HWR; 25, Longleat Rally preparation on-site.
* North Bristol ARC - 3, preparation for GB75LOF; 4, GB75LOF; 10, activity evening; 17, QSL card display; 24, 2m activity evening.
* Severnside Television Group - ***NEW NAME*** formerly Bristol FM TV Group. Meets at Elm Par Parish Pavilion, Elm Park, Filton, Bristol. Details G4ZQF tel: 0454 617 341.
* South Bristol ARC - 1, Bristol Rally briefing; 8, packet radio evening; 11, open day, GB2WFH; 15, computer evening; 22, Longleat Rally briefing; 29, VHF NFD briefing.
* Thornbury & DARC - 14, foxhunt.
* Weston-super-Mare ARS - 13, illustrated talk "Crime Prevention", Sgt Brown; 27, constructors' night.

BEDFORDSHIRE:
* Shefford & DARS - 4/5, HF NFD at Toplers Hill; 9, Bygones Quiz with J.Turner of Bedford Museum.

CAMBRIDGESHIRE:
* RAF Wyton ARC - ***REFORMED*** Meets Wednesdays at 6pm. Club callsign G3MMH. Details Flt Lt C R Burchell RAF, tel: Huntingdon 52451 ext 6456 (daytime).

CENTRAL:
* Falkirk ARS - Anyone interested in re-starting a club in the Falkirk area please contact RLO. Brian, GM4XQJ, tel: 0324-31258.

CHESHIRE:
* Chester - 14, 40th Anniversary Dinner; 21, treasure hunt.
* Ellesmere Port & DARS - ***CORRECTION*** meets alternate Mondays.
* Mid-Cheshire - 1, night on-air; 8, VHF NFD planning; 15, construction & testing UHF equipment; 22, lecture "Railways"; 29, final NFD planning.

CORNWALL:
* Cornish RAC Computer Section - 13, demonstration of BBC Master 512, G4MSV.
* Mounts Bay ARG - ***NEW DETAILS*** meets Mondays 7pm at Penzance Sub-aqua Club, Albert Pier, Penzance. Contact GOAIX.

CUMBRIA:
* Solway Radio Club - ***NEW SECRETARY*** Marion Dockray, G1PEN. Club meets 2nd & 4th Wednesdays at 7.30pm in Maryport Educational Settlement, High Street, Maryport.

DERBYSHIRE:
* Derby & DARC - 1, junk sale; 8, 2m foxhunt 7.30pm at Allestree Park, Derby; 15, illustrated lecture "The Work of the Severn-Trent Water Authority"; 22, barbecue at Drun Hill, Little Eaton; 29, illustrated lecture "Radio-controlled Dolphins & All That!", Dave G8TSQ. ***NEW SECRETARY*** Kevin Jones, G4FPY, tel: 0332-669157.

DEVON:
* Exeter ARS - 13, annual surplus sale.
* Plymouth RC - 20, Armada 400 briefing; 27, final Armada 400 briefing.

DORSET:
* Blackmore Vale ARS - ***NEW SECRETARY*** Stuart Brunton, 5 Mill Rise, Bourton, Gillingham, Dorset. Meets 8pm 2nd & 4th Tuesdays at The Bell & Crown, Zeals, Dorset.
* South Dorset RS - ***NEW SECRETARY*** Dennis G6HKD. 7, HF on-air.

Co DOWN:
* Bangor & DARS - 3, NFD.

EAST SUSSEX:
* Brighton & DARS - 1, lecture "Cushcraft Antennas", G3XUS; 15, Sussex Rally job allocation.
* Southdown ARS - 6, lecture "The Sussex Hurricane", SE Electricity Board.

ESSEX:
* Braintree & DARS - 6, "The Welsh Connection" 20, lecture "CEGB".
* Chelmsford ARS - 7, constructors' competition.
* Loughton & DARS - 3, HF DF Hunt starting at Loughton Hall 7.30pm, G4ONP on 1910 kHz.
* Southend & DRS - 3, rally preparation; 10, lecture "Communications in War-Time" Mr B.Irwin, Southend EPO; 17, lecture "The Work of the Citizens' Advice Bureau", Fred Swan; 24, post-rally forum.

Co FERMANAGH:
* Lough Erne ARC - NO MEETINGS UNTIL SEPTEMBER.

GREATER LONDON:
* Acton, Brentford & Chiswick ARC - 21, discussion "Mobile & Portable Operation".
* Civil Service ARS - 6, video "DX-pedition to Lord Howe Island", Martin G3ZAY; 20, discussion "Sporadic E".
* Clifton ARS - **NEW SECRETARY** Mr M E Brown GODCG, tel: 01-691 2341.
* Edgware & DARS - 9, lecture "Digital Transmission for Amateurs, What Does the Future Hold?", E.Kessler; 23, lecture "Antenna Surgery or How to Cut Your Wire Antennas", G4GYS.
* Harrow RS - **CHANGE** new Programme Manager Gerald GOGXM tel: 01-863 2780. 4, activity night.
* Kingston & DARS - 15, lecture "500 kHz and Below", Tom G3ESH.
* Southgate ARC - lecture "The Packet Experiment", Mike G3XDV; 23, packet radio demonstration.
* Sutton & Cheam RS - 17, inter-club quiz v Coulsdon ATS.
* Wimbledon & DARS - 10, lecture "Nuclear Magnetic Resonance in Medicine", Dr J. Griffiths; 24, summer bazaar.

GREATER MANCHESTER:
* Eccles & DARS - 7, demonstration "Decision Theory", G6FEI.
* South Manchester RC - 3, HF NFD preparation & discussion; 10, lecture "The Use of Computers in Environmental Measurements", J.Ashurst; 17, lecture "An Introduction to Digital Techniques, part 3", GODMU; 24, mid-summer DF and barbecue, 8.15pm start.
* Stockport RS - 8, post-NFD discussion; 22, lecture "Packet Radio", G4BVE.

GWENT:
* Abergavenny RS - ***NEW CLUB*** meets Thursdays at 7.30pm in Hill Residential College, Pen-y-Pound, Abergavenny. Details Reg, GW4IQA tel: 0873-890681.
* Blackwood ARS - 10, lecture "FT101ZD, a Technical Description", GW3NWS; 17, lecture "Planning Permission", Mr Morgan of Islwyn BC Planning Dept.
* Newport ARS - 6, discussion on Eistedffod; 13, video evening; 20, lecture "Crime Prevention", Newport CPO.

GWYNEDD:
* Meirion ARS - 2, lecture "Computers & Software for the Amateur", GW3RRI; 25, demonstration station GWOTPR at Barmouth Promenade

HAMPSHIRE:
* **RLO ADDRESS CHANGE** - Trevor Emery, G3KWU, 75 Haig Rd, Bishopstoke, Eastleigh, Hants, SO5 6JF, tel: 0703-693673.
* Andover RAC - 4, junk sale; 18, DF Hunt. ***NEW SECRETARY*** G8ALR tel: Andover 23741.
* Horndean & DARC - 2, lecture "Pathfinders", G3VPO.

HEREFORD & WORCESTER:
* Bromsgrove & DARS - ***NEW SECRETARY*** GOHPG tel: 021-477 8135.
* Kidderminster & DARC - 7, DF Foxhunt; 21, VHF NFD preparations.
* Malvern Hills ARC - 7, constructional competition.
* Vale of Evesham ARC - 2, 2m DF hunt, starts 7.30pm talk-in S22.
* Wythall RC - 14, night on-air; 21, visit by RLO GOEYO; 28, barbecue; 28, construction.

HERTFORDSHIRE:
* Cheshunt & DARC - 1, NFD preparation; 15, lecture.
* Stevenage & DARS - 7, lecture & demonstration "Shefford 2m Transceiver", Shefford club members; 12, Stevenage Day.
* Verulam ARC - 14, workshop; 28, lecture "Practical PSUs", G4KGP.
* Welwyn-Hatfield ARC - 20, VHF NFD preparations.

HIGHLAND:
* Inverness ARC - 11, special event station GB2NCG at Police Gala.

JERSEY:
* Jersey ARS - **NEW SECRETARY** David Reid, GJOBZF.

KENT:
* Medway AR&TS - ***NEW VENUE & DAY*** 5th Medway Scout HQ, Roseberry Avenue, Beresford Avenue, Rochester, Kent, Tuesdays at 7.30pm.
* SE Kent (YMCA) ARC - 8, lecture "How to Improve Your VHF DX", G8VR; 15, final arrangements for Waldershare weekend; 22, treasure hunt.
* West Kent ARS - ***NEW SECRETARY*** Roger G4BIA, tel: Staplehurst 892026. Club meets Fridays 8pm at KEC Camden Annexe, Quarry Rd, Tunbridge Wells.

LANCASHIRE:
* Bury RS - 14, lecture "Weather Satellite", G8GTP.
* Central Lancs ARC - 5, club stand at BARC Rally; 6, NFD post-mortem and video of event; 20, slide lecture "The Colonsay DX-pedition".
* Fylde ARS - 7, lecture "Aerials for Confined Spaces", G8GG.
* Preston ARS - 2, final HF NFD and pre-VHF NFD preparations; 16, lecture "Air Traffic Control"; 30, final VHF NFD preparations.
* Southport & DARC (inc Ainsdale ARC) - ***CHANGE OF DETAILS*** Now meets 3rd Monday at 8pm in St.Marks Church, Scarisbrick. ***NEW SECRETARY*** Vivian Slight G6SX, tel: 0704-67436.

LEICESTERSHIRE:
* Leicester RS - 6, quarterly progress; 13, HF/VHF activity night; 20, HF NFD post-mortem; 27, VHF NFD final arrangements.
* Loughborough & DARC - 7, night on-air; 14, 3rd DF event; 21, magazine reviews & technical chat; 28, lecture.

LINCOLNSHIRE:
* Lincoln SWC - 1, activity night; 8, junk sale, hot dogs & mushy peas; 15, night on-air, Hamfest preparations; 22, lecture "Press & TV Photographer", G8VGF; 29, activity night.

LOTHIAN:
* Lothians RS - 22, AGM.

MERSEYSIDE:
* Liverpool & DARS - 7, construction display; 14, open night; 21, NFD inquest; 28, preparation for VHF NFD.
* Sandown ARC (Formerly Riversdale ARS) - Run by staff & students of Dept. of Engineering, Sandown College, Sandown Road, Liverpool L15. Details Jim, G4DKO.
* Wirral & DARC - 1, practice DF hunt; 8, 10th Anniversary Celebrations with special event stations; 22, barbecue on Heswell shore; 29, Eileen Medley DF Cup.

MID-GLAMORGAN:
* Bridgend & DARC - 1, lecture "Earth-Moon-Earth Communications", GW3ZTH; 26, coach trip to Longleat Rally. ***NEW SECRETARY*** Dave, GW1TFU, tel: 0656-61340.
* Rhondda ARS - 8, GB75PL at Pontypridd Lions Fete; 5, foxhunt; 23, lecture "Calculations Involving Decibels", GW4NOS.

NORFOLK:
* Norfolk ARC - ***NEW VENUE*** Red Roofs Club, Fifers Lane, Norwich. Meetings on Wednesdays, 7.30pm. 1, NFD final briefing; 8, home construction evening; 22, open evening.
* Yarmouth RC - 16, lecture "Mosley Antennas"

NORTH YORKSHIRE:
* York RC - 1, lecture "Home Security Electronics"; 8, night on-air; 15, repeater night; 29, lecture "Computers & Applications".

Events Diary

OXFORDSHIRE:
* Oxford & DARS - *NEW DETAILS* club now meets on 2nd & 4th Thursdays at 7.45pm in Royal British Legion Club, Marston & Dist Branch, Hadow Rd, Oxford. Secretary Glyn G0AGJ, tel: Oxford 242720.

POWYS:
* South Powys ARC - 7, demonstration of HF equipment.

SHROPSHIRE:
* Salop ARS - 2, junk sale; 16, lecture "RSGB", GW4FRX; 30, HF special event station on-air.
* Telford & DARS - 1, club project; 8, VHF NFD planning; 15, double DF hunt; 22, lecture "Fibre Optics", G6UDX; 29, junk sale at British Legion Club, Dawley.

SOMERSET:
* Mid-Somerset ARC - 3, lecture "Power Measurements", G4GUG.
* Yeovil ARC - 9, lecture "Regulated PSUs", G3GC; 16, lecture "The Horizontal Full-Wave Dipole", G3MYM; 23, lecture "Sporadic E Propagation", G3MYM.

SOUTH GLAMORGAN:
* Barry College of FE RS - 16, video "SWLs in the Early Days of Radio"; 26, coach trip to Longleat Rally.
* British Telecom (S. Wales Dist) ARS - 8, audio visual lecture "Converting CBs to 10m Band", GW3SPA; 15, visit to Portishead Radio; 26, coach trip to Longleat Rally.
* Cardiff RSGB Group - 3, lecture "2m DX Through the Bedroom Window", GW8CMU.

SOUTH YORKSHIRE:
* Maltby ARS - 3, project corner; 10, lecture "50 MHz via a Transverter", G6OYL; 17, activity & night on-air; 24, Maltby Festival check-in; 25, Maltby Festival special event station.
* Sheffield ARC - 6, practical evening; 13, lecture "Care & Feeding of Antennas", G8AGN.

STAFFORDSHIRE:
* Cannock Chase ARS - *NEW VENUE/NEW SECRETARY* Victoria WMC, Church Hill, Hednesford, 8pm/Tony G0HKF tel: 05436-75301.
* Stafford & DARS - *NEW VENUE/NEW SECRETARY* now meets Tuesdays at 7.30pm in Universal Sports & Social Club, Doxey Road, Stafford. Details Bernard, G3ESW, 24 Hartland Avenue, Stafford ST17 0EJ.

SUFFOLK:
* Felixstowe & DARS - 12, Sunday DF Hunt; 27, lecture "VHF DX-peditions", G4FRE.
* Ipswich RC - 8, lecture "HF Antennas for Small Gardens", G3XAP; 29, treasure hunt plus decision on VHF NFD.

SURREY:
* Dorking & DRS - 14, lecture "Operating Techniques", G4PNA; 28, final planning for VHF NFD.

TYNE & WEAR:
* Tyneside ARS - *NEW VENUE* now meets at St.Teresa's Club, 200b Heaton Road, Heaton, Newcastle-upon-Tyne, NE6 5HP. Details Gary, G4KOT tel: 091-234 1148.
* Washington RC Concord - *NEW SECRETARY* Bob G0JCW, tel: 091-534 3720. Meets at the Oval Community Centre, Washington, Tyne & Wear.

WARWICKSHIRE:
* Atherstone ARC - 13, lecture "Weather Satellites", G4ROA; 27, night on-air.
* Mid-Warwickshire ARS - 7, DF foxhunt & barbecue; 21, technical topics.
* Rugby ATS - 7, test gear night, contact G8TWH for specific requirements; 14, 2m DF hunt; 21, lecture "QRP Kits", C M Howes Communications; 28, annual mid-summer barbecue.
* Stratford-upon-Avon & DARC - 13, lecture "Microphones", G0CCH; 27, summer social.

WEST MIDLANDS:
* Coventry ARS - 3, night on-air, Morse tuition; 10, 2m DF contest; 17, night on-air, Morse tuition; 24, visit.
* Midlands ARS - 21, treasure hunt.
* Midlands Electricity Board RS - 14, DTI video show.
* South Birmingham RS - *NEW SECRETARY* Winston G1WNZ tel: 021-444 1681.
* Willenhall ARS - 15, CW night.

WEST SUSSEX:
* Horsham ARC - 3, lecture "Independent Television", G3OGP.
* Mid-Sussex ARS - 2, visit; 16, anniversary at the Jack & Jill Windmills, Clayton; 23, lecture.

WEST YORKSHIRE:
* Halifax & DARS - 21, lecture "RAFARS", G4DNB.
* Keighley ARS - 28, lecture "Electronic Gas Detection", G0BZH.
* North Wakefield RC - 2, barbecue; 9, night on-air; 16, Water Prince floating restaurant.
* Pontefract & DARS - 2, lecture by G3PSM, Raynet County Controller; 16, lecture "CW Keys & Keying", G4OSY; 23, annual open DF hunt; 30, night on-air.
* Todmorden & DARS - 6, lecture "Clandestine Radio", G3LEQ.
* Wakefield & DRS - 7, 2m DF foxhunt; 14, 2m contest organising; 21, lecture "Royal Signals ARS".

WILTSHIRE:
* Chippenham & DARC - *NEW SECRETARY* J Barrington G4ZUV.

DEADLINE - Items for inclusion in the AUGUST issue must be sent to HQ marked "Club News - Bulletin", and be received by Friday, 17 June latest.

MOBILE RALLIES

This is a list of all rallies, exhibitions and conventions notified to HQ **(as at press date)**. Items are given in detail for the next three months inclusive and in brief thereafter. Please send detailed information, including contact callsign and telephone numbers direct to HQ and marked 'Bulletin'.

5 JUNE
* Southend Mobile Rally - Rochway Centre, Rochford, Essex. Details G8EFG, tel: 0268-755331.
* Spalding & DARS Mobile Rally - Springfields Arena, next to Springfields Gardens, Spalding. Free entry to the gardens for all rally visitors. Talk-in on S22 and SU8. Details G4TWR tel: 0775-2940.
* Bolton ARC Mobile Rally - The Deane Sports Complex, New York, Junction Road, Bolton. All the usual trade stands, bring & buy, refreshments & bar, £100 free draw. Details Kenneth G6ZJL, tel: 0204-696906.

12 JUNE
* Elvaston Castle Mobile Radio Rally - Elvaston Castle Country Park, nr Derby. Usual traders, bring & buy, flea market, bookstall, arena activities, craft marquee, children's entertainment, full on-site catering. Family day out. Talk-in on 2m and 70cm. Details John G4PZY, tel: 0332-767994. Trade enquiries, Peter, G3WFU tel: 0332-700265 (evenings).
* RNARS Annual Mobile Rally - HMS Mercury, nr Petersfield, Hants. Opens at 10am and features all the usual trade and display stands, *RSGB stand*, attractions for the whole family, refreshments and ample car parking space. Talk-in on 2m and 70cm. Details G4UJR tel: 0703-557469.
* Mid-Lanark ARS Open Day - *NEW VENUE* The Community Centre, Newarthill, by Motherwell (approx 1/2 mile from Wrangholme Hall). All the usual traders, bring & buy stall, demonstrations of packet radio & RTTY, lectures, EHI Trophy presentation, full catering. Talk-in on S22. Details David GM1SSA, tel: 0698-732403.
* Norfolk Annual Raynet Rally - Barford, near Norwich. Opens at 10.30am, trade stands, boot sale, raffle, refreshments etc. Details Tim, G4CTT.

18 JUNE
* RAFARS Golden Jubilee Radio Rally - RAF Halton Air Show, Wendover, nr Aylesbury, Bucks. Signposted from A41 between Tring & Aylesbury. Opens at 10am, *RSGB stand*, usual traders, many attractions for the whole family, air show. Talk-in on S22 by G1RAF. Details Terry G4PSH, tel: 0296-85760.

19 JUNE
* Denby Dale Mobile Rally - Shelley High School, 5 miles SE of Huddersfield, W.Yorks. Opens at 11am (10.30 for disabled), usual traders, sideshows for the family, good food. Talk-in on S8, SU22 and 10m FM Details G3SDY tel: 0484-602905.

26 JUNE
* 31st Longleat Mobile Rally - Longleat House, Warminster, Wilts. All the usual traders and attractions. *RSGB STAND*. Details Brian G4FRG, tel: Portishead 848140.

10 JULY
* Worcester & DARC Strawberry Rally - Droitwich High School. Trade stands, bring & buy, family entertainment, trips to Strawberry fields (weather permitting). Details Steve, tel: 0905-424151.
* Sussex Mobile Rally - Brighton Racecourse. Opens 10.30am, trade stands, large bring & buy, bar and restaurant. Attractions for the whole family. Details Bob G1IOS, tel: 0798-43841.

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15/16/17 JULY
RSGB 75 - NATIONAL CONVENTION: National Exhibition Centre, Birmingham. Details RSGB HQ. Trade - Norman, G3MVV tel: 0277-225563
His Royal Highness, the Prince Philip, Duke of Edinburgh,
will perform the official opening ceremony on Friday 15 July.
This year's event will be the largest ever and will include an exhibition of amateur radio equipment from the last 75 years. Social events will be held on Friday and Saturday evenings.
A special 75th anniversary luncheon will be held on Friday.
GB75AC (75th Anniversary Convention) will be active from 9-17 July.

18 JULY
RSGB HEADQUARTERS CLOSED FOR ONE DAY

19/20/21 JULY
RSGB 75 - HQ OPEN DAYS: Visitors welcome from 10am to 4pm each day.
Please use booking form (see April issue), or send SSAE with request giving preferred day and second choice, am or pm and number of tickets required.

22/23 JULY
RSGB 75 - DATA SYMPOSIUM: Harrow School, Harrow-on-the-Hill. 2-day symposium covering all aspects of data communication.
A full list of the lectures confirmed to date can be found elsewhere in this month's News Bulletin

24 JULY
RSGB 75 - FAMILIES' & ACTIVITIES DAY
An opportunity for all clubs, groups and societies to celebrate the RSGB's 75th anniversary in their own way.
Almost anything goes but the event should involve the whole family and, if possible, the public.
Please run an amateur radio demonstration.
A prize will be awarded for the most original idea.

28 JULY
RSGB 75 - INTERNATIONAL SATELLITE SEMINAR: Near Guildford. By invitation only.
Details RSGB HQ.

29/30/31 JULY
RSGB 75 - AMSAT UK COLLOQUIUM: University of Surrey, Guildford. First day special technical meeting by invitation only. Last two days full lecture programme and social events for all delegates. Details Ron G3AAJ tel: 01-989 6741 (social hours please)

FULL DETAILS AND BOOKING FORM FOR ALL EVENTS WERE PUBLISHED IN THE CENTRE OF THE APRIL ISSUE

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24 JULY
* McMichael 88 Rally - Haymill Centre, Burnham, nr Slough. Details Bob G0BTY.
* Anglian Mobile Rally - High Woods Sports & Leisure Centre, Severalls Lane, Colchester. *CHANGE OF DATE* Opens at 10am and features all the usual traders, bookstall, raffle, bring & buy, catering. Talk-in on S22 by G4CRA. Details G6HQI, tel: 0206-862403.

28-31 JULY
* AMSAT-UK Colloquium - University of Surrey, Guildford. (See box for details)

30 JULY
* Hilderstone Radio Rally - Hilderstone College, St.Peters Road, Broadstairs, Kent. Details David, G1YOR, tel: 0843-587170.

(more over)

NEWS & VIEWS

Events Diary

31 JULY
* Scarborough ARS Rally - The Spa, Scarborough. Opens at 11am, talk-in on S22, SU8 and via GB3NY. Details Ian G4UQP, tel: 0723-376847.

7 AUGUST
* RSGB MOBILE RALLY - Woburn Abbey, Bedfordshire. Traditional Mobile Rally held in large marquees. Most of the country's major equipment and component dealers, flea market, many attractions for the whole family including the Abbey and grounds, Safari Park etc. Easy access from A5 and M1. Good on-site catering, bar and snacks. No charge for rally but entrance fee charged by Woburn Abbey to cover car parking. Details RSGB HQ. Trade - Norman, G3MVV tel: 0277-225563 (daytime).

14 AUGUST
* Derby Rally - Lower Bemrose School, Derby. All the usual traders and attractions. Refreshments etc. Details Martin, G3SZJ tel: 0332-556875.
* Flight Refuelling Hamfest '88 & Craft Fair - Merley, near Wimborne, Dorset. *CHANGE OF DATE* Opens 10am and features usual traders, bring & buy, craft fair, entertainment for the whole family, refreshments. Details John GOAPI, tel: 0202-691649.

21 AUGUST
* Red Rose Rally - Bolton Sports & Leisure centre, Silverwell Street, Bolton. Details David G1IOO, tel: 0204-24104, evenings.
* Newbury & DARS Amateur Car-boot Sale - Acland Hall & Recreation Field, Cold Ash, Newbury, Berks. Opens 10am, some traders indoors, refreshments, car-boot pitches available in advance or on the day, talk-in on S22 by GB4NBS. Details Mike G3VOW, tel: 0635-43048.

28 AUGUST
* Torbay ARS Rally - STC Social Club, Brixham Road, Paignton, Devon. Details G3KZJ.
* BARTG Rally - Sandown Park Race Course, Esher, Surrey. Opens 10.30am, many trade & display stands, car-boot sale, full on-site catering, ample free ca parking. Talk-in on S22 and SU22. Provides a good mix of interests for RTTY/Data enthusiasts as well as something for all amateurs. Details Peter, G8VXY tel: 021-453 2676. MBX: 219995485.

IN BRIEF - More details later.

4 SEPTEMBER
* 21st Preston ARS Rally - University of Lancaster. Details Godfrey G3DWQ.
* Telford Radio Rally & Exhibition - Details Martyn G3UKV tel: 0952-55416.
* 5th National Amateur Radio Car Boot Sale - The Shuttleworth Collection, Old Warden Aerodrome, nr Biggleswade, Beds. Details Tony GOCOQ.

10 SEPTEMBER
* Wight Wireless Rally - The Wireless Museum, Arreton Manor, Isle of Wight. Details G3KPO, tel: 0983-67665.

11 SEPTEMBER
* Lincoln Hamfest '88 - Lincolnshire Showground, 4 miles N of Lincoln on A15. *RSGB stand*. Details John G8VGF, tel: 0522-25760.
* Vange ARS Rally - Nicholas School, Leinster Road, Basildon. Details Alan G4OJN, tel: 0277-624386.

17 SEPTEMBER
* Scottish Amateur Radio Convention - Aberdeen Exhibition & Conference Centre, Bridge of Don, Aberdeen. Details Graham GM8FFX, tel: 0224-630526.

18 SEPTEMBER
* Bristol Radio Rally - Brunel's Great Train Shed, Temple Meads Station, Bristol. Details Dave G4WUB, tel: 0272-839855.
* Peterborough E&RS Rally - Wirrina Sports Stadium, Bishops Road, Peterborough. Details Fred G4NOG, tel: 0733-77032.

25 SEPTEMBER
* RSGB HF CONVENTION - Belfry Hotel, nr Oxford. Details RSGB.
* Harlow Mobile Rally - Harlow Sports Centre. Details G4KVR tel: 0279-22365 (daytime) or G4MIS tel: 0279-722622 (evenings).

2 OCTOBER
* Great Lumley AR & ES Rally - Community Centre, Great Lumley, Chester-le-Street, Co.Durham.
* 4th North Wakefield RC Rally - Outwood Grange School, Potovens Lane, Outwood. Details Steve, G4RCH (QTHR).
* Welsh Amateur Radio Convention - Oakdale Community College, Blackwood, Gwent. Details B.Davies GW3KYA, tel: 0495-225825.

9 OCTOBER
* Midlands VHF Convention - *CHANGE OF DATE* Details Peter G3UBX.
* Armagh Rally - Drumshill House Hotel, Armagh. Details GI8RNX.

28/29 OCTOBER
* Leicester Amateur Radio Show - Granby Halls, Leicester. Details Frank tel: 0533-553293 daytime.

30 OCTOBER
* Carmarthen ARS Rally - Leisure Centre, Johnstown, Carmarthen. Details GW3GUE, tel: 026 783 460.

5/6 NOVEMBER
* North Wales Radio Rally - Canolfan Abercony Centre, Llandudno. Details Tony Wilkinson GW4PVU, tel: 0492-49121 or 75666.

13 NOVEMBER
* Bishop Auckland Radio Rally - The Civic Hall, Shildon, Co.Durham. *NEW VENUE* Details Morris, tel: 0525-314638.
* West Kent ARS Tonbridge Rally - Angel Centre, Tonbridge. Details Nigel G4KIU, tel: 0892-515321 or 515432.
* West Manchester RC Winter Rally - Bolton Sports & Leisure centre, Silverwell Street, Bolton. Details David G1IOO, tel: 0204-24104, evenings.

20 NOVEMBER
* Bridgend & DARC Rally - Bridgend Recreation Centre, Angel Street, Bridgend, Mid-Glamorgan. Details Mike GW6XCG, tel: 0656-724041.

27 NOVEMBER
* Verulam ARC Christmas Rally - St.Albans City Hall. Details G4JKS tel: St.Albans 59318. Trade - Watford 52959.

11 DECEMBER (PROVISIONAL)
* Leeds & DARS Christmas Rally - Pudsey Civic Centre, Dawsons Corner, Pudsey, nr Leeds. Details GOETL.

OTHER EVENTS

14/15/16 JUNE
* Three Counties Show - Malvern, Worcs. Gloucester, Worcester & Hereford Radio clubs putting on combined demonstration station.

28 AUGUST
* Galashiels & DARS Open Day - Focus Centre, Livingston Place, Galashiels. Doors open 11am. Details John GMOAMB, tel: 0835-22686.

1989 RALLIES

2 APRIL
* White Rose Rally - Leeds University. Details A.S Kessler, G4DXA, PO Box 73, Leeds, LS1 5AR.

14 MAY
* Drayton Manor Mobile Radio Rally - Drayton Manor Park, Tamworth, Staffs. Details Norman G8BHE, tel: 021-422 9787.

21 MAY
* 32nd Northern Mobile Rally - Great Yorkshire Showground, Harrogate, North Yorkshire. Details Harry G3CQQ.

GB CALLS

The list below shows ALL the special event stations licensed for operation during June and early July **(as at press date)**

It is taken direct from the GB Calls file on the HQ computer. These callsigns are valid for use from the date given but the period of operation may vary from 1 to 28 days. There's now no need to send details direct to the editorial office.

NOTE: This list is taken from the Headquarters' database during the first week of the month prior to publication. If you have an event which is taking place during the latter part of the month of issue, you must send your form in to Headquarters at least 10 weeks in advance to ensure that it can be processed ready for the listing, otherwise it will miss the copy date.

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*                  PLEASE NOTE                   *
*          ALL "GB75" PREFIX CALLSIGNS           *
*          VALID FOR RSGB 75 AWARD               *
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THROUGHOUT 1988:
GB75RS - 75 (ANNIVERSARY) RADIO SOCIETY (GB): RSGB HQ, Lambda House, Potters Bar, Herts. *Watch out for GB75HQ during next month*

1 JUNE:
GBOCDN - COASTAL DEFENCE NEEDLES: Needles Battery, IOW. Grid: SZ 295 849. Details G3RJK.
GBOCDP - COASTAL DEFENCE "P": Portchester Castle. Details GODHZ.
GBORRR - RED ROSE RALLY: Details G3BSA.
GBOSEC - SELLAFIELD EXHIBITION CENTRE: The New Exhibition Centre, Cumbria. Details GOBWF.
GBOTAC - (MERCURY) TRANS-ATLANTIC CABLE: Brean Sands, Somerset. Details G4SIY.
GB2JW - JOHN WESLEY: Stockton Heath Church Hall, Warrington, Cheshire. Details G4OEX.
GB2OTR - OLDE TYNE RALLYE: The Showground, Main Rd, Colchester, Essex. Details G3FIJ.
GB2WFH - WHITCHURCH FOLK HOUSE: Bridge Farm House, Bristol. Details G4RZY.
GB4BNW - BRISTOL NORTH WEST: Avon County Campsite, Almondsbury, Bristol. Details G4FPI.
GB4RRS/GB8RRS - RED ROSE SILVER: Details GOIZR/G1IOO.
GB5GC - GEDDINGTON CROSS: Geddington Village Hall, Northants. Details G4KXG.
GB5HC - HORSHAM CLUB: Horsham, W.Sussex. Details GOGMS.
GB5MS - MACCLESFIELD SOCIETY: Macclesfield, Cheshire. Details GOAXE.
GB6DDP/GB6DP - DENBY DALE PIE: Huddersfield. Details G6TSW/GOBFJ.
GB6MWS - MACCLESFIELD WIRELESS SOCIETY: Grid: SJ 949 676. Details GODMU.
GB6RRA - RED ROSE AWARD: Wigan. Details G1TAR.
GB75AYM - ALFA YANKEE MIKE: Gloucester ARS. Details G3MA.
GB75BJS - BROCKWORTH JUNIOR SCHOOL: Moorefield Rd, Gloucester. Details G3MA.
GB75HSA - HEART START APPEAL: Crowcroft Park, Manchester. Details GOJFN.
GB75RRA - RED ROSE AWARD: Astley & Tyldesley Miners Club, Tyldesley, Gtr.MANCHESTER. Details GOCOR.
GB75WFX - "WFX" (CALLSIGN OF FOUNDER OF NORTHAMPTON RADIO CLUB): Kingsthorpe Community Centre, Northampton. Details G4SVX.
GB75WPS - WYBURN PRIMARY SCHOOL: Rayleigh, Essex. Details G4TUO.
GB75WVW - WALDERSHARE VINTAGE WEEKEND: Waldershare Park, nr Dover. Details GOBPS.
GB8CSR - CELEBRATE SATELLITE RADIO: Shrewsbury. Details G6MEN.

2 JUNE:
GBOSMC - ST MARYS CHURCH: Church Hall, Ipswich. Details G4YUG.
GB2SSJ - SALOP SILVER JUBILEE: Salop ARS HQ, Frankwell, Shrewsbury. Details GOEIY.
GB5RV - G5RV (CALLSIGN OF CLUB PRESIDENT): Jack & Jill Windmills, Clayton (one day only). Grid: TQ 303 135. Details G4WEH.

3 JUNE:
GB2MAR - MARCONI: Marconi Radio & Electronics Soc HQ. Details G3FWE.
GB5RV - G5RV (CALLSIGN OF CLUB PRESIDENT): Marle Place FE Centre, Burgess Hill. Details G4WEH.
GB75CL - CARE LINK: Highcliff Day Centre, Highcliff, Dorset. Details G3MDH.
GB75MLC - MANCHESTER LINKS CAMP: [illegible]ham Hall Scout Camp, Wigan. Details G4MZJ.

4 JUNE:
GBOCDX - COASTAL DEFENCE "X": Golden Hill Fort, IOW. Details G3RJK.
GBOHC - HAMPSHIRE CONSTABULARY: Mid-Hants Div HQ, Netley, Hants.
GB1CDG - COASTAL DEFENCE "G": Fort Gomer. Grid: SZ 587 989. Details G6MWY.
GB2RAF/GB5ORAF - ROYAL AIR FORCE: RAF Henlow, Bedfordshire. Details G4MXG/G3DCA.
GB4BRC - BRITISH RED CROSS: Springburn Parish Church, Glasgow. Details GMOEWW.
GB4PDS - PARK DEAN SCHOOL: Oldham. Details G4ZEP.
GB4RRS - RED ROSE SILVER: Details GOFRL.
GB4WFS - WOMBOURNE FIRE STATION: Details G4YVX.
GB5DS - DEEPING SHOW: Details G4PZB.
GB75DSC - DOSTHILL SCOUTS CARNIVAL: Dosthill Park, Staffs. Details GOBYF.
GB75FBP - FIRBANK PRIMARY (SCHOOL): Grassmere Rd, Oldham. Details G4ZEP.
GB75LOF - (SOUTHMEAD HOSPITAL) LEAGUE OF FRIENDS (FETE): Southmead Hospital, Bristol. Details GOCEN.
GB75PL - PONTYPRIDD LIONS: E.Glamorgan General Hospital, Mid-Glamorgan. Details GWODIV.

5 JUNE:
GB1CDS - COASTAL DEFENCE "S": Boundary Fort, Southwick, nr Portsmouth. Details GOJEZ.
GB2PPC - PRIOR PARK COLLEGE: Bath. Details G3LYW.
GB2WST - WHITWORTH SCOUT TROOP: Whitworth Civic Hall, Rochdale, Lancs. Details G4TMV.
G4ACH - ALNE CHESHIRE HOMES: York Race Course. Details G3ZKS.

8 JUNE:
GB2WDX - WIRRAL & DISTRICT "X": Irby Cricket Club, Wirral. Details GODVV.
GB5ORAF - 50 YEARS RAFARS: RAF Conningsby, Lincs. Details G4NVD.
GB75PRS - PEMBROKESHIRE RADIO SOCIETY: Mount Pleasant, Pembrokeshire. Details GW4UZL.

10 JUNE:
GBOCDB - COASTAL DEFENCE "B": Fort Brockhurst, Gosport. Details G4LIK
GB1DAY - (CUB SCOUT) DAY: Youlbury Scout Camp, nr Oxford. Details G1LTK.
GB2CDQ - COASTAL DEFENCE "Q": Fort Grange. Grid: SU 591 002. Details G4LIK.
GB2CDR - COASTAL DEFENCE "R": Fort Rowner. Grid: SU 593 011. Details G4LIK.

NEWS & VIEWS

Events Diary

GB2RRM - ROLLS-ROYCE MOTORS: Cheshire. Details G4LVR.
GB4RRC - RED ROSE CERTIFICATE: Bolton, Lancs. Details GODRK.
GB75PF - PARTICK FAIR: Outside BR Station, Glasgow. Details GM4SGB.
GB75TCS - THREE COUNTIES SHOW: Showground, Worcs. Details G4UZK.

11 JUNE:
GB0CDL - COASTAL DEFENCE "L": Lumps Fort. Details GOIEY
GB2NCG - NORTHERN CONSTABULARY GALA: Northern Constabulary HQ.
GB2TCR - THREE COUNTIES RADIO: Newman Collard Playing Field, Hampshire. Details G4UWJ.
GB4BRC - BRITISH RED CROSS. Glasgow. Details GM0EWW.
GB75AFA - ANGUS FIRE ARMOUR: Thame, Oxon. Details G0HZQ.
GB75DL - DARWEN LIONS (GALA): Moorland High School, Darwen, Lancs. Details G2AKK.
GB75HCC - HOLY CROSS CHURCH: Details G4NVT.

12 JUNE:
GB0DFS - DERBYSHIRE FIRE SERVICE: Markeaton Park. Grid: SK 338 373. Details G4LPZ.
GB2SNT - STEVENAGE NEW TOWN (FESTIVAL): King George VI Playing Fields, Herts. Details GOGTE.
GB2TCR - THREE COUNTIES RADIO: HMS Mercury, Petersfield, Hants. Details G4UWJ.
GB4CDD - CLUB DENBY DALE: Shelley High School, Huddersfield, W.Yorks. Details G3SDY.
GB75HAF - HIGH ASH FAIR: High Ash CE Combined School, Milton Keynes. Details G4NJU.

13 JUNE:
GB75FC - FLEET CARNIVAL: Views Meadow, Hants. Grid: SU 806 540. Details GOIBR.

16 JUNE:
GB2DT - Venture Scouts HQ, Cumbria. Details G3HQU.
GB4WXM - WREXHAM (LAGER BREWERY GALA): Plas Coeth Field Showground. Details GW3HHF.
GB75SCR - SHREWSBURY CIVIC RADIO: The Quarry Showground, Shropshire. Details G3IMP.

17 JUNE:
GB0BRS - BURY RADIO SOCIETY: Kay Gardens, Bury, Lancs. Details G2DWB.
GB0CDS - COASTAL DEFENCE "S": Boundary Fort, Southwick, Hants. Details GOJEZ.
GB2FNC - FLEETWOOD NAUTICAL COLLEGE: College Campus. Fleetwood, Lancs. Details G4RWD.
GB2OH - ORMSBY HALL: Middlesborough, Cleveland. Details GOBIA.
GB2SUN - SUN (CLUB): The Naturist Foundation HQ, Orpington, Kent. Details G4CCE.
GB2YD - YORKSHIRE DALES: Oysterbed Farm, Lancaster. Details G4DAL.
GB4RAF/GB50RAF - ROYAL AIR FORCE: RAF Halton, nr Aylesbury, Bucks. Details G3DCA/G4MXG.
GB4SCC - SUTTON COLDFIELD CARNIVAL: Sutton Park. Locator: IO92BO. Details G4YZO.
GB75RPP - ROTARY POLIO PLUS: North Townsend Farm, Wilts. Details GOGRI.

18 JUNE:
GB0GPS - GRATELEY PRIMARY SCHOOL: Andover, Hants. Details G3ZDG.
GB0PGD - PLESSEY GALA DAY: Plessey RC, Notts. Details G4VFK.
GB0TPR - THREE PEAKS RACE: Nr Merionydd Yacht Club. Grid: SH 614 157. Details GW3CKZ.
GB2DTF - DONFIELD TOWN FEDERATION: Wreakes Lane, Sheffield. Details GOABU.
GB2GF - GREENWICH FESTIVAL: Plumstead Commomn, Greenwich, London SE18. Details G3DCC.
GB6RN - ROYAL NAVY: H.M.S. Gannet, Scotland. Details GM4SUC.
GB75BH - BURGESS HILL: Fairfield Recreation Centre, Burgess Hill. Grid: TQ 306 195. Details G4WEH.
GB75RLS - ROYAL LEAMINGTON SPA: Town Hall, Leamington Spa. Details GOCOS.

19 JUNE:
GB1CDJ - COASTAL DEFENCE "J": Round Tower, Portsmouth. Details G6MWY.
GB1CDK - COASTAL DEFENCE "K": Fort Gilkicker. Details G1BHG.
GB1CDM - COASTAL DEFENCE "M": Fort Monkton. Details G1BHG.
GB1CDQ - COASTAL DEFENCE "Q": Square Tower, Portsmouth. Details G6MWY.
GB1CDV - COASTAL DEFENCE "V": Spit Bank Fort. Details G6MWY.
GB2GCW - GRANTHAM CARNIVAL WEEK: Prince William of Gloucester Barracks, Grantham. Details GOIBX.
GB4HMT - 40(YRS) HOOVER MERTHYR TYDFIL: Sports Pavilion, Hoover PLC, Merthr Tydfil. Details GW4YIW.
GB4YTG - ESSEX KITE GRP (HOLDER CALLSIGN): The Playing Field, Ct Waltham. Details G4YTG,
GB75CMT - CAMBRIDGE MUSEUM OF TECHNOLOGY: Riverside. Details G4XXX.
GB75YYY - YORK YORK YORK: Tollerton. Details G3TMN.

20 JUNE:
GB2HC - HARROGATE COLLEGE: Details G3XWH.
GB2MAM - MOSQUITO AIRCRAFT MUSEUM: Salisbury Hall, Herts. Details G3LXP.
GB75CAQ - HOLDER OF CALLSIGN: Station Farm, Station Rd, Wolverhampton. Details G3CAQ.

21 JUNE:
GBORRS - RED ROSE SILVER: Manchester. Details G4NRN.

22 JUNE:
GB4LMR - LONGLEAT MOBILE RALLY: Longleat Park, Wilts. Details G4FRG.

23 JUNE:
GB2CDU - COASTAL DEFENCE STATION "U": Culver Down. Grid: SZ 627 588. Details G4RGE.

24 JUNE:
GB0KHS - KINGS HIGH SCHOOL: Smith Street, Coventry. Details GOGNF.
GB2ALD - ALDERSHOT (& DISTRICT SCOUT): Army Camping Grounds. Details G4UEL.
GB2RAF/GB50RAF - ROYAL AIR FORCE: RAF Locking, Weston-super-Mare. Details G3FVC.
GB2RCC - RADIO CARAVAN CAMPING: Draycote Water. Details G4EPN.
GB2STA - ST.THOMAS AQUINAS (SCHOOL): Birmingham. Details G0AHC.
GB500 - PAISLEY "500" CENTENARY: George A Clark Town Hall, Paisley. Details GM0BLX.
GB75BC - BROMSGROVE CARNIVAL: Sanders Park. Details G4IVJ.
GB75CCS - CANVEY COUNTY SCHOOL: Long Rd, Canvey Is, Essex. Details G1MLM.

25 JUNE:
GB0WCF - WOLVERLEY CHURCH FETE: Wolverley Memorial Hall, nr Kidderminster. Details GOIHT.
GB1BCC - BURLIEGH COMMUNITY COLLEGE: Thorpe Hill, Leics. Details G1CKX.
GB1CDP - COASTAL DEFENCE "P": Portchester Castle. Details G6MWY.
GB2NCF - NATIONAL CYCLING FEDERATION: Priory Hall, Dudley. Details G4DAR.
GB2SSJ - SALOP SILVER JUBILEE: Shrewsbury. Details GOHCU.
GB2TG - THOMAS GAINSBOROUGH: Suffolk. Details G3DXO.
GB75ATV - AMATEUR TV: Hillingdon Hse Farm. Middx. Details G2BMI.
GB75CSF - CRABTREE SCHOOL FETE: Hertfordshire. Details G3SDG.
GB75MVF - MILDMAY VICTORIAN FETE: Chelmsford, Essex. Details G8UUO.

26 JUNE:
GB75CAT - CHESHIRE "CAT": North Cheshire RC. Details GODMZ.
GB75KCB - KINGSTON BAGPUIZE BARBECUE: Oxfordshire. Grid: SU 399 983. Details GOAOZ.

27 JUNE:
GB2LC - LINNET CLOUGH: Scout Camp, Marple, Cheshire. Details G3WFW.
GB4SSH - STEWARDS SCHOOL HARLOW: Details G4MIS.

29 JUNE:
GB0TAC - (MERCURY) TRANS-ATLANTIC CABLE: Brean Sands, Somerset. Details G4SIY.
GB75YMD - YOUNG MEN OF DOVER: Dover Castle Grounds. Details G0BPS.
GB8CSR - CELEBRATE SATELLITE RADIO: Shropshire. Details G6MEN.

30 JUNE:
GB2ICD - INTERNATIONAL CO-OP DAY: Recreation Ground, Colchester. Details G3FIJ.
GB2WLS - WEST LANCASHIRE SCOUTS: Great Tower Scout Campsite, Windermere. Details G4UQI.

1 JULY:
GB75HQ - RSGB HEADQUARTERS (75th ANNIVERSARY STATION): RSGB HQ, Lambda House, Cranborne Rd, Potters Bar, Herts.
GB0CDE - COASTAL DEFENCE "E": Fort Purbrook. Details GOIVW.
GB0CDG - COASTAL DEFENCE "G": Fort Gomer. Details GODHZ.
GB0HWE - HERTFORDSHIRE WELL END: Herts Scouts Training Centre, nr Borehamwood. Details G3SOF.
GB0IOW - ISLE OF WIGHT: Culver Point Telegraph Station. Details G3FWE.
GB1ERS - EAST READING SCOUTS: Holly Copse, Oxfordshire. Grid: SU 663 785. Details G6ZYT.
GB2ACO - AIKERNESS COTTAGE ORKNEY: Girl Guide Camp. Details GM3IBU.
GB2BSF - BICNACRE SCHOOL FETE: Bicnacre Priory, Essex. Details G4ZPE.
GB2DJ - DERBY & DISTRICT ANNIVERSARY: Elvaston Castle Country Park. Grid: SK 412 333. Details G4XPE.
GB2FOE - FIRE OVER ENGLAND: K.O.S.B. Barracks. Details G3BRA.
GB2GLR - GEOFFERY L ROBINSON: Blackwell Scouting Centre, nr Bromsgrove. Details G4TET.
GB2MRC - MACCLESFIELD RADIO CLUB: Details GOIKB.
GB2NTA - NEW TOWN ANNIVERSARY: Carnival Field, Runcorn, Cheshire. Details GOEKQ.
GB2RLS - RICHARD LANDER SCHOOL: Details G3YNK.
GB4FPS - FOXES PEACE SCHOOLS: Higginson Park, Bucks. Grid: SU 850 862. Details G4LWA.
GB4JUL - FOURTH OF JULY (CELEBRATION): Darley ARC, Harrogate. Details GOFWG.
GB400A - 400TH ANNIVERSARY: Plymouth Hoe. Details G3VCN.
GB5DP - DENBY DALE PIE: Details G4JKW.
GB5HC - HORSHAM CLUB: W.Sussex. Details G3NPF.
GB6JST - JUBILEE SAILING TRUST: Portsdown Hill, Portsmouth. Details G6BUL.
GB6RRR - RED ROSE RALLY: Wigan. Details G6MEZ.
GB75BB - BARR BEACON (SCHOOL): Details G1LRP.
GB75DX - "DX": Suffolk. Details G4BWP.
GB75FG - FERRIBY GALA: The Playing Fields, N.Ferriby, N.Humberside. Details GOAQP.
GB75PCR - PLESSEY CHRISTCHURCH RADIO: Details G4GTH.
GB75VKY - Blyth ARC, Newsham Community Centre, Northumberland. Details GOACR.
GB75WS - WILLENHALL SCOUTS: Cross Keys PH. Details GODVD.
GB8DBY - DERBY: Elvaston Castle. Details G6TQC.
GB8RRS - RED ROSE SILVER: Details G1100.

2 JULY:
GB1BCW - BELFORD CARNIVAL WEEK: Northumberland. Details G1GIT.
GB1CDG - COASTAL DEFENCE "G": Fort Gomer. Grid: SZ 587 989. Details G6MWY.
GB2BF - BULMER FESTIVAL: Bulmer Village Hall, Sudbury, Suffolk. Details GOIAG.
GB2CLP/GB8CLP - CLEFT LIP AND PALATE: Greater Nottinghamshire Co-op Soc., Long Eaton. Details G3VJK/G1SPA.
GB4BPM - BROMLEY PEAGENT OF MOTORING: Norman Park. Details GOCRI.
GB4BT - BRITISH TELECOM: Radio Shack, BT Coryton, Cardiff. Details GW4ZVY.
GB75BPW - BEXLEY POLICE WEEK: Bexleyheath Police Station, Kent.
GB75JBT - JOHN BUNYAN TRICENTENARY: Elstow Church. Details GOGBI.

3 JULY:
GB0CHF - CHESHIRE HOME: Hovenden House, nr Holbech. Details GOHUL.
GB1CDS - COASTAL DEFENCE "S": Boundary Fort, Southwick, nr Portsmouth. Grid: SU 628 069. Details GOJEZ.
GB4RRA - RED ROSE AWARD: Details GOFRL.

4 JULY:
GB0CDX - COASTAL DEFENCE "X": Golden Hill Fort, IOW. Grid: SZ 339 879. Details G3RJR.
GB2PCS - PRESTON COMPREHENSIVE SCHOOL: Monks Dale, Somerset. Details GOHDJ.
GB6SSR - STANCHESTER SCHOOL RADIO: Stoke-sub-Hamdon. Details G6EER.
GB75BG - BEECHGROVE GARDEN: BBC, Aberdeen. Details GM4GXD.

7 JULY:
GB2FFS - FIFTY FELTHAM SCOUTS: Staines RFC, Hanworth, Middx. Details GOGPT.
GB2IST - 21ST ANNIVERSARY BARRY COLLEGE OF F.E.: Barry, S.Glam. Details GW0ANA.

8 JULY:
GB2ASM - ASHFORD SAMARITANS MUMFORD (HOUSE): nr Ashford, Kent. Details GOESZ.
GB2CVT - CLYDE VALLEY TOURIST: Tourist HQ, Lanark. Details GM3MTH.
GB2FS - FESTIVAL OF STAMFORD: Details G4PZB.
GB2MVF - MARDEN VILLAGE FETE: Marsdem. Grid: TQ 748 447. Details G3VLX.
GB4BHP - BRERETON HEATH PARK: Grid: SJ 795 653. Details G4APA.
GB75BRA - BANBURY RADIO AMATEURS: Castle Gardens Car Park. Details G4DLB.
GB75DOG - GUIDE DOGS FOR THE BLIND: Folly Court, Wokingham. Details G4CCC.
GB75MKC - MILTON KEYNES CITY: Kiln Farm Club. Details GOGOF.

9 JULY:
GB75AC - 75th ANNIVERSARY CONVENTION: National Exhibition Centre. Details G4WMH.
GB75ER - 75th ANNIVERSARY WINDSOR CASTLE: Castle Hill Car Park, Windsor. Details G4XDU.
GB75BBC - BBC CLUB SUMMER FESTIVAL: BBC Club Sports Ground, New Malden. Details G3KKQ.
GB75CC - CARDIFF CASTLE: Castle Street, Cardiff. Details GW4TJQ.
GB75CF - CENTENARY FAIR: St.Dunstan's College, London. Details G4OHX.
GB75CIS - CHILDREN IN SARK: Le Pavilion, Sark C.I. Details G3UTX.
GB75CMF - CLEOBURY MORTIMER FESTIVAL: Laconchilde School, nr Kidderminster. Details G4UZT.
GB75DIS - DUNDEE CITY OF DISCOVERY: Mills Observatory, Dundee. Details GM4UZP.
GB75IPA - INTERNATIONAL POLICE ASSOCIATION: Channel Islands.
GB75NEC - NATIONAL EXHIBITION CENTRE: Arden Hotel, Bickenhill, Solihull. Details G4VMP.
GB75PYC - PYRAMID YOUTH CLUB: Shield Rd School, Filton, Bristol. Details G4YQH.
GB75RJS - RINGWOOD JUNIOR SCHOOL: Hampshire. Details G4TMI.
GB2SMR - SUSSEX MOBILE RALLY: Brighton Race Course. Details G3WR.
GB4BFF - BECKFORD FLOWER FESTIVAL: Village Hall, nr Tewkesbury. Details G3XGW.
GB4HAS - HERTFORDSHIRE AMBULANCE SERVICE: Herts Ambulance HQ. Details GOGWW.

HF

John Allaway, G3FKM

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SOMETHING which I think deserves more attention than it usually receives is World QRP Day – an event which takes place each year and always on 17 June. The idea is to try to cause less pollution of the spectrum by using less power. It isn't any kind of contest but just a chance to relax a little and find out just why organisations like the G-QRP Club receive so much support.

GW3AHN has raised an interesting point concerning contacts on the WARC bands. It seems that quite often amateurs in countries which have not yet officially released them for amateur use are making QSOs on them and this is even happening with Ws on 18MHz. Another common occurrence is for stations who do not have permission to use 24MHz to be asked by Ws (and even a few Gs) to move to that band to boost their country totals. Probably done in all innocence and due to lack of knowledge of the regulations but unfortunate anyway and something to be discouraged.

Marion Island

In February, I mentioned Marion Is and the problems which S African amateurs were meeting when trying to organise an expedition to the island. It seems that ZS6BBY, who originally wrote to the editor on the matter, was not expressing the official opinion of SARL and I have received a letter from Paul Johnson, ZS1BR, pointing out that taking the action proposed would do immense harm to the society's prospects of running an expedition. The comments have also produced a response from ZS6FS, ZS6JL, ZS6ALX, and ZS6AZP who all feel very strongly that they wish to dissociate themselves from the views expressed by ZS6BBY. They think that the authorities should be congratulated for seeing that the unique environment on the island is preserved and protected from the setting up of an amateur radio station for the sole purpose of enabling dx chasers and QSL hunters from working a new dxcc country and that approaches to the minister of environmental affairs may even damage the name of amateur radio. They go on to suggest that the best idea is to try to introduce the scientists and meteorologists working in such places to the fascination of amateur radio. A good point?

European CW Association

From 1 January this year the EUCW chairman is Tony Smith, G4FAI, who was nominated by the G-QRP Club. He succeeds DL6MK who has been chairman for the past three years. EUCW is an association of European independent amateur radio clubs with a combined membership of about 4,000. Its principal purpose is to create support and encouragement for cw activity. Membership is open to amateur cw clubs with at least 100 members and each elects an EUCW Communications Manager. At present the following are members: AGCW-DL, Benelux QRP, BTC (Belgium), G-QRP, HCC (Spain), HSC, INORC (Italy), Scarborough, SCAG (Scandinavia), SHSC, TOPS, UFT (France), and VHSC. Further information is available from Tony at 1 Tash Place, London N11 1PA.

EUCW organises a number of on-the-air activities such as the Fraternising CW Party and the AGCW-DL YL-OM CW Party which takes place on 8 August (Monday) from 1630 to 1800 on 3,540-3, 560kHz. There is also a Worked Scandinavia on cw Award (see *Awards*).

Andrew Young

K9POX has written to say that Andrew Young, VR6AY, of Pitcairn Is, died on 17 March, just one day before the 50th anniversary of the first telephone operations from the island. He began his career by signalling to passing ships by lantern in the early 'twenties. In 1922 the Marconi Co sent him a crystal receiver and in 1928 a New Zealand radio enthusiast supplied a small spark transmitter – so Pitcairn was on the air with a raspy cw signal so familiar in those days. In 1937-8 a group of amateurs inspired by an article in *QST* in August 1937 sent a modern valved station, capable of phone and cw operation. On 18 March 1938 Pitcairn went on the air. An article in January 1938 *QST* had this to say about Andrew: "No real amateur surrounded by his modern radio equipment of today could have read the tale of Andrew Young's determination (referring to the 1937 article) to keep his little island community in touch with ships that passed beyond the horizon without the feeling of pride in classing him as a true ham. Lacking both equipment and power facilities has carried Andrew Young, alone and unguided these many years, over obstacles insurmountable to most of us."

Andrew was 88 but his spirit lives on: out of less than 50 inhabitants on the island six are licensed amateurs, which puts Pitcairn's amateur population at 12 percent – probably the highest in the world.

Dxpeditions

Nao Akiyama, N1CIX, will reactivate P40P from Aruba from 15 to 22 June. CW and ssb will be operated on eight bands and Nao's favourite frequencies are: 3,505, 7,005, 10,105, 14,010, 18,075, 21,010, 24,010, 24,900 and 28,010kHz (cw), and 3,790, 7,070, 14,190, 18,120, 21,290, 24,940 and 28,490kHz for ssb. Nao reports receipt of QSLs for other P4 stations and points out that besides cards for P40P he only has the logs for the P40M operation by WR6M in October 1987 – for example cards for the P40M operation of February 1986, go to KB9AW.

Closing of RSGB QSL Bureau

Ted Allen, G3DME, would like to remind readers that the RSGB QSL Bureau will be closed for the whole of the month of July. He asks members to please not send envelopes or cards to him during that time.

Technology or sport

Something to start an argument – but please don't involve me. I am strictly sitting on the fence on this one.

W1WY of *CQ Magazine* has kindly given permission for this editorial to his Contest Calendar, written by K5ZD/3, to be reproduced here and it goes as follows:

"In a world of computer-designed bobsleds, golf clubs with square grooves, and instant replay, there is no denying the effect of technology on sport. As a 'techno-sport' radio contesting has certainly felt its share of the technology boom. Increased scores have been the result, but has the hardware begun to overshadow the operators?

Logo from QSL card issued by Plymouth Radio Club and Special Event Station GB400A. If you work two members of this club and the station on any band then you qualify for an Armada 400 Award. Claims plus 3IRCs should be sent to the Awards Manager, G3VCN, QTHR.

"Fifteen years ago, a two-element 40-metre beam was the mark of a big station, the Signal One was ahead of its time and the Japanese were just introducing their first solidstate radios. The radios of choice among contesters were made by Collins and Drake. Keyers were becoming common, but ones with memories were still a luxury. The personal computer, on-line logging, and packet radio were still years away.

"Contrast this to the competitive contest station of today. Japanese radios have virtually eliminated vacuum tubes and most American manufacturers. Instant band changing, frequency memories, split frequency operation and multiple vfos are "must haves". Never mind the two-element 40m beam, now it takes a three-element full size to be the king of the hill. A 2- or 3-element 80m beam is only a Mastercharge away. Not only are there cw keyers with memories and programmable functions, the "digital voice keyer" has arrived. Personal computers have invaded every aspect of our lives and contest logging and duping programmes abound. Leading clubs are using packet radio to establish elaborate multiplier spotting networks.

"The ultimate integration of technology and contesting was accomplished in 1986 by N6TR, who actually programmed a Z80 microprocessor to tune a radio, find a station, and make a completely automated QSO. No longer a science fiction fantasy, he did it with available computer technology and software savvy. Is this where we wish the technological orgy to lead?"

Geoff Watts publications

Geoff has recently published a 13-page *DXNS USSR Oblast Guide* . This includes outline maps of all 184 oblasts, lists of oblasts in numerical and prefix order. How to identify oblasts of stations with one, two or three letter suffixes. Oblasts of pre-1970 and pre-1984 calls and club stations, "Victory 40" stations and much more. Also included are the R-150-S countries list and "CQ" and ITU zone lists.

The *"DXNS" DXCC Countries Guide* is also still available. Its 11 pages are full of valuable information of past and present prefixes, previous and current names of countries, and of course a lot of information on IOTA.

Finally - the *Radio Amateur Prefix-Country-Zone List.* This one extends to 15 pages and for each country lists normal and special prefixes, DXCC status, *CQ* and ITU zones, continent and ITU prefix allocation. It also contains information on Antarctic and USSR club stations and obsolete prefixes. Each publication costs £1.00 (UK), US3.00 or six ircs (overseas). Please do not send foreign cheques. Versions printed one-side only are available to UK purchasers for an additional 25p each. Order from G P Watts, 62 Belmore Road, Norwich NR7 0PU.

DX NEWS

EL2BA has informed me that the 10, 18 and 24MHz bands became available to amateurs in Liberia on February 1st. It seems that any EL station appearing on one of these bands at an earlier date was not authorised. IA5PLB, IA5KBA and IA5MAG have announced an expedition to **Gemini Is** (10 to 12 June) and **Scoglietto Is** (12-15 August). Operating frequencies will be near to 3,522, 3,760, 7,012, 7,060, 14,022, 14,160, 21,022, 21,160, 28,022 and 28,260kHz. The islands are in the Tuscan Archipelago (IOTA EU 28) and this is believed to be the first activity from there. QSLs should be sent to IA5PLB (see "QTH Corner").

An unusual call from **Antarctica** is ZL5BKM who has been reported on 10MHz from 0430 and on 14, 21 and 28MHz at other times. Reg Woolley, GW8VHI, recently VP8BPZ, is now back in Europe and sending out QSLs from his home address for his VP8 contacts.

T53RC is said to be in **Somalia** and has an Italian QSL manager (12JSB). He has been active near 14,183kHz from 2100. 3B9FR is reported to be active on 14MHz cw from **Rodrigues Is**. According to *DX'press* he is not very experienced and prefers calls at a slow speed. Gerry, 5X5GK, left **Uganda** hurriedly and is now in Canada. DJ9GR is in **Ivory Coast** and using the callsign TU4GR until mid-August. He seems to prefer cw and appears 5 to 25kHz above band edges. TL8SC keeps a schedule with QSL manager K4UTE every Monday on 21,306kHz at 1830 – when he finishes he listens for others. ZD9BV favours 21,272kHz around 1600, and 28,504kHz around 1530.

The very attractive S0RASD QSLs are being distributed by EA2JG and the station itself has been very active. A schedule given in the *Lynx DX Bulletin* is 0900 on 14,195kHz, 1000-1200 on 28,550kHz, 1400 on 21,185kHz, 1900-2000 on 14,205kHz, 2100 on 7,043kHz and 2200 on 3,777kHz. The dxcc position of RASD has now been clarified – if you had credit for Rio de Oro previously and this has been deleted you will automatically be credited for S0 without further action. If you have not already had credit for EA9 you may either send in an S0 card – or if you have one an old EA9 QSL.

"The official opening of the amateur radio camp at Al Azaiba, on the occasion of the 15th anniversary of the Royal Omani Amateur Radio Society. The tape was being cut by a representative of HM Sultan Qaboos bin Said, A4XAA".

DJ0LC went to Wuhan, **China,** in March for a two or three month stay. He hoped to start up the first BY6 station which initially is projected to have 100W input to a dipole and likely to be found near 14,020, 21,020 and 28,020kHz.

There is a net which takes place on Sundays from 2100 on 14,236kHz and which is run by CE3ESS. Some of the more exotic CE prefixes call in and these include CE0s. *Lynx DX Bulletin* also reports CE0NKY on **Easter Is** as active on 14,157kHz at 0745 and on 21,187kHz at 1740.

Odd prefixes used during the WPX contests include TX which was used by FYs and LS used by LUs. TW stations were in France as was FV8NDX. AT0T was VU2TJW.

Lloyd and Iris should now be back in the USA following their final fling from Indonesia as YB0AQL and YB0AQM from the station of YB0SY. They are reported to have tried to obtain licences in Bhutan, Bangladesh, and Burma with no success.

AWARDS

Peaks & Plains Award
Issued by the Macclesfield & District RS in conjunction with its 30th anniversary celebrations. Available to all licensed amateurs and listeners who need to work/hear 10 stations in Cheshire, plus either of the MDRS club stations G1MWS or G4MWS, or any of the special event stations which will be active during the year. All these must have been since 1 January 1988. Send list of stations worked/heard, certified by another licensed amateur, together with £1.50 (UK) or 4ircs (non-G callsigns) to R Thornley, G1NUS, 270 Hurdsfield Road, Macclesfield, Cheshire SK10 2PN.

The 8-8-88 Award
For contacting eight yls spread thoughout eight Dutch provinces or eight dxcc countries during the month of August 1988, or score 88 points as per the 88 Award (see December 1987 *HF News*). There are hf and vhf/uhf classes. QSOs on 8 August (utc) count double points, and P14YLC can be counted as a province or a country. Send log details with two ircs before 31 December 1988 to PA3BLA, Hoge Maasdijk 2, 4285 XB-Woudrichem, Netherlands.

DX Century Club
As mentioned in an earlier column several changes have come out of the recent review of the DXCC programme. First of all – please note that for the new awards there is now a special new application form which must be used. Copies can be obtained from DXCC Application Forms, ARRL HQ, 225 Main St, Newington, CT 06111, USA in exchange for several ircs (*QST* mentions "two units of first class postage"). The processing of the new awards is being phased in and will be dealt

with as follows: (1) 10-meter Single Band Award. Applications will be accepted during the period following 15 June and will be processed after 1 July. Applications received during this period with the highest country score will be allotted number one certificates. Subsequent numbers will be assigned in accordance with the number of country credits. (2) Satellite Award. Applicants will be processed in the same way. (3) 80-meter Single-Band Award. Applications will be processed beginning 1 November 1988 using the same procedure on forms received during the previous two week "window". (4)Five Band DXCC. This will become endorsable for 160 meters for applications starting 1 November. Contact ARRL for details. (5) 40-meter Single-Band Award. Will be processed beginning 1 May 1989 with same time slots as other single-band awards.

New rules have been introduced governing the Countries List criteria and there are now rules laid down for deletion as well as addition which will hopefully result in fewer anomalies. However, I always feel that we should all realise that DXCC is meant to create enjoyment in working dx and that it is an ARRL award and therefore ARRL has every right to make whatever rules it thinks fit! It is a great tribute to ARRL that its award is so interesting that it is sought after by amateurs all over the world.

The Manx Award

Issued by the Manx ARC for licensed amateurs and listeners. Three classes – Class 1 for working/hearing 25 Isle of Man stations with five different prefixes; Class 2 for 15 GDs with four different prefixes, and Class 3 for ten GDs with three prefixes represented. Note that GD, GT and some GB prefixes may be included and that stations may be worked on more than one band to count separately. Any mode – endorsements for mode/band on request. No date limitation. Repeater QSOs do not count. Send log extract and £1 or 8ircs (UK) or US $3 or 15ircs (elsewhere) to M Farrant, GD4BEG, Saintsbury, Grove Mount, Ramsey, Isle of Man. This is believed to be the first GD award.

Worked Scandinavia on CW Award

Issued by SCAG (the Scandinavian CW Activity Group) to licensed amateurs and listeners. Europeans need to work 75 stations on cw from LA, OH, OY, OZ, TF and SM, at least five of whom must be SCAG members whose membership number must be obtained during the QSO. All must have been since 1 January 1988. Send list of QSO details, certified by two other amateurs plus US $7.00 or 17 ircs, to R Meilstrup, OZ5RM, Bavnestien 6, DK-2850 Naerum, Denmark. Listeners should send an sae and irc for membership list.

CONTESTS

Results of the **1987 CQ WW WPX SSB** Contest appeared in March "*CQ*". UK scores are as follows:

Single-operator

GM3GPN	(All-bands)	301,924 points	**GB6AR**	(14MHz)	401,580 points
GM4WEN	"	177,000 "	**GB8DX**	(1.8MHz)	64,256 "
G3VOF	(21MHz)	42,228 "	**G3XWZ**	"	3,182 "
GW4BLE	(14MHz)	3,229,446 "			

In the **Multi-operator Single-transmitter** section GB8AU was top listed UK entry with 3,080,525 points coming 15th in the world listing. GB8PX scored 261, 392 and G4CVK 85,782. In the **QRP/P** section **GM4ELV** was world third on 14MHz with 59,330 points.

Third IARU HF World Championship

1200 9 July – 1200 10 July

Single-operator phone only, cw only, or mixed modes, and multioperator single-transmitter mixed mode only. 1·8 to 28MHz (but not WARC bands). Send report and ITU zone (UK is 27). IARU member society headquarters stations will send signal report and official society abbreviation. Stations may be worked once per band/mode in the appropriate section of the band recommended for the mode used. QSOs with own ITU zone and society HQ stations count one point, with own continent but different ITU zone three points, and with different continents five points. Multipliers are the total number of ITU zones and society HQ stations worked on each band (NB: HQ stations do not also count for zone multipliers). It is advised to use official contest stationery (send two ircs to IARU Secretariat, PO Box AAA, Newington, CT 06111, USA. Awards will be sent to top scorers in each section in each state, ITU zone, and dxcc country. I can supply photcopies of the rules if asked – sae please.

HF F-LAYER PROPAGATION PREDICTIONS FOR JUNE 1988

The time is presented vertically at two-hour intervals 00(00)gmt for each band, ie 00=0000, 02=0200, 04=0400 etc.

The probability of signals being heard is given on a 0 (indicated by a dot) to a 9 scale; the higher the number the greater the probability with 1 meaning 10 to 19 per cent of days, and so on. Additionally 50MHz F-layer and and 1·8MHz openings are indicated by a plus (+) sign in the 28 and 3·5MHz columns respectively.

The provisional mean sunspot number for March 1987, issued by the Sunspot Index Data Centre, Brussels, was 75·8. The maximum daily sunspot number was 120 on 31 March and the minimum was 11 on 20 March. The predicted smothed sunspot numbers for June, July and September are respectively: (classical method) 50, 52, 53 and 55, (SIDC adjusted values) 62, 67, 70 and 73.

Time / GMT	28MHz 000001111122 024680246802	24MHz 000001111122 024680246802	21MHz 000001111122 024680246802	18MHz 000001111122 024680246802	14MHz 000001111122 024680246802	10MHz 000001111122 024680246802	7MHz 000001111122 024680246802	3.5MHz 000001111122 024680246802
** EUROPE								
MOSCOW	.....	.....1.	...122111331	1.2344334563	545666656898	875444444689	753211112367	42.....34
MALTA	.....	.....11.	...122112341	1.1444434674	635776667898	988654445789	886322222468	+53.....4+
GIBRALTAR	.....	.....	....1....12.	...132222352	411566555787	976765555789	886432223478	++42.....24+
ICELAND	.....	.....	.....	.....1...121	311234333465	766655555678	776432222356	443.....23
** ASIA								
OSAKA	.....	.....	....11111.11	..1122223232	111232223574	....1...1362	.....13.	.....
HONGKONG	.....	.....1..	..1122112321	1112332246643	311122224676	2.....1465	142	.....
BANGKOK	.....	...111..121.	..1233223531	112334335764	411112224688	3.....1467	1.....145	2
SINGAPORE	.....	...1111.1...	..123322331.	112344335541	421122224675	4.....1467	1.....146	3
NEW DELHI	.....1..	...1111.121.	..2333224541	213334335774	642111224688	62.....1468	3.....146	3
TEHERAN	....11...11.	..1222211233.	..3444334663	225444446786	765211224689	852.....1478	62.....146	3.....3
COLOMBO	....11...1...	..1222112...	..233433522.	223334446442	642112224687	72.....1478	4.....146	3
BAHRAIN	...111..121.	..1222213441	1.3444435774	325433446887	865211224689	852.....1478	73.....146	4.....3
CYPRUS	...1111.122.	...223223441	1.3556546775	435777667897	877655556799	985322223578	762.....1257	53.....24
ADEN	...11111231.	...223334532	213434456765	535433456888	876211124689	873.....1478	741.....146	42.....3
** OCEANIA								
SUVA/S	.....	.....	.....11.	..111111.231	113432222552	..231...133.	...1.....11.	.....
SUVA/L	.....1.	1.....32	3112.....64	3335.....75	22562....163	..331....331	...1.....11.	.....
WELLINGTON/S	.....	.....	.....1.	11112.....42	22443111..74	11331....1253	..11.....12.	.....
WELLINGTON/L	.....	1.....2	311.....5	5332.....17	5564.....56	23431....253	..21.....131	.....
SYDNEY/S	.....	....1.....	..1222.....1	1134431....3	3235421122216	1.131....1354	141	.....
SYDNEY/L	1	1.....3	31.1.....6	5213.....7	43452.....37	11242....164	...1.....131	.....
PERTH	....11.....	..1222.....	..24441.....	2245552.....	54334221111.	52..1...1351	2.....145	3
HONOLULU	.....	.....	.....1.	11112221	113332213411	..332...12..	..11.....	.....
** AFRICA								
SEYCHELLES	...11.112...	...2223341..	..344455641.	215434456642	755211224677	863.....1478	74.....146	4.....3
MAURITIUS	...1111123..	...223334521	..2545556853	2.5545456876	616312224689	853.....1478	751.....146	42.....3
NAIROBI	...1112233..	...22334551.	2.2544557843	525634456876	867411224689	8851....1478	762.....146	43.....3
HARARE	...111223521	1..222446743	4..544567876	712644456898	956622224689	8863....1478	763.....146	43.....3
CAPETOWN	....11233...	...1224552..	...45456751.	...664456741	21.642223675	76.31...1378	7621.....146	43.....3
LAGOS	....1.23453.	...122356751	21.353567883	542664446896	986631113689	88631...1378	7631.....146	44.....3
ASCENSION Is	....1.12342.	....3123575.	54456882	1...64446895	641142113688	88431....368	7631.....146	44.....3
DAKAR	....1.12243.	1..131244662	421354455885	743564345898	987642112689	88631....368	7641.....46	44.....3
LAS PALMAS	....1....12.	21122341	3..254455675	622576666898	976776566799	997543333578	875311...257	552.....24
** S. AMERICA								
Sth SHETLAND	.....223..	.....1445..	.....35673.	.....145685.	1123683	423.1....367	7641.....146	44.....3
FALKLAND Is	.....12233.	.....23466.	1456881	1....2456894	512..2223688	86521....368	7641.....136	44.....3
R DE JANEIRO	21331	2233552	31...4455786	642..4445788	9861222225579	88632....258	7641.....26	44.....3
BUENOS AIRES	11231	1....1133452	41...2355786	7421.3455688	9864.2223479	88641....148	7641.....26	44.....3
LIMA	11	1.....111132	41..2.233356	731241343357	975542221137	88642.....4	6641.....2	43.....
BOGOTA	11	1....1.11122	4...13232245	621134343357	974442221126	88642.....3	5631.....1	23.....
** N. AMERICA								
BARBADOS	11	1....1111132	41..23233356	731244333367	975543211147	88642.....15	6641.....2	43.....
JAMAICA	.....	1.....1..12	3....1222134	62.1.3332246	874422221125	68632.....3	4631.....	.3.....
BERMUDA	.....	12	3....2222145	62..13332257	864332211136	78632.....3	5631.....1	23.....
NEW YORK	.....	1	2....1111123	41...2222235	763212221125	68632.....3	3631.....	.3.....
MEXICO	.....	11	2.....11123	41....122224	653311121112	37632.....	1531.....	.2.....
MONTREAL	.....	1	2.....111123	41...2222235	753222221135	57632.....3	3531.....	.2.....
DENVER	.....	.....	1.....1	21.....1112	5432..111112	25531.....	.331.....	.....
LOS ANGELES	.....	.....	1	21.....11112	34321..12111	14531.....	.231.....	.....
VANCOUVER	.....	.....	.....	1.....111	333321112112	13532...1...	.131.....	.....
FAIRBANKS	.....	.....	.....	..1111.....	223332112222	.2332...11..	..11.....	.....

Band reports

First the G8KG review, which goes as follows: "Last month I spoke of signs that a new upsurge in solar activity was under way early in March. This turned out to be quite a major affair with the daily solar flux peaking above 130sfu during the last week in the month, making it the first in Cycle 22 to reach that high and to have no days below 100sfu, a situation last seen in May 1984. All this had a major effect on conditions on all bands from 14MHz upwards, and 28MHz was seen to be open to all continents on several days despite the still rather low occupancy. Conditions were particularly good around the 20th and 21st and again in the first week of April with only a brief interruption when the high activity set off a major magnetic storm and radio aurora on 4 April. It was a pity that things sagged somewhat at the time of the Commonwealth Contest.

"March sunspot data had not yet arrived at the time of the deadline but a monthly average in the region of 70 or 80 seems likely and this could well push Boulder's prediction of the peak to 200 or more. More next month!"

As always, thanks to the following who sent in information: G2HKU, G5JL, G6NK, GJ3EML, G3s GVV, IGW, JJG, KSH, PJT, VOF, GM4CHX, G4s EHQ, MUW, NXG/M, OBK, OUT, UZN, XAH, XRV, G0s AQT, DNV, and GW0IER.

Stations listed in italics were using A1A.

1.8MHz 0500 *YN3EO.* **2000** *UA1-UA3,* UB. **2300** *UD6BN.*
3.5MHz 0100 *WB1AUW/V47.* **0200** *PY0FC.* **0500** *PJ2/PA0VDV, PY,* TI5MRC, *6Y5JH.* **0600** *AA7A* (Ariz), *CI8CW, P40RV, T47CW.* **0700** FJ0A. **2200** *3A/DL8DAS.*
7MHz 0000*EA6ZY,* VO1SA/UA0, *V31OX, 4S7EA.* **0100** *C530/DF3ZJ, WB1AUW/V47,* YN3EO. **0200** *9Y4/J6LAD.* **0500** *FM5ES, HI50ORCD, KL7Y, W7WA, ZL1-ZL4.* **0600** *NG1V/FG, TI8LGM, VE7, VE8GW, W7, ZL7TZ, 7X3DA, 9L1GG.* **0700** *CI8CW, CP1TQ, FK0RP, KH6LE, KL7PJ, TX0A* (=FY), *VP9C.* **0800** J6LTA *JA1.* **1700** *FR5ES, JA5, 4K0E.* **1900** *KX6DS.* **2000** *PA3AXU/SU, T77F, VK2KM.* **2200** *VU2PTT.* **2300** *FY4EE,* J88AB, *P4/DL7AET, VK6, ZC4AP, ZD9BV, 4U1UN.*
10MHz 0700 *VK2OO, VK5FE, W5ZF.* **0900** *LU5WP, N4WW.* **1700** *HZ1AB, 3A/DL8DAS.* **1800** *JH2CLV/2* **1900** *EA5BS/EA8.* **2000** *YV1ACX, 4X4MU.* **2200** *4U1UN.*
14MHz 0700 JT0NP. **0800** *NL7GP,* VK, ZL, 4K0D. **0900** JA *T22VU, 3D2VU.* **1000** 5W1TT. **1100** VU2CK. **1300** *NY6M/KH2,* 5T0RIM. **1500** *NO1Z/KH1.* **1900** *T30JS,* VO1SA/UA0. **2000** J37AH, S92LB. **2100** HH2Z, *NL7GP.*
18MHz 0600 *VE3DJ.* **0700** *YU.* **0800** *VK2DUY.* **1700** *LZ1DZ, 9H3AK.*
21MHz 0800 H22H. **0900** JT0NP, *KL7PJ,* UA1OT, *VK9LN, 3B8DX.* **1200** AT0Z, J45JG, JT0TJ, VS6EF, XX9JN. **1400** YC7NI. **1500** *SV8ZC,* TR8CR. **1600** ZS3/DL8ZBL, 5N0WRE. **1700** TU4BR/5U7, 9L1GG. **1800** S0RASD, 5H1HK. **1900** *P40V.* **2200** *VP2MET.*
24MHz 0900 *AX6RO, VK2AKG.* **1200** *FT5ZB, 5B4OG.* **1400** *PJ2AM, W1-W0.* **1500** *EA5BS/EA8, VE3JNC.* **1700** *FY4EE, N2BTO.* **1800** *PY3TT.* **2100** *K6STI, W0FNC.*

28MHz 0800 JA2OTP, 3B9FR. **0900** AP2P, DU7RLC, OK1XC/JT, TA3D, TJ1DL, TU2JT, UM8MO. **1000** BV2FA, KH2D, TL8FF, VS6CT, 5H1HK, 9V1WU. **1100** A22/ZS6P, A71BJ, K4YT/DU1, VK6ADP, ZD8MAC, ZS3BI, 4S7NPR. **1200** A4XRS, OD5VT, S0RASD, TR8SA. **1300** FT5ZB, FY4EE, J6LMV, PZ5JR, 7P8DP. **1400** FH8CB, PY0FF, YI1BGD, 5T0RIM, 7X2ARA/2. **1500** F6HMQ/FY, J87CD, JY1, S42LK, VP8BRE, 5V7WD. **1600** P40V, PA3AXU/SU, 9J0A, 9Q5BG. **1700** K2IJW/FJ, T70A, *TJ1DL,* VP2s EC, ML. **1800** CX8CF, D44BC, HK0HEU, *TA2AO,* VP8BRE. **1900** KP4AXC. **2000** W6RUO.

Thanks also to the following for information: *DX News Sheet* (G4DYO), *The Ex-G Radio Club Bulletin* (GI3OEN/W6), *Long Skip* (VE3IPR), *Lynx DX Group Bulletin* (EA2JG), *DX Family Newsletter* (JH1KRC), *DX' press* (PA3CXC), *CQ Magazine* (W1WY), *DXNL* (DL3RK), and the *Long Island DX Bulletin* (W2IYX).

Closing date for receipt of material for **August** issue is 10 June. □

1988 28MHz COUNTRIES TABLE

G3VOF	109
G4MUW	92
G4XAH	89 (ssb)
G0DNV	79
G4JBR	50
G4NXG/M	44
G0FYD	38
GD0ELY	36
GD4XTT	34
G4OBK	24
GM4CHX	23
G4OUT	10

10MHz COUNTRIES TABLE

	All-time	1988
G3SED	26	26
G4XRV	23	23
G3JJG	102	18
G3PJT	106	13
G4VDX	71	–
G4YWG	64	–
G4OBK	57	–
G4YSN	1	–

QTH CORNER

ET3JIN JA1BK, Central PO Box 231, Tokyo 100-91, Japan.
H22H via 5B4MF, Spyros Stavrinides, Box 9129, Nicosia, Cyprus.
IA5PLB Bartolini Piorluigi, Via S Rocco, 57037 Portoferraio (LI), Italy.
J45JG via SV1JG, Cliff Saccalis, Box 3128, GR-10210 Athens, Greece.
JT0TJ HA1KSA, Bajcsy Zs u 6, H-9021 Gyor, Hungary.
JT0NP HA5NP, Robert Soket, Bethlen Gabor u 142-144, H-1153 Budapest, Hungary.
NO1Z/KH1
VK9NL/KH1 HIDXA, PO Box 90, Norfolk Is, Australia 2899.
P40P N Akiyama, PO Box 855, Newington, CT 06111, USA.
TX0A Box 127, Cachan, F-94230, France.
3B9FR via F6FNU, Antoine Baldeck, 7 Res du Val, Ollainville, F-91290 Arpajon, France.
HB9CUZ/5N9 Box 8426, Kaduna, Nigeria.
5T5RIM Box 51, Atal, Mauretania.
5X5GK via DJ5RT, W Ruppert, Riesenkopfweg 7, D-8209 Stephanskirchen, FR Germany.

VHF/UHF

Ken Willis, G8VR

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As this is being written, in April, operators on the 50MHz band and vhf dx-tv enthusiasts are already watching for the first signs of sporadic-E for the current season which typically will be noticed in late April or early May in this part of the spectrum. However, assuming that this copy of *Rad Com* reaches you early in June, past experience suggests that Es propagation may already have appeared on 144MHz. The first two weeks in the month have for several years proved to be good for Es openings, so stay close to the receiver during this period. Now that 28,885kHz is an established crossband frequency, and with so many overseas stations monitoring and calling on the channel, it is a good one to monitor at least as a precursor to events which might build up to reach the higher frequency bands.

In the past it has been said frequently that the origin of sporadic-E is unknown, although several theories about its origins have been advanced. Two recent studies of Es propagation covering the 1987 season show that research is beginning to throw much more light on this intriguing subject. One, a scientific paper by Geoff Grayer, G3NAQ, reprinted in the last issue of *Six News,* mainly analyses the very long transatlantic paths which opened up on 50MHz between May and July last year. The other is an article in the USA publication *Ham Radio* for September 1987 by Garth Stonehocker, K0RYW. Both refer to measurements made by ionosondes, low-frequency radars which transmit mf/hf signals vertically. After reflection from the ionospere, measurement of the time taken for the round-trip provides information on the formation and movement of Es clouds. G3NAQ mentions that details of 50MHz amateur contacts and the reception of 28MHz amateur beacons both contributed to the study, and when added to the general pool of scientific data produced "a consistent picture . . . throughout the spectrum". G3NAQ comments that the origin of sporadic-E, its annual appearance and daily unpredictability "remain as inexplicable as ever". However he does conclude that the 50MHz amateur transatlantic contacts were due to multi-hop Es, and because on a single day Es can occur from Central Europe to mid-USA, it indicates that ionisation in the Es cloud is "solar driven", moving around the globe with the sun. He therefore discounts thunderstorms and meteors as having any major role to play.

K0RYW is prepared to be more specific and attributes Es to the fact that at altitudes below about 72 miles above the earth, a neutral particle "sandwich" exists with the upper level moving towards the west, the lower one in the opposite direction. Collisions between particles produce vertical ion movement and very thin, intense, long-lived ionised layers develop. The ions, he thinks, originate from meteors (a fact not disputed by G3NAQ), the variation in their content and location accounting for differences between Es events. K0RYW comments that during one observation the maximum usable frequency arising from a "patch" only six miles long actually doubled in a period of only 2 minutes. As an indication of the large variations which occur in Es ionisation, however, Garth says that clouds covering 36,000 square miles (60 × 600 miles) and lasting up to two hours have been observed. These are the sort we hope for this year!

Solar data

If you have been keeping track of solar activity during the past couple of months you will know that experienced observers have suggested that the peak of Cycle 22 may arrive earlier – a good deal earlier – than expected. Typically, the year or so either side of the peak of the cycle has in the past proved to be good for auroras. In March and April some very good auroral events occurred, but as "Smithy" G8KG observed recently, this was not entirely unexpected in view of the fact that the geometric curve had exhibited an upward trend earlier than anticipated, so maybe we are higher up the slope than an "11-year cycle" would suggest. Correspondence from readers suggests that the terms used to describe the sun's activity can sometimes be confusing. The sun radiates energy all the time, and one way of quantifying it is to choose a part of the radio spectrum and measure the "signal strength" or sun noise with the antenna system pointed towards the sun. This is done routinely at several observatories around the earth in the 2600-2800Mhz region and the resultant readings published as "solar flux" figures. Even when "quiet", the sun never ceases

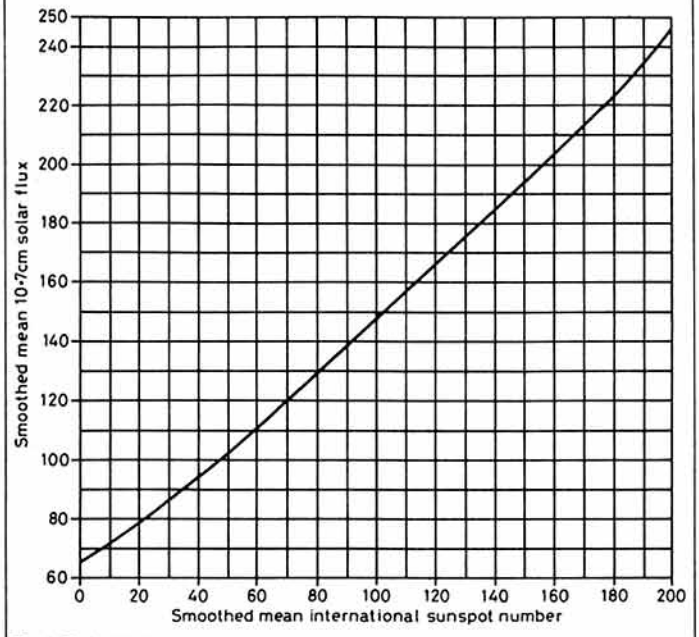

Fig 1. Solar flux v sunspot number (Courtesy ARRL)

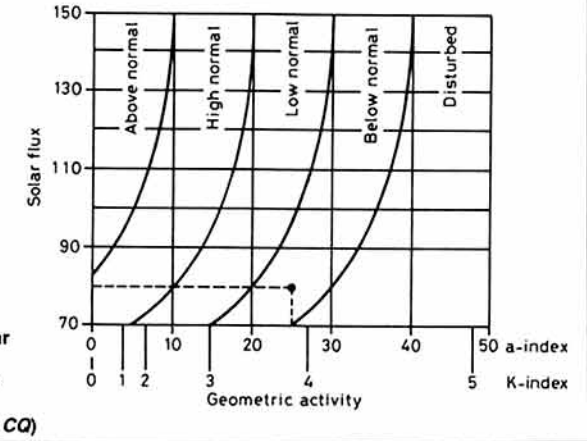

Fig 2. Solar flux v geometric index (Courtesy *CQ*)

to radiate energy, so the lowest level of flux is around 60-70, but an active sun can produce flux readings above 200. As a solar cycle progresses, solar flux tends to increase and more and more sunspots appear. In February vhf/uhf News & Views, I described how the sunspot "number" was arrived at, and gave some figures which showed how sunspot number and solar flux were related. This is an empirical relationship derived from observation over the years. The graph of Fig 1 taken from the ARRL Handbook, enables a sunspot number to be related to a solar flux figure over the whole range which we can expect to experience. High solar flux figures will result in higher frequencies being returned to earth by the ionosphere, hence the current interest in the data for Cycle 22. However, much higher flux levels will have to be reached before 50MHz signals are reflected by the ionosphere to give global dx via F2 propagation.

Solar radiation also takes other forms, one being streams of high energy particles raining on the earth, which produce changes in the earth's magnetic field, the effects being particularly noticeable around the poles, and conducive to auroras. This so-called geometric activity is also measured on a regular basis. Because the "A-index" which quantifies it can change rapidly, three hourly readings are typical. Current figures for the A-index are not easily available to the radio amateur, but in another form, a K-index is transmitted at 18 minutes past each hour by WWV.

K	0	1	2	3	4	5	6	7	8	9
A	0	3	7	15	27	48	80	140	240	400

The wider scale of the A-index makes it possible to note small changes in geomagnetic activity which would be less obvious on the K-scale, though both relate to the same phenomena.

Fig 2 shows how the solar flux and the geomagnetic index figures for a given day can be combined to indicate whether the ionosphere is likely to be disturbed. The graph is taken from the excellent *Shortwave Propagation Handbook* (Jacobs & Cohen) published by *CQ Magazine*. It is the area on the right hand side of the graph which is of interest to vhf operators because a disturbed ionosphere suggests the possibility of auroras. Thus, if solar flux is, say, 110, then an A-index of about 37 (or a K figure of about 4·5) will point to a disturbed ionosphere and possible auroras. You can get these figures, though a day late, from Radio Australia (9655kHz) each weekday morning.

Back in February 1987 I showed the relationship between the "A" and the "K" indices, but for reference here it is again:

Auroras occurred on four consecutive days in March (26 to 29 inclusive) and a further (major) event was observed Easter Monday, 4 April. For the March events, throughout the four days the Solar Flux was fairly constant at 129-132, representing a sunspot number of about 80. The A-index varied between 14 and 22, so Fig 2 (if we accept these figures), would suggest that the ionosphere during these events was not unduly disturbed. The event on 4 April was in a different category. On this day the A-index rose sharply to 60 (storm level) with a solar flux of 123. Next day the A-index had dropped to 14, yet a day later, 6 April, it was up again to 41 (also storm) with a flux of 117. So far, no reports of an aurora on 6 April have been received, so it does not follow that a high solar flux and a high geomagnetic index will necessarily produce a radio aurora. Thanks are due to G3ENY for these figures. Auroral reports were received from G4UPS, GM8DFX, GM0ITA, and an excellent listener's log from Rolf, DK2ZF (JO33ON) who copied many stations in G, GM, GW, GI, EI, PA and LA on 50MHz during the 4 April event. Doug (GM4DJS), had further improved his magnetometer (see April vhf/uhf) and measured a very large deflection, of which more next month.

50MHz

Ted Collins, G4UPS (Hemyock, Devon) monitors the 50MHz band for most of the day, and very little of what happens there escapes his notice. One of the reasons for his dedication to 50MHz is that between 1979 and 1982, Ted was active on the band from Ascension Island, signing ZD8TC. This also accounts for the fact that these days Ted maintains regular contact via 28MHz with the current 50MHz operator on Ascension, Mike, ZD8MB. Ted has noted many similarities between band openings and events now being reported by ZD8MB and those he logged during his stay on the island. More details next month. Meanwhile here are some interesting bits of information from Ted which show the potential of this band for dx.

15 March: ZD8MB copied the 9H1 beacon for the first time and went on to work 91HBT two-way, 559 cw, 57 ssb.

24 March: 9H1BT worked LU8MBL at 2027gmt two-way, while ZD8MB worked SZ2DH, 9H1BT, 9H1CG and 9H1EL, plus EA4CGN, OZ2BQ/EA7 and TR8DX crossband.

25 March: G4UPS copied ZD8MB keyer on 50·105 between 1605 and 1752gmt.

1 April: ZD8MB worked LU7DZ two-way

8 April: ZS6OB reported on 28,885kHz that he was copying the G4UPS keyer on 50·110MHz at 419. No two-way 50MHz contact resulted, but ZS6OB then worked EA4CGN crossband, and Ted, G4UPS, was able to hear ZS6OB on 50·110, S7 with no apparent tep characteristics to the signal. Ted used his keyer to transmit continuously a 57 report to ZS6OB which he believes was received. Later, at 1540gmt, Ted heard snatches of a callsign with almost auroral tones which he thinks was Bill, 9J2WS. Later in the day contacts were made between 9H1 and ZS6.

Other information is that CX8BE has heard the CTO beacon, while ZD8MB regularly copies 50MHz beacons in 5B4, 9H1 and CTO. He has also heard PY2AMI on 50·075. A new station on the band, ZS3AT, has worked 9H1 and some French stations. However, F9LT confirmed in April that 50MHz permits were still not available to French amateurs, and it might be three months before the situation was resolved.

Remote imaging

I mentioned recently that several readers had expressed an interest in Remote Imaging, this being mainly the reception of pictures transmitted by the NOAA and Russian Meteor satellites on 137MHz. While not wishing to encroach on the territory of Bob Phillips, G4IQQ, who writes ▶

the satellite feature in *Rad Com*, I will just mention the outcome of my correspondence with Henry Neale, G3REH, one of the founder members and currently chairman of the Remote Imaging Group.

The mini-contest on 2 April really brought the band to life and before the end some stations were approaching the century mark. Since the Netherlands stations are my locals, I was able to work seven of them, all on cw and running very low power. They often call in vain trying to attract the attention of UK stations, so don't ignore weak cw near 50·200, and respond using ssb if necessary, since the PAs will welcome contacts.

This group, started about three years ago, has attracted over 1000 members worldwide. It publishes a regular newsletter which is a veritable mine of information on the subject, and offers a wonderful field for home-brew projects. Having been out of touch with the group except for odd glimpses of its displays at the VHF Conventions, I was astounded by the quality of pictures being received regularly by its members. A whole new aspect of vhf amateur radio seems to have opened up through these activities, one which can be pursued from any location with relatively cheap equipment. Ironically, weather satellite watchers are being plagued by some radio paging systems which have been allocated space at 138MHz and up. With the paging boys wanting as much signal as possible, and the satellite watchers preferring peace and quiet, it is a tvi problem in reverse! While recognising the need for every available part of the radio spectrum to be used, it seems daft to allow local transmitters to be set up which may prejudice an internationally accepted weather satellite service in which vast sums of money have been invested and where participation by members of the public is not discouraged. Satellite pictures need a wide bandwidth receiver, hence the problems of adjacent high-power transmitters.

After contacting Henry, I fired up my old Eddystone 770R general coverage vhf receiver, noise figure circa 12dB, used mainly for Es monitoring. After building a 2-stage fet preamplifier, excellent signals were received from the 137MHz satellites using a simple dipole at gutter height. As yet I have no imaging equipment but as Henry says, once you start, it is totally addictive.

For information on the Remote Imaging Group (RIG) write to its secretary, Phil Seaford, G8XTW, 14 Nevis Close, Leighton Buzzard, Beds, LU7 7XD, enclosing a sae.

BEACON NOTES

A list of beacons provided by PA0RDY contains callsign, frequency, locator and other details of more than 100 144MHz beacons. Thanks are due to the SM6AFH/SM6EOC 144MHz *Newsheet* for distributing this list. Anyone requiring a copy please send me a sae plus 20p in stamps for photocopying. PA0RDY, Robert Dijkstra, wants to keep the list up to date, and to this end would like to receive any information about beacon changes, additions etc sent to him at Het Breed 875, NL-1025 JE Amsterdam, Netherlands.

A useful sporadic-E indicator is OH2TEN, a beacon on 28,252·5kHz, located on a small island in the Helsinki area with a good take-off over the sea (KP2OKE). It runs 10W to a groundplane antenna, and reception reports would be appreciated by the Espoo Radio Club, OH2CH, PO Box 73, SF-02231, Espoo, Finland.

From the Six Metre Group, some further information on the Ascension Island beacons. ZD8HF (28,292kHz) runs a healthy 50W to a vertical antenna. ZD8VHF (50·032MHz) also puts out 50W into a four-element Yagi (with a vertical for this band also available). The same keyer is used for both transmitters, but sends the appropriate callsign followed by the locator II22TB. This sequence is followed by six letter "A's" to indicate Ascension before the call is sent again. The last portion is sent twice more before repeating the entire message. Here is the interesting bit. Keying is synchronised on both rigs, except for the callsigns of course, so if you listen to it simultaneously on 50 and 28MHz, any differences in the time of arrival of the two signals could be observed (always assuming, of course, that we start to copy ZD8 on 50MHz!). Unless something very strange happens up aloft, an oscilloscope will be needed to detect any time intervals.

Don't forget the list of 75 and 50MHz beacons supplied by G4UPS, mentioned last month, which I can send on receipt of a sae plus 20p in stamps.

Three readers, GM0ITA (Benbecula), GM8DFX (Sutherland) and GM4DJS (Strathclyde) all made a point of mentioning reception of beacon GB3LER during the aurora of 4 April. I found this interesting, because in the more southern parts of the UK we tend to assume that a lot of GMs would hear this beacon most of the time, and this is clearly not so. In the south, reports of it being heard are so rare that one can never be sure if it is QRV.

Geoff, GJ4ICD, telephoned to say that an application had been submitted for a 50MHz beacon located on the Island of Jersey. Proposed call is GB3I0J, and the frequency 50·065MHz. The transmitter will run 25W to a pair of crossed dipoles for omni-directional coverage. The keyer has been built and tested.

GB3SIX is also on again after being put off the air by gale damage. Incidentally, reports of beacons being off the air can be most useful, so if you are in a remote spot and your local beacon goes QRT, don't assume that everyone knows about it.

QSL Bureau-reminder

Remember that the RSGB QSL Bureau will be closed for the whole month of July, so please send no cards after mid-June until early in August.

AWARDS

The VHF Committee has evolved a series of awards for the 50MHz operator. In doing so the committee tried to take into acount the fact that 50MHz operation differs somewhat from that on our other vhf bands because, for example, F2 propagation and extended sporadic-E can yield dx contacts which cannot be made using our 70, 144 or 432MHz bands. Also, it was felt that crossband working, enabling operators in countries with no 50MHz transmitting facilities to enjoy the band should feature in the new awards. Three separate awards are proposed. The first, the 50MHz Squares Award, requires proof of working 25 different locator squares two-way on the band. Contacts must be made with properly authorised stations, and on the evidence of the recent mini-contest on 50MHz, there should soon be a flood of applicants for this certificate.

Secondly, the 50MHz Countries Award can be achieved by submitting proof of completed two-way contacts with 10 different countries. Stickers will be issued for each further increment of 10 countries worked.

Finally, the 50MHz DX Certificate makes no stipulation as to the band on which the incoming signal is received, nor whether 50MHz operation is authorised in the country worked. The basic award will be made to stations offering confirmation of contacts with 25 different countries, transmission from the UK being within the 50MHz band irrespective of the band used by the remote station during the QSO. Stickers will be provided for increments of 25 countries confirmed. It is thought this will encourage crossband working, and at the same time not penalise Class B operators who, under the terms of their licence, can respond to calls on the HF bands by transmitting on 50MHz.

For all these awards, only contacts after 1 January 1988 will qualify. Full details will soon be available from the vhf awards manager on receipt of a large sae.

On the subject of our much respected vhf awards manager, Jack Hum, G5UM, at the time of writing he had agreed to "soldier on, if I am spared!" as he put it, until his successor is named, possibly a *fait accompli* by the time this appears in print. We all hope that Jack will be spared for many a year to come. I first worked him on 144MHz some 35 years ago! Jack has always been quick to draw attention to awards which deserve special merit, the latest being a 432MHz Senior to David Hudson, G6OVO (South Yardley), who made the required number of contacts using just 1W to a Jaybeam 18-element parabeam. This shows what can be done with low power, and patience, and is at least a partial solution to those afflicted by difficult tvi problems. Other recent awards included two 144MHz certificates for G4AFJ, one for his old Notts location and another for the current one in Leicestershire, plus a 432MHz, 15 countries 70 squares award to Tony Collett, G4NBS, who is a member of the VHF Contests Committee. Tony has also been successful in gaining some ARRL VUCC awards which are handled in Europe by me (large sae, please, for further information).

REPEATER NEWS

A status report on GB3HR (R514) was received in April. This repeater is operated by the West Hertfordshire UHF Group, and is now located near Stanmore, Middlesex, though originally at Bushey Heath. It has provided a reliable service since the date of its installation in August 1976 until the hurricane struck in October last, damaging the antenna and feeder system. To make matters worse, rainwater found its way into the phasing harnesses of the dipole arrays, corroding the feeder sections and connec- ▶

SATELLITES

Bob Phillips, G4IQQ

Transvaal Cottage, New Barn Road, Swanley Kent. BR8 7PW

Fuji OSCAR 12

The Japanese Amateur Radio Relay League have recently started to disseminate operating schedules for Fuji Oscar 12 and the information for the months of June and July is as follows:

	JUNE			JULY	
Mode	Day	GMT	Mode	Day	GMT
D	1	0001	D	1	0001
JD	4	0353	JA	2	0103
D1	5	0259	D	4	0116
JD	7	0110	JD*	7	1530
D1	8	0218	JD	7	1935
JD	11	0546	D1	8	0143
D1	12	0654	JD	9	0049
JD	14	0505	D1	9	2355
D1	15	0613	JA	13	1409
JD	18	0533	D	14	1315
D	19	0439	JA	16	1328
JA	22	0156	D	17	1235
D	23	0304	JD	20	1356
JA	25	0318	D1	21	1301
D	27	0129	JD	23	1114
JA	29	0143	D1	24	1020
D	30	0049	JD	26	1033
			D1	27	1141
			JD	30	1100
			D1	31	1006

JA: Analogue mode
JD: Digital mode
D: All systems OFF,
D1: Systems **off** except CPU and memory

Note: On 7 July 1988 from 1530 to 1732 gmt, a special telemetry software package will be loaded to permit telemetry transmission every 2s instead of every minute. During this period no mailbox functions will be available but the digipeater will be operational. JARL would appreciate reports on these transmissions either via the FO-12 mailbox or direct to JARL, PO Box 377, Tokyo Central, JAPAN.

The satellite is reported to be in relatively good health; however, the condition of the power subsystem is gradually worsening with time, as might be expected.

Project HART

In the February issue, I described the activities of a construction group within Amsat-UK who had designed and constructed a prototype transponder to be flown on a manned balloon. Unfortunately the DTI has indicated that it will not be possible to fly the payload in the UK. It is understood that the Civil Aviation Authority opposed the application for a licence. This, of course, makes it extremely difficult to gain the necessary experience in building flight-proven hardware, without which it would be very difficult to arrange for a satellite launch. This is a particularly harsh set-back for Amsat-UK as it has been trying to encourage construction activity for some time and this project was the first positive outcome.

Oscar 10

The cessation in operations reported last month has continued until at least the end of April and the situation is likely to remain unchanged until at least the beginning of June. According to James Miller's Oscar 10 almanac (published in February 1988 *Oscar News*) the solar illumination of the satellite increases to its maximum towards the middle of the month, and if there is a chance of the resumption of operation, this is likely to be be the most favourable time.

Phase 3C

The successful launch of the 21st Ariane flight just before midnight on 11 March indicated that the prospects for an early June launch of the Phase 3C satellite are very good. The V21 launch and the next launch are both of the Ariane 3 class of vehicle, whereas the next amateur payload will use the first flight of the higher capacity, Ariane 4 class. After the satellite is launched it will assume the name Amsat Oscar 13 and should enter operational service by the end of June.

The spacecraft was transported from Marburg in West Germany to the launch site in Kourou, French Guiana, at the end of March; transportation costs were paid by a special donation from Amsat-UK.

The satellite will carry an array of transponders as well as a complex digital communications facility. Basic characteristics can be summarised as follows:

	Up-link centre frequency MHz	Down-link centre frequency MHz	Bandwidth kHz
Mode B	435·505	145·895	150
Mode L	1269·450	435·850	250
Mode J1	145·840	435·950	40
Mode J2	144·460	435·950	40
Mode S	435.625	2400·710	30

The Rudak channel has its input at 1,269·675 and output at 435·675MHz.
The satellite should provide an excellent opportunity for operators who are equipped for one or more of the transponder modes.

Finale

As I mentioned last month, this is my last regular contribution to *Rad Com*. The column started life back in April 1982 under the heading "Ephemeris – satellite news and views". The intervening period has proved immensely interesting for me and I would like to thank all those who have written or phoned with information or questions. It can sometimes become a little isolated trying to put together the column each month, and the feedback is very encouraging.

It is not clear at this time what will be the future of the "Satellite" column, but I am sure it will continue in some manner and I hope readers will give as much support to my successor as I have enjoyed. ■

▶ tions. This resulted in a rise in vswr to about 2·5:1 which caused further damage to the linear amplifier and its power supply, installed only last summer to improve coverage. After temporary repairs, riggers were called in to remove the damaged antenna and replace it by a 3dB colinear. While the amplifier and its power supply were being repaired, the repeater driver stage provided 2W erp to keep the repeater on the air, but the signs are that the receive antenna is also faulty, which will require a further visit by the riggers. The group apologises for the reduced service, and reminds users that these demands on the finances have reduced available funds to a low level, so donations to a repair fund would be greatly appreciated. The treasurer is Brian Greenaway, G3THQ, QTHR.

From Gloucester Repeater Group, another status report, this time related to GB3GH (RB5, Gloucester) following completion of three months on the air. The repeater has not been used as much as the group would like, most activity being confined to "rush hours" and the period between 0200 and 0600, assumed to be due to night-shift workers (?) or possibly insomniacs. Areas from which users are drawn include Forest of Dean, Gloucester, Redditch, Birmingham and Cardiff – quite a wide area. The group has applied for a licence to establish a packet digipeater (GB7GH) on 144·650MHz fm. It is intended that this system will comply with AX25 standards. Like so many others, the group could use donations and new members. To link digipeaters on 1,296MHz, donations of any equipment for this band, including antennas, would be very welcome. The contact is Nick Negus, G6AWT, QTHR.

At a meeting with the DTI attended by G3OUF and G3XDV, the terms of licences for digipeaters were discussed. Present thoughts, subject to ratification, are that the new licence will allow anyone to operate a digipeater without the need for a special GB licence, provided the station is attended. Unattended stations would be permitted only on the 144MHz band with erp limited to 25W. The DTI has withdrawn its proposed terms for 50MHz networks, so 432MHz is now preferred, though site clearance will be a requirement. The RSGB will be permitted to issue letters of variation to allow the operation of mail-boxes on 144MHz. The Packet Working Group will allocate 144·650MHz to mail-boxes which will use GB7 prefixes. Owing to licensing delays associated with 432MHz operation, it was accepted that the 144MHz experiment would need to continue, though the long-term policy is not to use this band.

South Dorset Group reported that its packet switching station GB3DP, co-sited with GB3SD (RB14) has continued operation throughout the year. Plans are afoot to incorporate 1,296MHz into a SWAX25 network with GB3DB (Stockland Hill), GB3EP (Exeter) and GB7BM (near Brixham). The licence for GB3DP expired at the end of 1987 but was extended for a further 12 months to permit discussions between the RMG and the DTI to be finalised. It is hoped that evenutally GB3DP will be allocated callsign GB7SD. The group plans to provide full level-3 facilities for the area, and when accomplished, the 144MHz unit will be removed from the Ridgeway site and GB7SD will offer 1296MHz high-speed link facilities between main nodes. By selecting lower sites, this is expected to provide a more localised coverage and reduce congestion.

DATA COMMS

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TNC MONITOR SOFTWARE FOR THE EG2000 GENIE

Peter Fawcett, G0FBK, writes with information on a tnc monitor package which runs on the Color Genie in conjunction with a TNC-220. The package lets the Genie act as a simple terminal, communicating with the tnc at 1,200bps. The program is interrupt driven, and requires just one simple hardware modification involving a diode. The software on cassette, plus full supporting information, is available for just £1 from Peter at 7 Albert Hill, Bishop Auckland, Co Durham DL14 6EH. Cheques or postal orders should be made payable to "Bishop Auckland Radio Amateurs Club".

A CRY FROM THE HEART

In the February/March 1988 issue of the *Sinclair Amstrad Radio User Group (SARUG) Newsletter*, editor Paul Newman, G4INP, makes the following comments on amateur software: "It was recently suggested to me that programmers of amateur software made things far too complicated for users. After analysing this and other remarks along the same lines, I came to the conclusion that these missed the point entirely. It may be true that programs are getting more difficult to use; but then the users' needs hardly stand still. One cannot expect programs to operate themselves, and so often the would-be user either doesn't read the instructions or, even worse, makes no attempt to understand what he/she is using.

"This latter point was drawn sharply to my attention recently while testing an rtty system. When I asked the operator at the other end to 'please reverse shift so I can test the shift control here', the remarks coming in made it abundantly clear that he hadn't a clue what I was on about – 'I only press buttons'. It seems to me that some users are making software authors the scapegoat for their own inadequacies."

This is so true. Data comms is not particularly difficult to understand, but it does take a little effort beyond plugging in and switching on. What has happened to the spirit of self-training and self-advancement which was clearly evident in the minds of the pioneers of amateur radio, I wonder?

On the other hand, I also sympathise with those people who complained to Paul about the software being made to look too complicated. I get a lot of documentation from suppliers of amateur (and commercial) software, and generally speaking I am not surprised that readers find it difficult to understand. These suppliers may be able to write the most wonderful user-friendly software in the world, but they haven't a clue about how to string together meaningful sentences in plain English describing how to use it. And if you have the temerity to phone them to ask what such-and-such really means, their responses can be anything but user-friendly! I well remember one renowned *Rad Com* advertiser who participated in the rtty survey in this column a couple of years ago; he told me in no uncertain terms that I ought to be able to understand his documentation, that he was a "professional", and that it was "totally impossible" to write software which would allow a rtty program to operate at the same time as a printer or a disc. When a "professional" tells me that something is "totally impossible", I find myself thinking hmmmmm . . . What do you think?

NIBBLES

Ed Harland, G3VPF, reports that GB3DP in Dorset and GB3DB in Devon now have DR200 packet switches installed, in preparation for the release of COSI packet software. Also, for those interested in reading about the techniques of packet, Ed has produced a short *Introduction to Packet Radio*, available free of charge on receipt of an sae large enough for nine A4 sheets. A small donation to GB3DP would of course shorten the time taken to put it in the post . . .

ZS6SAT – vhf – Johannesburg	(linking to DCE/FO-12 Gateway)
ZS6KE – hf – Johannesburg	(linking to ZS6SAT, ZR6ADO, ZS1RO)
ZR6ADO – vhf – Pretoria	
ZS6CC – hf – Pretoria	(linking to ZR6ADO, ZS1RO)
ZS1RO – vhf – Cape Town	(linking to ZS6CC, ZS6KE)
ZS5SAT – vhf – Durban	(linking to ZS6KE)

More news on the South African DCE gateway. The local network is developing fast, with the following bulletin boards active:

Several links on hf will soon be replaced with vhf/uhf links, with the Lesotho vhf link soon to be operational. More details from Michael, G0/PA3BHF at Uosat, University of Surrey . . .

Well-known hf packet operator G3LDI makes the following plea: "Come on fellas! The odd typing error I can withstand, but when an Englishman is talking to an Englishman, what the *** is an aireal? Get a dictionary *please!* PS: Sicks munce aggo I kuddent tork proppa eether . ."

James Miller, G3RUH, says that the Eastlink tests (featured in last month's column) were a great success. The trials involved measuring the link power needed to achieve satisfactory communications between three of the main sites. Those involved were: GB3PX (Cambridge), GB3EA (Bury St Edmunds) and GB3NP (Norwich). These stations form a virtually straight line across the centre of East Anglia with individual hops of about 40km. All run NET/ROM. All the sites used 15-turn helix antennas which have about 15dB gain. That at GB3PX is permanently installed at 30m agl near the top of a tower just west of Cambridge. The feeder is 37m of heliax LDF4-50A (loss 8dB/100m). The antenna at GB3NP was mounted temporarily, at what will be its permanent location, on the gantry of a 90ft grain silo. All the test gear and radio equipment had to be hauled up by rope for the tests! At GB3EA, a borrowed Landrover and trailer tower allowed experimentation with antenna heights. The results proved that the 1·3GHz links were indeed viable. Perfectly adequate communications were achieved with under 1W – even over an 80km path. The projected link powers will be in the 100-200mW region. Assuming that funds can be obtained to complete the installation, there now seems to be no reason why the core of Eastnet should not go live on the target date in July. They also hope to include GB3HX (Huntingdon) on the same date, and plans for links to G4RFG (Daventry) and Ipswich are being actively discussed . . .

Stuart Clink, GM1VBE, says that there is growing confusion over the two Scottish packet groups MACPAC and PACAGE. To clarify the situation, MACPAC is the short title for the Scottish Digital Communications Group, a club of amateurs and others with interests in digital communications, mainly AX.25. At present the group runs one mailbox and one network node. Applications are in for four GB7 node sites (plus bbs), with another two pending. PACAGE, on the other hand, is a commercial venture supplying equipment for AX.25, initially for Dragon-based systems, but now for most makes of tnc. One of the partners in PACAGE is a member of MACPAC and he holds the licence for GB3FP.

PACKET ON 14MHz

Peter Chadwick, G3RZP, says that he is "very disturbed at the use of data modes (packet, in fact) above 14,100kHz. I know packet grew up there because it was convenient to switch to ssb for discussion, but the IARU-agreed band plans state that 14,100 up is for ssb/cw. If you do a traffic analysis, the stations per kilohertz from 14,070 to 14,100 are fewest of any section of the band. So could we make 14,094 - 14,099 exclusively packet?

"There isn't really a need to unilaterally break the band plan and go above 14,100. When I operate ssb on 14,102 I'm within the agreed band plan – packet stations QRMing me are not. Now, on this basis, whither band plans? I might as well operate ssb or cw on 14,090 or put rtty on 14,195. I suppose what I'd really like to see is a statement in the "Data Comms" column that the band plan says: data transmissions below 14,100; above that is agin the band plan. I know that band plans are gentlemen's agreements, and I'd like to think that hf packet radio people are gentlemen. PS: Packet isn't even a good hf mode, unlike Amtor!"

My personal comments on this are as follows. First, the use of frequencies above 14,100 is indeed historical, but not only because of the ability to switch to ssb. Packet first appeared on the band when rtty was still very popular, and there wasn't really any room between 14,070 and 14,100 for packet as well. Trying to run packet below 14,070 would probably have led to lynch parties wielding solid-brass Admiralty-issue morse keys, so the only place to go was above 14,100. However, since those early days way back in 1983/4, the balance has shifted, with many packet stations now above 14,100, and rtty activity below 14,100 is on the decline. So there is possibly a case for extending packet downwards below 14,100.

Second, there are indeed conflicts from time to time between ssb and packet stations just above 14,100. But we have to keep this in perspective. We are talking here of packet activity occupying less than 15kHz in a total possible ssb bandwidth of 250kHz; ie less than six per cent. Packet is now ▶

MICROWAVES

*Mike Dixon, G3PFR**

*"Woodstock", Gaze Bank, Norley, Warrington, Cheshire WA6 8LL

A country-wide (well, at least southern!) packet message concerning G4SNL's (Saltash, Cornwall) activities on 10GHz was brought to my attention by Dave, G4FRE. This had been received via G3LDI from the network. In it, Iain asks for details of any activity in Cornwall, Devon, South Wales or adjoining counties which might be workable from his usual /P site at Caradon Hill (IO70SM, XK49d, NGR SX274717). He has both wb and nb gear on the band and has experimented with rtty, sstv, fstv, packet, cw and ssb/fm voice modes, his main "gripe" being lack of information on who is doing what, where and when. Also the lack of activity via skeds into his rather remote part of Cornwall. Any information or skeds would be most welcome, please, via G0BSX-2 mailbox at Plymouth – or more conventionally too! Dave said that Chris, G8BKE, had jocularly suggested that the *Microwave Newsletter* editors, G3PHO and G8AGN, should get "packet" so that he can send input to the *Newsletter* that way.

More microwave awards have been notified by Jack, G5UM, (microwave awards manager, QTHR), two of them, unusually, yl operators. This is indeed a refreshing change! The first, to Ela, G6HKM (near Chelmsford), was the Standard 1·3GHz Award which, with her Senior 144 and 432MHz awards, won her the Supreme Award (No 71). This despite considerable damage to the antenna system last October.

Operating from Sussex, Angela, G8XCY, has just received her 20 Squares Award on 1·3GHz, her last five squares being three French, one German and one Belgian. On 10GHz, G4EML/P (operating from the South Downs) gained two awards for operation in May 1987. The first contact beyond 150km was with GU4EFT/P and his second award was for five squares confirmed. Well done all stations!

TEASING F6DZK WITH 20mW on 1·3!

Further news on G6LEU's (near Truro) unusual contacts into SP and OK in the latter half of 1987 has come from Dave himself. Things started to liven up at 07.05 on 29 August last when he had just worked an HB9 station on 144MHz and mentioned that he was QRV on 1·3GHz. He was called on that band by Mike, F6DZK, and reports of 4/2 and 3/2 exchanged. Dave then realised that this ptt switching was still such that he was transmitting and receiving on 1·3GHz only via the leakage past his "high quality coaxial relay". He estimated that F6DZK was listening to less than 1mW at a QRB of 450-500km! Putting the switching right resulted in S9+ signals both ways. 30 August produced superb results with many DL, ON and PA stations worked, but the most notable contacts were with SP6GWB/6 (JO88JG, IK54d) for a Polish national record of 1,543km, and with OK2VIL/P (JN99FN, JJ33g) for a Czechoslovakian national record of 1,673km. QSLs received showed that SP6GWB was using 2·5W to a 1·4m dish with a 3SK97 front-end, while OK2VIL/P had 35W to a single 50-element loop-quad Yagi: the latter station is also QRV 2·3GHz with 100mW all-mode. All equipments at the continental end were "homebrew", and it was interesting to note that both stations had printed on their cards (and thus used) both the "new" international locator and the "old" QRA reference.

Conditions again opened on 5 and 6 November to yield many continental contacts, with the best being OK1DIG/P in JO60XN – Dave's square count is now 59 worked in 13 countries. He is active most evenings between 2030 and 2200, with a regular sked with G3KFD at 2130: please turn your beams southwest! Since these contacts, it is understood that the Polish national record may have been extended by a further 40km or so following a contact during the November lift between SP6GWB/P and G14OPH, although this is unconfirmed at the moment.

THE WINCHESTER ROUND TABLE

Thanks to Ted, G4ELM, a full report on the above event, held on 13 March, was recently received. First, advanced notice of the next event at Winchester: Sunday, 5 June. Details can be obtained from G4ELM or G3JHM, both QTHR.

Attendance was reported as "moderately good" with 26 amateurs and one xyl attending. On this occasion there was no representation from the Microwave Committee, so the components service was also absent. Phillipe, F6DPH, brought along his home-constructed DL1RQ (Dubus design) narrowband 10GHz equipment and Les, G3BNL, displayed some 10GHz low-noise and power amplifiers. An interesting antenna item was a Cassegrain-fed PW dish. Originally designed for the "Penny feed", the dish with the modified feed was claimed to have an additional 6dB over the conventional "penny".

Final arrangements were made for the joint French/English round table to be held in Le Havre. This venture, to which we wish all success, is being organised from the UK by G4ELM and G3JHM, and on the French side by Georges, F3LP and Albert, F8WN. It is expected that the British contingent will be some 12 of the 13 who put their names forward originally.

A review of the Winter Activity Days was given by G3JMB and G8LSD, with others contributing to the discussion. The general consensus was that they were useful and recommended a "fixed" start time, for instance 11am. Further co-ordination was required on the use of talkback: the meeting suggested 144·33MHz, this being less prone to interference in the south. This, of course, conflicts with the general observations in the North and north Midlands. You simply can't please all of the people all of the time.

In discussions on the coming "season" of 10GHz activity, several members of the group expressed a desire to activate different sites, and Keith, G4FUF, expressed his objective to be to work as many 200km+ paths as possible! 10 April was agreed as a pre-Cumulative activity day on the south coast. The Cumulative of 15 May would be a "cross-channel" event with as many French stations as possible active, in addition to GU4EFT/P. An earlier start and later finish to the Cumulatives was suggested. This, of course has been tried before, at which time many participants declared the events to be too long, or that activity had ceased by about 7pm anyway.

On the beacon front, there was little progress to report, although all the hardware for a mid-Essex 10GHz beacon is ready. This one requires finalisation of site. The GB31OW beacon on 10GHz is now "ready to go" but switch-on has been delayed until the companion 1·3GHz beacon is ready.

COME ON TELL US WHAT'S HAPPENING THE "MICROWAVES" COLUMN MUST GROW

There was again some criticism of the components service and the lack of good technical (microwave) articles in the column and main body of *Rad Com*. Well . . . from a committee point of view, we can only put forward what we receive, and it is really unreasonable to expect all the technical ideas to come from the committee and its members. If we could persuade even 10 per cent of the microwave fraternity to put pen to paper with their technical ideas, both the column and the newsletter would be well filled with such articles. Last month's column outlined one way in which you, the reader, can help in generating such articles: ie, make an entry into the design sponsorship scheme for the Rouse Memorial Trophy! As to the components service, you may rest assured that all steps are being taken to rectify the cost situation. In some instances the re-order price of replacement components has risen by more than 50 per cent, a rise which in some cases (for instance the MGF1402 GaAsfet) appears to be associated with the manufacturer's desire to discontinue or discourage distribution of that particular device. More economic replacements are being actively sought, although it is not always easy to predict the effect that this will have on the performance of a particular design; it isn't quite as straightforward as at lower frequencies nor is it always possible to act swiftly on a limited budget! ■

► well entrenched in this area, just as cw is well entrenched at the bottom of the band, and I really don't think that this is the end of the world for ssb operators. Yes, we will certainly co-exist a lot better if we can stick to gentlemen's agreements. Yes, we look upon IARU and other organisations like RSGB and ARRL to come up with sensible pronouncements. But we have to remember that it's a real world out there, full of real ordinary individuals who just want to enjoy a hobby. With the advent of microcomputers, the amateur radio world has changed beyond all recognition in the last five years. Packet radio is here to stay. Packet radio needs room to play. Pragmatism must rule. I repeat that these are my personal opinions, which may not tally with anybody else's. What do you think? ■

SWL

Bob Treacher, BRS32525

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Good to hear again from Harold Moss, BRS18529, who has the rigs back on the air after moving QTH. Although his operating time is limited at present he has concentrated on 28MHz and is seriously thinking of getting onto 50MHz. Michael Monteil, F11ATZ, also has 50MHz gear but at the time of writing had heard nothing in the way of dx this season. Mick Toms, BRS31976, had to get an antenna to be up and running on 50MHz, while David Whitaker had gone one better. He got his first experience of the band during the 2 April contest, but managed to copy signals via the aurora on 4 April to log his first dx, GM3TSL (IO87UD), G3SED and GW3XYW obliging.

Elsewhere on vhf, David reported 432MHz confirmations from HB9MIN/P, SP6MLK/6 (JO80) and OE5VRL/5 (HI42J), while 144MHz additions were SP6FID (JO80CS), SP3MFI (JL11e) and IW0BET (JN61). On hf, he had managed his 124th country on 1·8MHz thanks to 8P9X. On 28MHz he had heard DU3AAL, VK1NYB, D68AM, FR5DX, J52US AND 5H1HK.

Mick Toms has also acquired a DXTV for the shack, although it cost him a new one for the kitchen! It is a Hitachi K2400 which, apart from a radio and cassette, has facilities for Bands 1, 3 and uhf. The latest batch of cards included YU7AU (KE), Y24XN (GK), SM7LXV (JO65), I6DQE (JN63) all for 144MHz to edge a little nearer the 150 squares confirmed.

Michael Monteil commented that the listener report which I had sent him for his latest GJ6WDK/P operation had been the only listener report he had received. He asked why there are so few listeners active on vhf, and remarked that reports on these bands are far more useful for operators than a 59+ report on 14MHz.

Martin Parry, BRS52543, had also been quite busy, providing a long list of dx logged from all bands 1·8-28MHz. A few of the more exotic callsigns were V47NXX, VK9LM, FK0BA, TU4BR/5U7, FT5ZB and KB4FFE/P4.

GW1XUD took a listen to the WPX contest and came away with a number of interesting stations. He heard T77V from San Marino and numerous strong Europeans on 7MHz.

ALL TIME COUNTRIES LIST

Station	DXCC	28	21	14	7	3·5	1·8	Total
BRS25429	343	281	317	339	274	255	127	1,593
BRS32525	327	269	308	324	277	273	118	1,569
BRS8841	322	258	297	319	259	244	86	1,463
BRS52543	–	200	243	263	214	196	105	1,221
BRS1066	300	198	221	277	191	136	94	1,117
ORS45992	305	222	264	291	171	137	19	1,104
ONL5810	278	163	233	266	177	168	41	1,048
BRS20249	256	139	200	206	99	102	29	775
Average	–	216	260	286	208	189	77	1,236

Please remember to update your score regularly. The table will appear again when there are sufficient new scores.

WHITE ROSE LF CONTEST RESULTS

The results of the White Rose ARS eighth low frequency band contest have been released. Band conditions for the first 12 hours of the event were poor so the society was pleased to receive 18 logs, with a further four for the cw leg.

The highest British listener was Arthur Miller BRS88969 who was placed fourth, with David Whitaker BRS25429 coming home as second G in sixth place. Five further logs from the British Isles were received. In the cw leg, Don Piccirillo BRS52868 was second overall and the highest placed G.

The 1989 contest will be the ninth time that the White Rose Society will have sponsored the contest, but it will be the last. They have decided to bow out and hope that another Radio Ssociety will step in to sponsor the event. If any society is interested, they are invited to contact the Society at PO Box 73, Leeds, LS1 5AR.

MIDSUMMER SET LISTENING CONTEST

The White Rose Society have arranged a five-band set listening contest for Sunday 19 June. The times (all gmt) of the event are as follows:

28MHz Band 0900-1100
21MHz Band 1200-1400
14MHz Band 1500-1700
7MHz Band 1800-2000
3·5MHz Band 2100-2300

The contest is open to all swls and licensed amateurs. Countries will be according to the ARRL DXCC list. Logs should show date, time, station heard, station being worked, report at swls QTH, points claimed. Logs should be sent to the Society at 57 Green Lane, Harrogate, North Yorkshire HG2 9LN, no later than 31 July 1988.

SPORADIC-E

Following part 1 last month, here is the data on sporadic-E openings in July and the beginning of August, thanks to the fine research carried out by Mick Toms, BRS31976.

It can be seen that the period from 7–14 July is a good one. All that remains now is to monitor 144MHz and see exactly what happens. Keep the matrix up-to-date and you will have a ready-made chart which can be used in the future. If anyone has details of openings not mentioned, please let me know and I will pass them on to Mick.

Matrix showing sporadic-E openings on 144MHz, 1977-87

	77	78	79	80	81	82	83	84	85	86	87	88	89
July													
1										•			
2							•		•	••			
3							•						
4													
5													
6													
7						•	••			•	•		
8	•	••			•		•			••			
9					•	•							
10		••			•••						••		
11				••			•				••		
12	•			••						•			
13				••					•		••		
14											•		
15					•		•						
16							•						
17						•	•						
18							•			•	•		
19													
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21											•••		
22													
23													
24								•					
25													
26											•		
27											•		
28							•						
29													
30						•					•		
31													
August													
1													
2											•		
3													
4							•	•		•			
5											•		
6								••					

SWL REPORTS

G4JAZ sent a QSL card received for an swl report received on the reception of a special exhibition station last autumn. The card was from Ken Clarke, BRS88772. It was well presented, informative and provided a critical signal report. The reverse of the card was crammed with interesting information, such that G4JAZ found it the best listener report that he had received.

It is always good to hear of licensed members congratulating a listener on the value of his reports. It clearly shows that taking time and effort when sending reports will reap benefits, and will, hopefully, encourage more amateurs to reply to the swl reports they receive.

G6MEN also wrote about swl reports. He is to activate GBHCSR from 1 June for the launch of the Phase 3c amateur satellite on Ariane 22, and is keen to receive listener reports from anyone who hears the station. G6MEN acknowledges that the swl is an important part of the radio fraternity, but is unaware of any British listener who spends his time monitoring the satellites and sends reports to the stations heard. Special QSLs available from G6MEN at PO Box 32, Shrewsbury SY1 1ZZ.

QSL INFORMATION

Several useful QSL manager lists have found their way into the shack recently. If any reader would like a set, together with a full list of the Russian Oblasts, send £1 to cover the cost of photocopying and postage to me at the address quoted at the top of the page.

FINALE

The rules of the Society's swl contest to be held on 9/10 July are in "Contest News" this month. Please submit a log to support the event.

Copy for the August issue should reach me no later than 8 June with late copy by 15 June ■

Contest News

1·8 / 3·5 / 7MHz Cumulative Contests 1988 results

Congratulations to G4OGB for winning the 1·8MHz, the 3·5MHz with an error free log and the three band certificate; also to GM4SID for winning the 7MHz and GM3UM for again winning the Old Timer award. A special mention must be made of G0CBD's entry – the log had unusual mistakes consistent with "White Stick" operating. Enquiries proved this to be the case. Graham is totally blind and at least 18 of his points were lost due to dictation errors to the sighted person who wrote his logs for him. In spite of this he still achieved third place in the 3·5MHz Contest. Although these are inter G contests, DL9OE put in an entry for two sessions and scored 200 points.

The entry was slightly down on last year — one or two regulars were missing. Support from experienced operators is essential to lead the way and set an example to the newcomers so please spare what time you can.

The 215 calls logged on 1·8MHz included VK6HD, VE1ZZ and many different European areas. On 3·5MHz there were about 250 calls, nearly all G, and on 7·0MHz about 245. Of these, again, many European and several Ws, including 95 DL which with 49Y2 has probably something to do with widespread use of 5NN in the reports.

Operators comments in most cases indicated that a good time was had by all except those who complained, some strongly, about the timing of the 3·5MHz Contest. The HFCC have decided after discussing the letters and comments, to run next year's 3·5MHz Contests from 1600-1800.

It can be seen by comparing checked scores with claimed scores that several entrants had error free logs and the loss of just a few points made all the difference to the final placings. The general standard of log keeping was good but there were eight unmarked duplicates, including five from one entrant and one from a single sheet checklog. Thanks to G3YLC, G4UZN and GW4KVJ for "dupe" sheets, they do help but are not essential for these contests. Only one HFC2 summary sheet is needed per band. One small point, please put the first contact on the first line, squeezing the date in somewhere else as it is much easier to find contacts when checking if the thick line on the log comes after NR 10, 20, 30 etc.

As these are practice contests it might help to know how points are lost. All the errors found on all the logs and checklogs were converted into lost points and roughly grouped together according to most likely cause of errors, as follows:

Wrong callsigns approx. 273, one third in transcription errors; unmarked duplicates 264; wrong RST 82; wrong serial number 80; incorrect transmitting or incorrect logging of what had been transmitted 30; making a total of 729. About half the logging and most of the RST errors were due to the widespread use of 5NN even in incomplete contacts. About half of the total lost points took place after the contact had finished while writing the logs up and these losses could have been avoided with a little more care.

Thanks to all those who sent in entries and checklogs – hope to see you all again next year plus some new recruits!

G3MCX

1·8MHz CONTEST RESULTS

Posn	Callsign	4/1	12/1	20/1	28/1	Claimed Score	Checked Score
1	G4OGB*	138	160	150	CK	456	448
2	G4QDV*	147	120	CK	134	405	401
3	GM4SID*	139	123	–	120	387	382
4	G3BPM	120	CK	105	98	333	323
5	GM3CFS	111	–	91	105	315	307
6	G4CWH	–	66	114	125	339	305
7	G3LET	–	–	156	138	294	294
8	G4ENA	107	99	–	87	297	293
9	G4WZV	–	92	101	96	294	289
10	G3YLC	106	103	–	72	288	281
11	GM3UM	CK	90	86	93	270	269
12	G3LIK	94	81	89	CK	267	264
13	G4ARI	92	84	87	–	264	263
14	G3SWH	120	107	–	–	281	227
15	G3MCX	102	–	57	63	222	222
16	G4HZF	83	54	81	–	231	218
17	G4LZB	–	72	72	66	210	210
18	GM3RAO	120	–	–	89	210	209
19	G3AWR	67	–	63	72	204	202
20	G4NFX	47	–	62	62	201	171
21	G0DJF	–	–	38	85	126	123

Checklogs received with thanks from G2HLU, G3BFP and GW3JI.
*Certificate Winners

3·5MHz CONTEST RESULTS

Posn	Callsign	3/1	9/1	17/1	23/1	Claimed Score	Checked Score
1	G4OGB*	204	186	198	CK	588	588
2	G4ASR*	187	192	174	CK	564	553
3	G0CBD*	178	193	171	–	579	542
4	G4ARI	174	189	174	CK	540	537
5	G4KGK	CK	183	183	141	510	507
6	G4UZN	158	174	173	CK	510	505
7	G3JJG	192	150	161	CK	543	503
8	G3SWH	–	171	173	147	492	491
9	G4SND	148	–	150	146	405	444
10	G4LZB	–	140	141	118	402	399
11	G3BPM	–	150	134	109	399	393
12	G3OLU	135	135	119	–	396	389
13	G4XPE	CK	114	137	117	381	368
14	G3MCX	CK	129	139	95	366	363
15	G3LIK	66	–	164	132	366	362
16	G0DJF	–	72	129	132	336	333
17	G3HQH	157	–	153	–	318	310
18	GM3UM	99	111	95	CK	312	305
19	G3YLC	–	57	124	119	306	300
20	G4WZV	CK	146	99	53	471	298
21	GW3SB	99	96	96	CK	291	291
22	G3AWR	95	98	81	CK	276	274
23	G3KNU	–	–	146	123	279	269
24	GM3RAO	–	138	54	74	267	266
	G4HZF	135	–	131	–	270	266
26	GW4KVJ	74	–	96	83	261	253
27	G3GMS	94	–	75	66	237	235
28	GM4SID	87	81	66	–	237	234
29	G4PTE	–	41	78	48	168	167
30	G4NFX	–	133	–	–	144	133
31	G0AVE	57	–	64	–	132	121
32	G3LET	–	–	105	–	105	105

Checklogs received with thanks from G2HLU, G3HVX, G4ECI, G4IFB and G4ODV.
*Certificate winners.

7MHz CONTEST RESULTS

Posn	Callsign	2/1	10/1	16/1	24/1	Claimed Score	Checked Score
1	GM4SID*	183	147	CK	198	531	528
2	G3SWH*	–	132	101	171	405	404
3	G3JJG*	153	CK	89	132	378	374
4	GM3CFS	122	–	107	141	375	370
5	G4OGB	113	99	CK	153	366	365
6	GM3UM	90	93	CK	135	318	318
7	G3LIK	–	105	30	177	312	312
8	G4LZB	–	93	72	142	312	307
9	G3BPM	103	84	CK	115	315	302
10	G3AWR	CK	81	78	102	261	261
11	G3MCX	CK	90	90	77	261	257
12	G4ARI	–	–	76	147	228	223
13	G4PTE	–	54	54	96	213	204
14	GW3SB	CK	66	60	65	195	191
15	G3KNU	–	–	80	101	186	181
16	G4NFX	–	93	69	–	174	162
	G0DJF	–	–	30	132	162	162
18	GM3RAO	–	57	81	–	138	138
19	G3GMS	48	–	–	80	129	128
20	GW4KVJ	49	–	–	68	123	117
21	G3OLU	107	–	–	–	108	107
22	G4HZF	–	–	80	–	81	80
	DL9OE*	84	–	–	116	207	200

Checklogs received with thanks from G2HLU, G3BFP, G4IFB, G4KGK and G4ODV.
*Certificate winners.

Affiliated Societies Contest 1988 results

A total of 354 stations, representing 96 groups, joined battle in the 1988 Affiliated Societies Team Contest. This was about 15 per cent less than took part in the 1987 event, and the decrease was reflected in the scores claimed by the leading groups. Nevertheless, the first 12 stations were able to maintain an average QSO rate of better than 60 per hour. Overall team leaders, and winners of the Edgware Trophy were the Three A's CG "A", by the narrowest of margins from the Lichfield ARS "A" team, with Leicester Polytechnic ARS "A" in third place. The certificate for the highest individual score goes to G4GIR, who operated for the Mid-Beds CA. Many constructive comments were received with the logs. One particularly worthy of note opened "Why do you have to tinker with the rules every year?" and then went on passionately to plead for three sweeping alterations! There were many comments in respect of the reduction in the frequency allocation for the event, consequent upon bringing it into line with the IARU Contest Preferred Segments recommendations, and the resulting increase in QRM. Several club secretaries said that numbers of their less experienced operators had dropped out because of it. AFS on 3·5MHz has always been hectic, indeed, calculations show that assuming all the stations to be evenly spaced out, one would expect to hear three QSOs in progress at any time, in a 500Hz bandwith! Several amateurs felt that there should be no obligation to honour the recommendations since "the contest is held at a time when there is only limited propagation into Europe". It would be intriguing to solicit the opinion of RNARS Copenhagen (see lists) about that.

Comments concerning the "QRS Corral" fell into two categories: those who felt it should be abandoned because of the restrictions mentioned above, and those complaining of QRQ intruders. The HF Contests Committee will be giving consideration to these matters in due course. OZ4CB named several stations who refused to work him, and told him to go away, as he wasn't AFS. A pity this, because the Danish groups are regular supporters of the event (and overseas stations count the same points anyway)! Two or three northern groups complained of poor conditions during the early part of the contest, and suggested delaying the start until 1500.

The great majority of comments, however, concerned rule 8(c) – the dupe sheet. A few objected strongly to the requirement to provide one, the majority queried the format. The primary reason for introducing the rule was to ease the load on the adjudicators, G30ZF, G3UFY, G4IFB, G4JKS, G4RWW and G6LX, who were able to complete the checking of the 32,200+ QSOs appearing in the logs in about 175 man-hours. Without the check-sheets it would have taken over twice as long. A spin-off to the advantage of the entrant is that unmarked duplicates should now be a thing of the past, as they show up immediately when an alphanumerically sorted list of callsigns is made.

Apologies are in order, however, for the ambiguous manner in which rule 8(c) was drawn up. The corresponding paragraph in the general rules does not clarify the matter either, and both will be rewritten.

Logs were generally of a high standard of presentation, although there were the usual few that tried the eyesight and patience of the adjudicators to the limits. The main cause for the deduction of points remains the misreading of callsigns, and the majority of logs contained callsign errors. Some entrants could not be bothered to record the time of making contact for each QSO, and several also failed to record any details of RST sent; both these omissions make checking difficult. The adjudicators are also wondering when the apparently endless supply of pre-1979 25-line log sheets will dry up. No entries were disallowed because of faulty paperwork this year, but entrants are asked to make the task of the checkers as

easy as possible by complying fully with the rules. In conclusion, the HFCC wishes to thank all those who took part in the 1988 AFS, thus ensuring that it remains the most popular event in the contest calendar, best described in the words of one of the competitors: "Utter bedlam . . . but what fun!"

Check logs gratefully acknowledged from: G3KXF, G3KXT, G3VCT, G4KRG, G0BJJ, G0HLF, GW3NJW.

G3UFY

Stations contributing to score

Posn	Points	Club					
1	11,789	Three "A"s CG "A"	G3SXW	G4BUO	G3MXJ	G4FAM	G3TXF
2	11,749	Lichfield ARS	G3SJJ	G3KDB	G4WQN	G3NKC	G3HCT
3	11,175	Leicester Poly ARS "A"	G3OAY	G4JGV	G3ORY	G3SDC	G3RIR
4	11,099	Verulam ARC "A"	G3RTE	G3VER/A	G0EOW	G3RFS	G4JKS
5	9,289	Addiscombe ARC	G3UFY	G3SJX	G4ALE	G3VYI	G3RQZ
6	9,272	New Wave ARC "A"	G3VMW	G3ZEM	G0AYN	G4ILW	G3ASM
7	9,066	Leicester Poly ARS "B"	G4BCA	G4ARI	G4EOF	G4KGG	G4CZB
8	9,048	Hereford ARS "A"	G4CNY	G3HVX	G3FKH	G4ASR	G3WRQ
9	8,099	Stockport RS "A"	G3KAF	G3PEK	G4FAS	G4GRU	G3HQH
10	7,944	Norfolk ARC "A"	G4RKK	G4ODC	G3PDH	G4DYC	G3LDI
11	7,092	Central Lancs ARC "A"	G0FDX	G3SYA	G0FYD	G4KGK	G4YWG
12	7,065	Southgate ARC "A"	G4UOL/A	G3ZVW	G3KTZ	G3SFG	G3RWL
13	6,735	Farnborough & DRS "A"	G3OLB	G0FNW	G4HZV	G4JFN	G4IZB
14	6,710	Verulam ARC "B"	G3UJV	G0EHO	G4JBD	G4HKA	G4SUP
15	6,490	White Rose ARS "A"	G3PSM	G3FCW	G4UZN	G4IUF	G4FKS
16	6,483	Croydon (SRCC) "A"	G3BFP	G4WAY	G6LX	G3MCX	G4GTO
17	6,472	RNARS London "A"	G4BOU	G3BBR	G3HZL	G4FRN	G4PSA/A
18	6,174	Grimsby ARS "A"	G4HZF	G4PYD	G4EBK	G3RSD	G3RXP
19	6,019	Wm Robertson Sch ARC	G3TBK	G3XWZ	G3ZOA	G4BPE	
20	5,924	Govt Comms ARC	G3NKS	G4PDQ	G3SSO	G3COQ	G3IFB
21	5,868	Leicester RS "A"	G4IFB	G4OOS	G4ITP	G4CWY	G3TQF
22	5,807	RNARS Portsmouth "A"	G3LIK	G3JFF	G3JTG	G3CHN	G4KNM/A
23	5,757	S Manchester RC "A"	G4TFU	G3SVW	G3PFZ	G4HON	G3ZDM
24	5,525	Thames Valley ARTS	G3OGP	G3JNB	G3AIV	G3BPM/A	G3LQP
25	5,464	Leicester Poly ARS "C"	G4ZFE	G5MY	G4GLC	G0CLP	G4XEN
26	5,231	Scunthorpe ARC	G3PDL	G4OGB	G4WZV	G3KNU	
27	5,187	Echelford ARS	G3KKQ	G3MCK	G3JUL	G4GSC	G3EAO
28	5,141	Mid-Beds CA	G4GIR	G4BWP			
29	5,050	Colchester RAC	G3YEC	G3YAJ	G3LZB	G3GLL	
30	4,754	Maidenhead & DARC	G3WYK	G3TWG	G3IQF	G4YDL	G4GGV
31	4,687	Chiltern ARC	G3COJ	G4VNR	G4RGK	G3BXS	
32	4,670	Crawley ARC	G3GRO	G3JKF	G4IQM	G3KAU	
33	4,667	Worthing & DARC "A"	G3TNO	G3SLE	G3SXE	G3LQI	G0CLA
34	4,650	RNARS Stockton "A"	G3UEN	G4MVA	G3AWR	G4KTH	G4WNA
35	4,460	Aberdeen ARS "A"	GM3WTA	GM4SID	GM3DZB	GM3VEY	GM3UU
36	4,438	Shefford & D RS	G4DRS	G4YRF	G3WRJ	G0BVW	
37	4,417	Clifton ARS	G3JJZ	G3GHN	G3BSN	G3DIC	G0DCG
38	4,022	Yeovil ARC	G3GC	G3ATK	G4JBH/A	G3CQR	G3BEC
39	4,004	Edgware & D ARS	G4IUZ	G3ASR	G3PSP	G0EZN	
40	3,672	Crawley Court ARC	G3RDQ	G4DZS	G3LMH	G4EZC	G4IBA
41	3,670	RNARS Coventry	G4TNI	G4EVP	G4IP	G4PZF	
42	3,607	Stockport RS "B"	G4ECI	G0BVZ	G3GMM	G4BJU	G3RUG
43	3,250	Sutton & Cheam RS	G3DNJ	G4HSD	G2FHV	G3CWL	
44	3,140	RNARS Liverpool "A"	G3SGQ	G4OKL	G3JZI	G4PTN	G4HWK
45	2,960	Halifax ARS "A"	G3IGW	G0BVQ	G4DNB	G3ONQ	G0BXO
46	2,904	Torbay ARS	G4ELZ	G3KZJ	G3LHJ	G3SNU	
47	2,893	Plymouth RC	G4HTD	G3ULN	G3VCN	G4KXZ	G0CYF/A
48	2,811	Verulam ARC "C"	G3HJF	G4PUR	G0BLQ	G4FUB	G4VVU
49	2,530	Bromsgrove & D ARC	G4AAL	G3IVJ	G4MBW	G2CLN	
50	2,360	RNARS London "B"	G4LNA	G4CJY	G8IB	G4PXA	
51	2,354	Sandwell ARC	G4PTX	G4NCY	G4ZVS	G4UMY	
52	2,210	RNARS Copenhagen "A"	OZ3QN	OZ4CB	OZ7JR	OZ1CMC	OZ1FJB
53	2,192	Horndean & D RC "A"	G4FBS/A	G4OFG	G3VPO	G4BEQ	G0FOD
54	2,170	RNARS Swansea	GW4HDB	GW3SPL	GW4KVJ	GW4ZUO	
55	2,164	Leicester Poly ARS "D"	G4KRS	G4OIG	°G0AKC		
56	2,110	RNARS Portsmouth "B"	G4EMM	°G4INI	G3GPZ	G4DIU	
57	2,010	Three "A"s CG "B"	G3WVG				
58	1,974	Cornish RAC	G4ODV	G0FKX			
59	1,966	Trafford ARC	G0CBD/A	G0AVE/A	G0IMB		
60	1,942	Aylesbury Vale RS	G3YLC	G3KLT	G4NCM		
61	1,830	Ariel (BBC) RG	G3CIK	G4LWA	G2BCI	G3RFJ	
62	1,800	Vale of Evesham RAC	G4RMV	G3DEF			
63	1,791	Cheshunt & D ARS	G3WFM	G4UNL	G3TIK	G4YGH	
64	1,774	Hereford ARS "B"	G0DJF	G3LZM	G4UZK	G4JSN	
65	1,760	North Kent RS	G0CGB	G4WNF	G3DCC	G0FAS	G4KCZ
	1,760	Weston-S-Mare RS	G3SWH				
67	1,720	Lichfield ARS "B"	G4CP				
68	1,578	RNARS Rosyth	GM3UM	GM3HUN			
69	1,380	RNARS Plymouth	G4KKZ	G3VNG			
70	1,377	Leicester RS "B"	G0ATR	G4XXZ	G4WYN	G0AZM	G0BAI
71	1,371	S Manchester RC "B"	G0AOU	G0CBJ	G4AUR	G4SUB	G3VIW
72	1,341	Farnborough & D RS "B"	G4BJQ	G3CZM			
73	1,320	RNARS Nottingham	G8AV	G4UUH			
74	1,277	RNARS Stockton "B"	G4SSH	G4FCH			
75	1,230	RNARS Medway	G0BDC	G4PTE	G30ZY		
76	1,190	S Birmingham RS	G4EYD	G4FCO	G4WYS		
77	910	Axe Vale ARC	G3HAL				
78	900	Croydon (SRCC) "B"	G3EUE	G8TB			
79	897	New Wave ARC "B"	G4SIE				
80	850	Verulam ARC "D"	G4DJX	G4EBD	G2PA	G0CNR	G4DUS
81	797	Norfolk ARC "B"	G3YLA				
82	760	RNARS Lowestoft	G4UJQ				
83	748	Southgate ARC "B"	G0ANN	G0ASA			
84	710	Central Lancs ARC "B"	G4YSN	GW4RHW	G3KQY		
85	630	Aberdeen ARS "B"	GM4BKV	GM0CPQ			
86	590	Reigate ATS	G3YSX	G3JRC			
87	552	Gravesend RS	G0HSS				
88	470	RNARS Yeovilton	G4MZL				
89	390	RNARS Liverpool "B"	G6SX				
90	360	RNARS Thurso	GM3CFS				
91	340	RNARS Copenhagen "B"	OZ1IGT	OZ5IN			
92	337	Horndean & D RC "B"	G0DHZ	G3COO	G0ASZ		
93	330	Halifax ARS "B"	G4RAW	G4VOB			
94	317	Grimsby ARS "B"	G4CFO				
95	150	White Rose ARS "B"	G0AEX				
96	80	Verulam ARC "E"	G0HGA	G4PVB	G0EAC	G4GDW	G3PMF

Posn	Callsign	Checked score	Posn	Callsign	Checked score	Posn	Callsign	Checked score
1	G4GIR	2,647	7	G4BWP	2,494	13	G3MXJ	2,327
2	G3RTE	2,620	8	G3SXW	2,464	14	G3VER/A	2,290
3	G3SJJ	2,597	9	G4BUO	2,448	15	G4FAM	2,280
4	G3OAY	2,577	10	G4WQN	2,435	16	G3ZEM	2,277
5	G3KDB	2,550		G3KAF	2,435	17	G3TBK	2,271
6	G3VMW	2,510	12	G4CNY	2,350	18	G3TXF	2,270

Posn	Callsign	Checked score
19	G3UFY	2,261
20	G4DRS	2,250
21	G3PEK	2,230
22	G4JGV	2,225
23	G0FDX	2,221
	G0EOW	2,221
25	G3ORY	2,214
26	G3PSM	2,200
27	G3NKC	2,190
	G2SJX	2,190
29	G3HVX	2,187
30	G3GRO	2,160
	G4RKK	2,160
32	G3OLB	2,121
33	G3SDC	2,114
34	G3RFS	2,094
35	G3RIR	2,045
36	G3WYG	2,010
37	G4BCA	2,004
38	G0FNW	2,000
	G4ODC	2,000
40	G3PDL	1,990
41	G4ARI	1,984
42	G3HCT	1,977
43	G3NKS	1,960
44	G3WYK	1,900
45	G3FKH	1,897
46	G4JKS	1,874
47	G3UJV	1,860
48	G3KKQ	1,840
49	G0AYN	1,837
50	G4EOF	1,831
51	G4ALE	1,830
	G3SYA	1,830
53	G4IFB	1,814
54	G4UOL/A	1,811
55	G3OGP	1,810
56	G3SWH	1,760
57	G3RXP	1,730
58	G3BFP	1,720
	G4CP	1,720
60	G3PDH	1,700
61	G3VYI	1,658
62	G4CZB	1,630
63	G4KGG	1,617
64	G4ASR	1,607
65	G3YAJ	1,580
66	G4ILW	1,570
67	G0EHQ	1,550
68	G4IUZ	1,547
69	G4PDQ	1,530
	G3XWZ	1,530
71	G3RSD	1,517
72	G4BOU	1,507
73	G4AAL	1,500
74	G4JBD	1,490
75	G3LIK	1,487
76	G3DNJ	1,460
77	G4OOS	1,457
78	G4ELZ	1,450
79	G3ZVW	1,444
	G4ODV	1,444
81	G3JKF	1,440
82	G4ZFE	1,424
83	G4TFU	1,407
84	G3HZL	1,390
	G3JJZ	1,390
86	G3JFF	1,380
	G3MCK	1,380
88	G3BBR	1,378
89	G4OGB	1,377
90	G4WAY	1,372
91	G3ZOA	1,371
92	G3GLL	1,370
	G3TNO	1,370
94	G3SSO	1,367
95	G3FCW	1,360
96	G3RQZ	1,350
97	G26LX	1,347
98	G3SVW	1,330
99	G3KTZ	1,321
100	G4FAS	1,317
101	GM3WTA	1,280
102	G3GHN	1,260
103	G0FYD	1,250
104	G0CBD/A	1,241
105	G3COJ	1,230
106	G3PFZ	1,220
107	G3SFG	1,207
108	G4FRN	1,200
109	G3JNB	1,194
110	G3GC	1,191
111	G4RMV	1,190
	G4TNI	1,190
113	G3UEN	1,180
	G4EBK	1,180
	G4UZN	1,180
116	G4VNR	1,177
117	G4KGK	1,174
118	G4RGK	1,170
	G4IUF	1,170
120	G3ASR	1,160
121	G4ITP	1,134
122	G3RWL	1,130
123	G3BXS	1,110
124	G4DYC	1,107
125	GM4SID	1,100
	G3YEC	1,100
127	G3MCX	1,097
128	G3HQH	1,090
129	G4SLE	1,084
130	G4PTX	1,080

Posn	Callsign	Checked score
131	G3ASM	1,078
132	G5MY	1,070
	G3JUL	1,070
134	G3YLC	1,064
135	G4MVA	1,060
136	G4HZV	1,050
137	G3COQ	1,040
	G3PSP	1,040
	G4HSD	1,040
	G3AIV	1,040
141	G3JTG	1,030
	G3RDQ	1,030
143	G4GRU	1,027
144	G3TWG	1,020
	G4GLC	1,020
	GM3UM	1,020
147	G4WZV	1,014
148	G3CHN	1,010
	G4EVP	1,010
150	G3WRQ	1,007
151	G3VCN	1,004
152	G4LZB	1,000
	G0CLP	1,000
154	G4PSA/A	997
155	G3IGW	990
	G4ECI	990
	G3BSN	990
158	G3LDI	977
159	G4XEN	950
160	G4GTO	947
161	G0BVZ	940
	G4KRS	940
	G4HON	940
164	G4HTD	934
165	G4HKA	920
166	G3SXE	914
167	G3HAL	910
	G3WRJ	910
	G4IP	910
170	G4KNM/A	900
	G4YRF	900
	G3AWR	900
173	G4SIE	897
174	G4SUP	890
175	G4KKZ	880
	G4LNA	880
	G4PYD	880
178	G4HZF	867
179	GW4HDB	860
	G3ZDM	860
181	G3KLT	851
182	G3KNU	850
183	G4BPE	847
184	GM3DZB	840
	GM3VEY	840
	G4DZS	840
187	G4KTH	830
188	G4JFN	827
189	G3ATK	821
190	G0CGB	810
	G3IQF	810
	GW4SPL	810
193	G3LMH	808
194	G3LQI	807
195	G3HJF	804
196	G4CJY	800
197	G3YLA	797
198	G4OKL	780
	G4JBH/A	780
200	G3BPM/A	777
201	G4EMM	770
202	G4CWY	761
203	G3SGQ	760
	G4UJQ	760
205	G0BVQ	750
	G8AV	750
207	G4IQM	740
208	G4IZB	737
209	G4NCY	710
210	G3LQP	704
211	G4YDL	700
212	OZ3QN	690
	G4INI	690
214	G4WNA	680
215	G3CZM	674
216	G4EYD	670
	G4SSH	670
218	G4BJQ	667
219	G3GMM	660
	G0BDC	660
221	G4DNB	656
222	G3ULN	654
223	G3CIK	650
224	G4OIG	647
225	G3CQR	640
226	G4YWG	617
227	G3DEF	610
228	G4FCH	607
229	G3KJI	600
	G3JZI	600
	G3TIK	600
232	G4BJU	590
	G3BEC	590
234	G4EZC	584
235	G4FKS	580
236	G0AKC	577
237	G3WFM	571
238	G4UUH	570
239	G4FBS/A	567
240	G4PZF	560
241	GM3HUN	558
242	G0HSS	552

Posn	Callsign	Checked score
243	G4HWK	550
	G3EUE	550
245	G0DJF	547
246	G4PUR	540
247	G2FHV	530
	G0FKX	530
249	G3DIC	520
	G3TQF	520
251	G4LWA	510
	G4GSC	518
	G4OFG	510
254	G4WNF	500
	G3LZM	500
	G3VPO	500
	G0BLQ	500
	G3VNG	500
	G8IB	500
	G3LHJ	500
261	G0CLA	492
262	G4VVU	490
	G4UNL	490
264	G4DJX	480
265	G4FUB	477
266	G4BEQ	474
267	G4MZL	470
268	G0ANN	447
269	G4PTN	430
	OZ4CB	430
	G4UZK	430
272	G3RUG	427
273	G4FCO	410
	G4IBA	410
	G4IVJ	410
276	OZ7JR	400
	GM3UU	400
	OZ1CMC	400
	G0DCG	400
	G0ATR	400
281	G0AVE/A	395
282	G2BCI	390
	G6SX	390
	G0CBJ	390
285	G3EAO	387
286	G4PTE	380
287	G0BVW	378
288	G4AUR	367
289	G4XXZ	360
	GM3CFS	360
	G3GPZ	360
	G4SUB	360
293	G3SNU	354
294	G0BXO	350
	G8TB	350
296	G4YSN	330
	GM4BKV	330
	G3KAU	330
	G0IMB	330
300	G4GGV	324
	G4ZVS	324
302	G3YSX	320
	G4MBW	320
304	G4CFO	317
305	G4DIU	310
	G3DCC	310
307	G0ASA	301
308	GM0CPQ	300
	GW4KVJ	300
	G2CLN	300
311	G4JSN	297
312	OZ1FJB	290
313	G3RFJ	280
314	G4WYN	277
315	G3JRC	270
316	G0EZN	257
317	G4UMY	240
318	GW4RHW	230
319	G0AZM	220
	G3CWL	220
312	G3ONQ	214
322	G4RAW	210
323	G4KXZ	207
324	G3VIW	204
325	GW4ZUO	200
326	G3OZY	190
327	G4PXA	180
328	OZ5IN	170
	OZ1IGT	170
330	G0AEX	150
	G3KQY	150
332	G0FOD	141
333	G4YGH	130
334	G0FAS	120
	G0DHZ	120
	G3COO	120
	G0BAI	120
	G4VOB	120
339	G4WYS	110
	G4EBD	110
341	G0CNR	100
342	G0ASZ	97
343	G0CYF/A	94
344	G2PA	80
	G4DUS	80
346	G0AOU	50
347	G4NCM	27
	G3IFB	27
350	G0HGA	20
	G4PVB	20
	G0EAC	20
	G4KCZ	20
353	G4GDW	10
	G3PMF	10

HF Contests Championship 1986-7

Due to an oversight, the results of the above championship were not submitted for publication at the end of 1987. The full results and tabulation are listed below.

The G2QT Trophy is awarded to M J Hickling, G4WQN. Certificates are awarded to the winner and runner-up. *G3OZF*

Posn	Callsign	Score	Contests Entered	Posn	Callsign	Score	Contests Entered
1	G4WQN	8,490	9	41	GW3MPB	1,435	2
2	G4BUO	7,789	7	42	G3OLB	1,371	3
3	G4CNY	7,309	5	43	G3KSH	1,254	2
4	G3FXB	6,752	4	44	G2HLU	1,222	2
5	G3JKS	5,236	6	45	G3XTT	1,214	3
6	GW3YDX	4,968	2	46	G3AWR	1,211	5
7	G4EDG	4,689	2	47	G3MCX	1,171	3
8	G3KDB	4,334	5	48	G4EBK	1,154	4
9	G2QT	4,124	5	49	G3OLU	1,111	2
10	G4BWP	3,888	5	50	G3ESF	1,022	2
11	G3SWH	3,842	6	51	G4UZN	989	6
12	G3TBK	3,779	7	52	G3DOT	975	3
13	G5MY	3,676	6	53	G2MJ	965	2
14	G3IGW	3,671	4	54	G3GMM	923	4
15	G4ODV	3,505	6	55	G4ARI	912	2
16	G3MXJ	3,374	2	56	GM3CFS	876	5
17	G3SJX	3,303	6	57	G3ILO	859	4
18	G4WYG	3,190	7	58	G3ZRZ	837	3
19	G3TXF	2,918	5	59	G3LIK	834	2
20	G3SJJ	2,755	3	60	G3GMS	761	2
21	G3LET	2,719	2	61	GM4SID	713	2
22	GW4IOI	2,669	3	62	G3JKY	697	3
23	G4AMT	2,656	3	63	G3APN	677	2
24	G4OBK	2,654	4	64	G3COJ	625	2
25	G3SXW	2,392	4	65	G3UHU	615	3
26	G3YEC	2,339	4	66	G3HGJ	604	2
27	G3NOM	2,298	2	67	G4LZB	579	3
28	G5LP	2,233	3	68	G3HJF	531	2
29	G3BPM	2,131	5	69	G6NK	494	2
30	G3MIR	2,037	2	70	G3FVW	483	2
31	G6LX	2,025	2	71	G4HPS	429	2
32	GW4UZL	2,023	3	72	G4JSN	368	2
33	G3VYI	1,982	5	73	G4NFX	342	2
34	G3NKS	1,889	5	74	G0BVZ	283	2
35	G3RTE	1,870	2	75	G6QQ	267	2
36	G3JYP	1,797	2	76	G4PKU	212	2
37	G4OGB	1,720	3	77	G4HZV	176	2
38	G3YDV	1,598	2	78	G0DAY	63	2
39	GN3UM	1,583	4	79	GW4KVJ	15	2
40	G3LZQ	1,502	3				

3·5MHz Hopscotch Contest 1988 rules

NB. Please not change of time.

1. Eligibility. Open to RSGB members, single-operator only.

2. Where and when. 3,520-3,570kHz, cw only, 0900-1200 gmt Sunday 7 August 1988.

3. Exchange and scoring. Send RST, serial number starting 001, county code and name. Score 10 points per contact. Only contacts between UK stations count.

4. QSY rule. The station soliciting calls (by CQ, QRZ etc) may make only one contact on that frequency – he must then QSY at least 3kHz before making any other contact. **Note: Contravention of rule 4 may mean disqualification, as this is the essence of the contest.**

5. Logs. Sheets (preferably HFC1) to be headed: date/gmt; callsign of station worked; RST/serial sent; RST serial received; county code received; name received; points. Cover sheet should show county code and name sent. Logs to be postmarked not later than 22 August and posted to: HF Contest Committee, c/o Mrs H. Claytonsmith G4JKS, 115 Marshalswick Lane, St Albans, Herts AL1 4UU, accompanied by the declaration: "I declare that this station was operated strictly in accordance with the rules and spirit of the contest and agree that the decisions of the RSGB shall be final".

6. Certificates. The winner and runner-up will receive certificates of merit.

RSGB Listener Contest 1988

This is the third RSGB Listener Contest and is open to all swls throughout the world with separate sections for British Isles and overseas entrants. Activity on the amateur bands could be increased as the IARU ssb/cw Contest is also held over the same weekend.

1. Object of the contest. To log as many stations in **QSO** as possible. Operation is over 24h but **only 18h** may be operations during the 24 and a continuous 6h rest period clearly marked in the logs.

2. Date and times. 1200gmt 9 July to 1200gmt 10 July 1988.

3. Sections and bands.

(a) SSB only.

(b) CW only.

Only one section may be entered – mixed-mode entries will not be accepted. The 28, 21, 14, 7, 3·5 and 1·8MHz bands may be used. Please note that entrants from the British Isles must be members of the RSGB.

4. Scoring. For scoring purposes the station logged must be in QSO with another amateur station. It does not matter whether the station is taking part in a contest or not. **CQ, QRZ** or similar calls cannot be counted for scoring. One point to be claimed for each station heard on each band. A multiplier may be claimed for each different country heard on each band. In the case of the USA, Canada, Austria, New Zealand and Japan, each call area numbered prefix may be claimed as a separate multiplier, for example: W1, W2, VE2, VE3, VK5, VK6, and so on. All other countries will be determined by the ARRL Countries List.

The final score is made up by the addition of the points scored on all bands *multiplied* by the total number of multipliers claimed on all bands.

5. Logs. Logs should show in columns, time (gmt), callsign of station heard, callsign of station being worked, a RS(T) report on *station heard* at swl's QTH, multiplier (if any), points claimed. If both sides of a contact are heard, they may be claimed as separate stations, and the callsigns are to appear in the *station heard* column. Each station heard can only appear once in every three contacts logged (1 in 3) unless it is a new muiltiplier for the receiving station. The same 'station worked' may not be used for more than three successive multipliers.

Logs should be submitted with each band listed on separate sheets, 28MHz on one sheet, 21MHz on another and so on. A separate sheet listing all multipliers for each band should also be included.

Duplicate loggings for which points have been claimed will be penalised at 10 times the contact value.

6. Address for entries. R A Treacher, BRS 32525, 93 Elibank Road, Eltham, London SE9 1QJ, England. Entrants should ensure their entries are postmarked no later than 8 August, 1988.

7. Awards. Certificates will be awarded to the leading three entrants in each section in the British Isles section provided there are a minimum of 10 entrants. A certificate will be awarded to the leading station in each country in the overseas section provided that station scores at least 50% of that section winner's score.

DF Qualifying Event – Northampton

Date: 12 June 1988.

Map: OS Sheet 152 1:50000 series, Northampton and Milton Keynes.

Assembly: 1300bst for start at 1320bst.

Location: 1km north-east of Castle Ashby, NGR865600

Competitors requiring tea should notify Mr D Newman, Haynes House, 78 High Street, Whittlebury, Towcester, Northants NN12 8XJ; tel 0327 857 350 (Home) not later than 5 June 1988.

DF Qualifying Event – Coventry

Date: 26 June 1988.

Map: OS Sheet 140 1:50,000 series, Leicester and Coventry.

Assembly: 1300bst for start at 1320bst.

Location: Pingles Sports centre Car park, 1km south of Nuneaton, NGR366909

Competitors requiring tea should notify Mr G Whenham, "Hogs Hollow", Welsh Road East, Southam, Leamington Spa, Warks. CV33 0NF; tel 0926 812367 (Home) not later than 19 June 1988.

CONTESTS CALENDAR

	RSGB VHF CONTESTS
12 Jun	432MHz FM (Rules in March issue)
19 Jun	10GHz Cumulative (Rules in January issue)
2, 3 Jul	Jubilee VHF NFD (Rules in March issue)
10 Jul	10GHz Cumulative (Rules in January issue)
30 Jul	144MHz Low Power and SWL (Rules in May issue)
31 Jul	432MHz Low Power and SWL (Rules in May issue)
7 Aug	10GHz Cumulative (Rules in January issue)
14 Aug	1,296MHz Trophy and 2,320MHz Trophy (Rules in May issue)
3, 4 Sep	144MHz Trophy/IARU VHF and SWL
11 Sept	10GHz Cumulative (Rules in January issue)
18 Sept	70MHz Trophy and SWL
1, 2 Oct	432MHz–24GHz/IARU UHF/SHF
6 Oct	432MHz Cumulative
14 Oct	1·3/2·3GHz Cumulative
22 Oct	432MHz Cumulative
23 Oct	50MHz Trophy
30 Oct	1·3/2·3GHz Cumulative
5, 6 Nov	144MHz CW
7 Nov	432MHz Cumulative
15 Nov	1·3/2·3GHz Cumulative
23 Nov	432MHz Cumulative
1 Dec	1·3/2·3GHz Cumulative
4 Dec	144MHz Fixed and AFS and SWL
9 Dec	432MHz Cumulative
11 Dec	70MHz CW
17 Dec	1·3/2·3GHz Cumulative

	RSGB HF CONTESTS
4, 5 Jun	NFD (IARU CW) (Rules in February issue)
12 Jun	DF Qualifying Event Northampton (Rules in June issue)
25, 26 Jun	Summer 1·8MHz (Rules in May issue)
26 Jun	DF Qualifying Event Coventry (Rules in June issue)
9, 10 Jul	SWL (Rules in June issue)
10 Jul	DF Qualifying Event South Manchester
24 Jul	Low Power FD (Rules in May issue) **(Note date change)**
31 Jul	DF Qualifying Event Mid-Thames
7 Aug	Hopscotch **(Note date change)** (Rules in June issue)
14 Aug	DF Qualifying Event Dartford Heath
28 Aug	Ropoco 2
Sep-Oct	28MHz Cumulative CW
3, 4 Sep	SSB FD (Rules in May issue)
4 Sep	DF Qualifying Event Grimsby
20 Sep	DF National Final Colchester/Chelmsford
9 Oct	21/28MHz SSB (Rules in May issue)
16 Oct	21MHz CW (Rules in May issue)
22 Oct	Df Treble Night Event Mid-Thames
12, 13 Nov	Second 1·8MHz
Nov-Dec	28MHz Cumulative Phone

	OTHER CONTESTS
Jan-Dec	UBA SWL (Rules in December *HF*)
9, 10 Jul	Third IARU HF World Championship (Rules in June *HF*)

Members' Ads

The Conditions of Acceptance are published below the Member's Ad form circulated with every issue of *Radio Communication.*

The current rate is £2.30 for 40 words or less: advertisements containing more than 40 words will cost an additional £2.30 for every additional 40 or less words. Each advertisement must be accompanied by the correct remittance, either as a cheque or postal order made payable to Radio Society of Great Britain.

FOR SALE . . . .

RTTY STATION. Hal Communications Model ST5000 demodulator. DS2000KSR keyboard transmission reception terminal, with 12" display unit. Can be seen wkg. Must sell, offers; G3BXI, QTHR. Tel: 0373-830804 (Trowbridge, Wilts).

ICOM IC2E 2M handheld, £100. IC4E 70cm handheld, £150. Both in good condx with handbook and charger in orig pkg with leather case. Post and pkg to be arranged. Martin, tel: (Southampton) 0703-262246 (6-10pm).

COMPLETE STATION TS520SE, TS820S, Tono 7000E, LF30A, filter, VF0120, Datong FL3 morse talker. Side paddle auto morse sender. Pakrat 232 1kW dummy load. KW1000 linear amp. J-beam TB3 antenna. SM220 station monitor. Tel: A4XJQ/G4MSX not QTHR, 0455-272624.

MICROWAVE MODULES MML50-S 50W, 144MHz linear amp with receive preamp £85. BNOS power supply 13.8v 12a £95. Channel master HD9508 rotator, £70. Buyer collects, carriage extra. G0IXA. Tel: (Doncaster) 0302-876154.

TRANSVERTER MMT2/70 £99. Tandy 100, lapheld computer, extra memory/software, £135. Cam-corder, JVC GRC1, superb results, £495. Prestel unit, £20. Sharp video camera supply, £20. Two zoom lenses (Canon) £45ea. Petrol lawn edger, £25. Tel: Oxford 863333. G6ASA, QTHR.

FRG7700 WITH MEMORY unit, manual etc. Bought new 1987. Cash sale. Buyer collects, £370 ono. Unwanted spare new valves 1-6JS6C, 2-12BY7A, 2-6U8A, 3-6CH6, 2-6AW8A, 1-6BE6. Ex-WD morse key. Offers, G3FK, QTHR. Tel: (Ferndown, Dorset) 0202-873175.

FT101EE HF TRANSCEIVER 80-10 mint condx. Shure 444 desk mic £325. GM0DPF, QTHR. Tel: Galston 820654.

SOLENT SCIENTIFIC 200mW tx 24cms £25. Taylors model 45A valve tester, £25. 24cm 20 turn Helix £20. 20MB Winchester disc-drives large, buyer inspects then collects, c/w documentation £25ea. Epson QX10 computer c/w colour monitor £200. G0DLF, QTHR. Tel; 0604-770835.

ICOM IC28 FM TCVR, 25W, 21 memories. This model has extended receiver coverage, 138-174MHz. Very good condx, £265. Pickup only. G0/K1400. Tel: (Bracknell) 0344-488847.

ICOM IC12E, 1296MHz handheld mint condx, £325. Three Kenpro KT22 handhelds. Similar to IC2E but 160-170MHz, £150ea. Uniden Bearcat handheld 10CH scanner, £75. G4LTI, QTHR. Tel: (Lancashire) 0695-78326.

ICOM 720A gen/cov. Ex condx, £545. Icom PSU20 with built in speaker, ex condx, £200: or both for £725. Post and pkg extra. WANTED: TH5 beam in good condx. Tel: (Gainsborough) 0427-5266

HF LINEAR FL2100Z (FL2277Z) ex condx, little used, boxed with manaul, £590. Eddystone 640 receiver all hf bands, good order with spares and manual, £40. G4VIO, QTHR. Tel; 0388-763501.

TRIO KENWOOD 9130 2m multimode, 5/25W, ex condx, little used £335. Yaesu FTV901R tsvtr 2m module fitted, as new, £240. G4TWH. Tel:(Southend-on-Sea) 0702-203802.

WS19 Mk2. Poor external condx but complete and unmodified. Requires 2x6V6, 1x6K8 and repair/replace A-B-All toggle switches to work. Suit renovator/collector. Offers within range £10 to £25. Steve, G3ROZ, QTHR. Tel: (Sandy, Beds) 0767-80828 (weekends).

FT2100Z LINEAR AMP, manual and box, £525. WANTED: FC102, KW109 or other high power atu. Eric, G0CGL, QTHR, or Kevin, 0202-24848.

TS700 144MHz MULTIMODE base station - old but reliable! £200. Microwave modules, 28-144 up-converter £8. Oric-1 computer with some tapes, £20. Microline M80, Centronics printer £45. Transport by arrangement. Offers considered. (shack space needed). John, GM4ANB, 0383-419545 (weekends), Prestel 383-824-456.

YAESU FAS-1-4R remote antenna selector, unused, £60. Postage extra. Heathkit HT1G galvanised tower, 32' high, dismantled, good condx, buyer collects, £70. G3NOF, QTHR. Tel: (Yeovil) 0935-24956.

YAESU FT780R mint, never used, mobile, £310. Meteor 600 frequency counter, 5Hz-600MHz with power supply and probes, £120. Altai multy meter £8. Jaybeam 10XY good condx £25. G6HFW. Tel: (Manchester) 0942-876796.

YAESU FT757GX, mic, advance 20a smps. Going QRP, £700. G4DPJ, QTHR. Tel: Bristol 590413.

YAESU FT757 TCVR with FP757 power supply, £650. CNW419 atu 1.8-30MHz. Cross point meter 500W pep £125. WANTED: 500Hz filter for Drake R4C. Ian Buffham, G3TMA, tel: 0775-87-464.

FT77 mint condx. 100W 80-10m incl warc c/w fm board, mark, fist mic, manual, boxed, not used mobile, £425 ovno. Any inspection welcome. G4ZOY, QTHR. Tel: 0670-811950 (evenings/weekends).

TRIO/KENWOOD TR7625 2m fm mobile tcvr. (25W version of the TR7600) 25W out. 800 channels with memory. Perfect working order with mount, mic and handbook. Ex condx, £125 plus post etc. Tel: Paul, 0843-61448 (0843-61448).

2M FM BOX for £150 ono. Trio 7730 25W c/w 2 mics and mobile mount. Buyer collect. Unwin, G0FMT, 11 Carlton Rise, Melbourn, Royston, Herts, Tel; 0763-61215.

YAESU FT757GX, FC757AT, atu, BNOS psu, all as new boxed, £850. G4UHY, QTHR. Tel: 01-670-7184.

WELZ SP300 SWR and power meter. 1.8-500MHz; 20, 200, 1kW switchable. Barely used and in orig pkg, £50. G6ARU, QTHR Harrow. Tel: 01-907-2553.

DRAGON 64 WITH PNP terminal 5.25" disk drive, G4BMU interface, all cables for use with FT757 and G4BMU rtty/amtor/cw/ software. Also Sharp tape recorder and Dragon books, etc. £200. G3MND, QTHR. Tel: 0246-568435 (evenings).

BC221T, PSU, £8. BC221 manual, all models £4. 10W traps, resonant 75ohm feeder, £5. Brass Key, £4. G4MWN. Tel: Melton Mowbray 64678.

KW2000E TCVR. Full 10m coverage, ex condx, little use in 10 yrs of ownership, £220. G4LSA, QTHR. Tel: 0785-74388.

YAESU FT757GX, pristine condx, instruction/service manuals £625 ovno. Also FC102 atu unmarked with instruction manual, £150. Both with orig pkg. Both hardly used. Alex G0HWL ex-G8YKM, QTHR Farnborough Hants. Tel: 0252-520227.

TRIO AT230 ATU as new, £125. Also microwave modules MMT432/28S, 70cm tvtr, very little use, £95. GW4UKU, QTHR, Llanbedrog. Tel: 0758-740445.

FT101ZD fm warc mic, fan, £425. MM144/28 2m tsvtr £45. 5-band vertical, £20. £470 the lot for quick sale ono. Roger, G4IUH. Tel: (Bus) 0908-673122, (home) 0908-542440.

YAESU FRG8800 receiver, £500 ono, or exchange FT757. Tel: 0479-2034.

UNIDEN BEARCAT 175XL base scanning receiver, covering 66-88MHz, 118-174MHz, 406-512MHz, with 16-channel memory scan. Purchased March, hence mint condx, 10 months' guarantee, £175 including postage. Dave, G1URQ, QTHR. Tel:051-355-2373 (ext 33 - work).

YAESU FRG7700M with antenna tuner, £300. Also telereader CWR675E decodes morse, Baudot, rtty, ASCII, as new with built in 5.5" green screen monitor. Tel: 0672-52571.

FDK MULTI 750 2M multimode, boxed, manual, vgc exchange for BBC Model B preferred, or sell £250 ovno. G0CCQ. Tel: (Worcester) 0905-56208.

KYOKUTO DENSHI MOBILE 2/10W fm tcvr, 2m crystals, £70. Also 2200G fm portable 2m tcvr, £70. Both twelve channel simplex and repeaters. G4FSR, QTHR. Tel: 0203-465692.

BLACK AND WHITE HITACHI CCTV camera c/w a spare wide angle lens, £75. Portable 10megohms bandwith scope. 40mm screen. Battery operated. Mains elim. 10mv/50v per div. 350v peak input capability. Bright line and economy. £90. G4DZV, QTHR.

FTDX560 FULL LEGAL POWER from one rig £200. AMT2 amtor used slightly £100. Datong speech processor to go with FT560, £20. Tel: 0705-465121. G3NDO.

FRG8800 WITH VHF module, £500. FRT7700, £50. Hamgear PMX preselector atu/preamp £45. G7AGL, not QTHR. Tel: 0452-23419 (evenings).

YAESU FT708 uhf hand portable, charger, speaker/mic, car lead. Very good condx, £150. G4OOQ, QTHR. Tel: 0234-855944.

MMT144/28 2M TSVTR, £70. Datong PC1 GC upconverter £45. W&G wavemeter, 470-2500MHz, £30. Pye Westminster fm/hb, £30. HP430C microwave power meter with head, £50. Watford Electronics BBC extension rom board, £10. STC Novatel Prestel TV £25. G8AYN. Tel: 045-55-57790.

FDK MULTI 750XX 2m multimode mobile and base station tcvr 20W. 9 months' old, £399 ono. Also Yaesu MD1B8 8-pin desk mic, £55. Both in original boxes, G8VPE, QTHR. Tel: (Norfolk) 049377-673.

STATION SALE. Part one (radio); KW gear comprising 'Atlanta' tx/rx with Shure 201 mic, psu/speaker, 103 power/swr bridge, e-zee match, dummy load, LP filter. Full unused 5RV antenna. H/B fully transistorised top-band tx/rx (mobile) with power unit for QTH use. 'Realistic' DX200 rx with FRT7700 atu. Other useful odds and ends, £350 ono (no splits). Part two (video); ITT/Spectra colour vhs system, comprising superb camera, table-mounted tripod, recorder with remote control, separate timer unit, power unit for mobile use plus two special batteries. All cables plus additional 30' extension camera cable. £600 ono (no splits) or radio and video £850 ono. Buyer collects. No 'rubber' cheques please. Cash preferred. G3RCX, QTHR. Tel; Southend 585920.

KW2000B 1.8-28 cw/ssb tcvr + psu manual etc. Good condx. Prefer inspect and collect £195. G3MCA, QTHR. Tel: (Orpington) 0689-56497.

RTTY. TELETYPEWRITERS 240v 50 cycles IBM model 73 qty 2. Teletype Corporation Westrex type 2712A qty 1. Complete with manuals, computer interface details. £10 each. Gossor VDU, keyboard, model CDD4004 £20. Buyers must collect. Heavy! G2FCV, QTHR. Tel: 0925-35543.

ICOM 761 WITH OP.EX. Six months' old. Used only for a few cw calls. Owner going QRT for two years. £1900, save £700. G4WKH, QTHR. Tel: 061-976-1463 (evenings).

FT101ZDIII FM DIGITAL cw filter, fan, mic, spare valves, £600. FTV901 tsvtr 6/2/70 modules £425. FV101DM memory vfo £400. Tokyo hi-power 180+W 2m linear £195. 35a 13.8v psu BNOS £180. All mint with manuals boxes, might haggle! G4UCV. Tel: 0732-823662.

YAESU FC101 atu £150. Phillips green screen computer monitor and BBC cable £40. Tristar 777

converted 10m £50. Looking for multi track audio recorder, mixer, midi synthesiser, etc. Might take in part exchange for any/all items. G4UGV. Tel: 0732-823662.

CBM PET COMPUTER model 4016 with 4040 dual 5.25" drives and programming manual. Also hundreds computer leads; 2x3.5, 1x2.5mm jacks to 7 pin din and Spectrum to Centronics printer cables (approx 1m long). Use just for connectors or ribbon cable? Best offers secure. System ADE+ The 65C00 series assembler system for BBC computer, on Eproms and utilities disc. £50 new, £35 ono. WANTED; Approx 30' telescopic portable mast, cash/swap any above. Ed, G1POD. Tel: (Burgess Hill) 04446-6848.

YAESU MUSEN FT7 tx/rx with instruction book, vgc £200. Racal 17L rx also RA98 sideband adaptor. MA197B protection unit with manuals, £250. Buyer collects. G1ZNO, 23 Kerdane , Dane Park Road, Hull, HU6 9EB. Tel; 0482-855052.

HEATHKIT TV alignment generator, HFW1, offers? Knight sweeper/marker generator, offers? Heathkit general purpose oscilloscope model 1018U £55. All in working order with manuals. G4AKC, QTHR. Tel: (South Croydon) 651-5147.

MML432/50 £115. MML144/100-S £120. Both vgc. Electroplan CE750 auto nicad charger, £55. Maplin active aerial 150KHz-30MHz, £15. Itchen L-C-R bridge £15. Cap Co SPC300D, £185. Howes filter ASL5 £8. G8ESK, QTHR. Tel:0274-497438.

BBC MASTER C/W 80186 second processor 512K inc software, twin 80T double sided disk pack with psu. 6502 second processor and 280 second processor with software will split if required. Lot £700. G4DDZ, QTHR. Tel: 0902-752484 (after 7pm).

TS700 2M MULTIMODE base rig, good wkg order. Only £200. Also KDK20-25 fm 25W mobile, has a temperature fault, hence only £50. G1LII, QTHR. Tel: 0753-884520.

ATARI SM124 very high resolution monitor, mint condx £75. Tel: John, 01-857-8096.

MULTIMETER SALE. SANWA pocket meter 2000opv £7. Micronta 18 range 20,000opv £12. Micronta FET 10megohms opv, £25. G4GHG, QTHR. Tel: 0803-37050.

HEWLETT PACKARD LOGIC pulser 546A and logic probe 545A, new and unused with manuals. Rugged unused 14v solar panels US manufacture with outputs from 150MZ to 2.56a at one sun. Offers. G3LYD, QTHR. Tel: 0983-840588.

FL7000 YEASU's big solid state hf linear with built in auto atu. As new. Absolutely mint. Hardly used. £1100 ono. Howard, G0HZH. Tel: 0394-460-474.

KENWOOD/TRIO TS811E 70cm base station, all mode 40 memories, 25+W inc scan mike, manual. All orig pkg. £715 via reg letter post. GJ60ZB. Tel: 0534-83722.

ICOM IC745 hf transceiver, little used, £740. Scanner, realistic PRO2020 good condx £130. CTE1600 2m hand held six months old, £140. Andrew, RS48317. Tel: Loughborough 844239.

TRIO TR7600 with remote display and control 2m 10W fm £150. Icom IC22 fully crystalled 22-chan 2m fm £80. Yaesu FT707, FP707, FC707, 8-band hf tcvr, atu, power supply, £500. Contact Ashley, G4MGD, QTH Canvey Island, Essex. Tel; 0268-685160.

TS520cw CW, VFO520, KW1000, R600, FRV7700, FS601, FC301, CT432, CT52, CT216, EK150, FT230R, IM4100, PM5320, HD1250, 12V10a Reg PU. Offers please. G4FWO, QTHR 1980.

YAESU FT102 hf trans, warc, cw filter, vgc, box etc, £550 ono. Trio/Kenwood TS530S hf tran, warc cw filter, vgc box, £475. Tel: (Weymouth) 0305-813202.

FERROGRAPH T/REC Series 7, mono, good condx, £45. Sony ICF2001D vgc, £285. YC355D counter 0-200MHz, £75. Lead acid charger RS stock No 591-411, £40. vgc. G8ESK, QTHR. Tel: 0274-497438.

SILENT KEY SALE: TS940S with filters and atu, £1700. Icom 751 with filters, mic and frequency controller, £900. TW4000A dual bander, £325. BNOS 25a psu £90. Tono 5000E £650. Capco SPC300 atu, £150. Icom IC04E, £180. SM220 monitor scope, £275. Kenwood MC60 desk mic £50. SP180 speaker £50. Icom speaker mic £10. Shure transistorised dynamic mic Model 526T series II, £30. G0BEP, QTHR. All above items ono. Tel: 02974-3579.

FT902DM, FC902, YO901, SP901, YM38. All leads and spare valves, manuals and service manual, £850. G4VTT, QTHR. Tel; 0626-53843.

DATONG D70 MORSE tutor and HK708 morse key with deluxe handle, £45. Spectrum ZX+ with cassette recorder player and morse tutor program 1-99 wpm. £60. Collect or plus postage. GW0JHH (QTHR GW1XDL) Tel: (Mid Glamorgan) 0443-791054.

TAYLOR 65B sig/gen. Antique, no knobs otherwise gwo, offers. "Wier Electric" 50AAC meter, collectors item, offers. Bush Arena hifi amp, £35 ono. Aircraft band 2x4CX250 linear moded for 2m but inefficient. Offers/Swap for 432MHz or 50MHz linear. GW4BZD, QTHR. Tel: 0248600241.

YAESU FT790R, 70cm multimode portable tcvr. Brand new condx and c/w all orig pkg, accs (inc nicads, Yaesu charger) and manual. Very little use, £295. G8OSA, not QTHR. Tel; 0268-755341 (Benfleet, Essex).

MICROVITEC 452 colour monitor model 1431MS 14" white steel case, £135. Yaesu FT690R II 6m tcvr with HB9CV antenna £320, or consider exchange for 70cm multimode base station. WANTED; Drake L7E amp plus MN7 atu. Phipps, G4DIC, QTHR. Tel: Hinckley 636315.

BENCHER CHROME IAMBIC key (BY-2) unused, £65. Datong morse tutor (D70) phones/batts £40. Kenwood atu (AT130) as new £90. Yaesu 101ZD fan (new) £20. G3LLL 101-RF clipper, £15. Europa-C vhf tsvtr £40. New valves, call with requirements. Tel: Martyn, 0642-784915 (evenings).

SEVERAL GOOD QUALITY used valves, KT66's, 6V6's, 807's etc. All with high cathode emission anode, current and good gm. List available with sae please. Over 300 to dispose of. G3PH, QTHR.

STANDARD C58 2m multimode portable/mobile tcvr c/w mobile mount and nicads, £230 ovno. Daiwa LA2035R 35W linear to suit above 15dB GaAs FET preamp, £60. G8LPK, QTHR. Tel; 0279-506963.

TOWER ALTRON 40' lattice tilt over £325. Yaesu FT726 fitted 70cm 2m sat unit £895 ono. Icom 720A hf gen/cov tx/rx £385 ono. G4VZZ, not QTHR. Tel: (Ashford, Middx) 0784-254691.

FT101ZD FM FAN mike, manual, spare unused valves, operates full power all bands, sent in orig container ex-Condex £600 ono. G3BVW, QTHR Moretonhamstead, Devon. Tel; 0647-40223 (about 7pm).

JAYBEAM TB3 TRIBANDER £150 ono. MET144/7T 7-ele 144MHz Yagi, £15 ono. Tel; Phillip, G6IMM, 01-698-4437.

ICOM IC275E 2M base station, mint condx, boxed with manual, £700. Would consider mint FT290 in p/ex. G1LCC, QTHR. Tel; Runcorn 68914.

TRIO TS180S SOLID state tcvr 160-10m plus new bands, four memories with Trio matching PS30. Ex condx. £450 ono. G3IJI. Tel: 0872-78922.

YAESU FT757GX II mint, £700. Icom IC271E, muTek, £525. ICPS25 for 271/471 unused, £75. Datong FL3 unused, £95. Star CMOS memory keyer with MS option unused, £80. G4PLZ, QTHR.

ICOM IC290H 2M multimode, good condx. Boxed, used as base station £320. WPO Communications 2m-10-15-20m tvtr, £70 ono. GM4WJA, QTHR. Tel; 0343-41806.

DECCA VOYAGER Marine band tcvr, converted for use on 160m and 80m crystal controlled with 12v psu. Ideal for mobile use, £65. For further details ring Geoff, G4MVS, 01-644-8249 QTHR.

BNOS LINEAR. LPM144-25-160. Mint/boxed, almost unused, under guarantee £195. Telereader CD660 and vdu mint/boxed, purchased Lowes. Cost £345, SALE £265. KR500 elevation rotator. 12XY 70cm j-beam used one week only. Sensible offers. G2FZU, QTHR. Notts. Tel: Southwell 813847.

TS520S GOOD CONDX with cw filter, £350. Buyer collect. Phone after May 19th. Tel; 0609-775155. G3FTU, QTHR.

KENWOOD TS430 with matching PS430 power supply. Unmarked and boxed. £750. G4JQO. Tel; 0553-811275.

TRIO R1000 HF receiver. Ex condx, buyer collects/ pays postage. £200. Tel; (Northampton) 0604-56056.

TR7A DRAKE, PS7 power supply, MS7 speaker, base mic c/w noise blanker, cw filters and all service manuals, £750. Tel: 0524-51896.

PANASONIC DR48 gen/cov rx. Digital readout. AM/ ssb/cw, £100. Trio 9R590 rx am/ssb/cw £40. Heathkit DX40 tx plus vfo/am/cw £50. Bryn, G0HXA. Tel: 0274-605230.

ICOM 730 TRANSCEIVER. Mint condx, £450. Power supply available if required. G4LVQ, QTHR. Tel: 0532-569164 (late evenings).

FRG7700, FRT7700, gen/cov rcvr and antenna tuner ex condx, £220. DMS memory unit for FT107M, £40. Star masterkey electronic keyer, £30. WANTED: JRC NRD505, NRD515 or NRD525 in pristine condx. Yaesu FV107, FTV107R. G3LPA, QTHR. Tel: 0536-760336 (after 6pm).

MINT YAESU FT780R 70cm multimode. Offers. G3LYD, QTHR. Tel: 0983-840588.

NATIONAL NCX5 tcvr, good condx, part revalved, £200 ono. Phil, GW4MSI. Tel: (Tywyn) 0654-710835.

FRG9600 WITH SEM hf/vhf converter discone, £400 ono. 70cm silver 70 14-ele beam £20. G6MCJ. Tel: (Cornwall) 0726-64616.

YAESU FT101ZD six band ssb/cw/am spare valves, mike, fan, manual, good condx. £365. Yaesu FRG7000 hf receiver, ssb/cw/am digital display/clock. Good condx, manual, £185. Please contact Pete, G1SFS, 23 Chestnut Walk, Bishopsworth, Bristol, Avon, BS13 7RS.

BURNDEPT 70cm 20W out £65. Trio hand mic 500ohms never used, £16. GPV7 70cm colinear new, £28. Headphones British made Astrolite, £9. Tel: 0740-51938 (evenings).

ICOM IC02E, BP2 and case. Ex condx, £180. Yaesu FT208 damaged in fire. Electronics OK, bargain £65. G6JEU. Tel: 01-573-2081.

ALUMAST 15" wide triangular cross section lattice sectional mast. Pivots from base. Three 10' sections £225. Dragon 32K micro + software, £30. FT290R muTek fitted, nicads, charger, £230. G0GII. QTHR.

TRIO R1000 Gen/cov rcvr with instruction manual, vgc £220. Tel: John, 0386-852249 (after 7pm).

TET HB35C exc condx, £110. Yaesu FT708 70cm H/talky, £140. Apple 2 plus. Nec colour mon. 2 disc drives, ram card, £250. G4MPQ, QTHR. Tel: 05034-432.

BC342-N VALVE receiver, covering 1.5-18MHz in 6 ranges suitable mains transformer available in wkg order. No LS, £35. G4MVJ, QTHR. Tel;(Aldridge) 0922-51797.

TRIO 9R59DS gen/cov rx in vgc and with built in xtal calibrator (3.5MHz). Complete with manual and four spare valves, £50 ono. Buyer to collect or pay carriage. G4GBG, QTHR. Tel: 051-924-7338 (evenings/weekends).

JAYBEAM TB1, 10-15-20m rotary dipole, £55. Sandpiper 10m and 15m mono band mini beams, £20ea. All mint condx. WANTED; 12v 6a psu, 2m rx preamp, 10-ele 2m Yagi or 8-ele quad. Tel; 09952-5590.

MMT70/144MHz tsvtr, 15dB att. £65. GM4FKD. Tel: 0555-892540.

SCARAB TERMINAL UNIT for rtty/cw c/w BMK rtty/cw program for Commodore 64 cassette, inc leads and plugs, £30. John, 01-857-8096.

KENWOOD TS780 2m/70cm base station, £550. Kenwood TR7950 2m tcvr, 45W output, £250. Yaesu FT707 hf tcvr with fm, £450. Belcom 200W 2m linear with preamp + spare valve, £100. MM, 100W 2m linear with preamp, £100. AMT2 amtor/rtty terminal unit +BBC software, £200. Thorn VX543 Modem (new) £120. Kenpro KR500 elevation rotator (new) £100. Hansen FS603 70cm PEP swr meter (new) £35. BNOS 100W 70cm linear (new) £250.Tonna 19 X-Y 70cm, £10. G4XKF, QTHR. Tel: (Brighton) 0273-417120 (mornings 9-1pm)

DRAKE 2C RX realistic PRO53 rx covers 2m both with handbooks. Eddystone speaker, Class D wavemeter for mains handbook £100. No split, no offers. Buyer gets 100 RADCOMS free. G2BCG, QTHR. Tel: 051-427-1903 (between 8-10pm).

YAESU FT790R c/w nicads, case, charger, manual and box. £290. G6PAD, QTHR. Tel: 021-421-3207.

SCANNER UDC100XL bearcat. Cost £229.95, offers around £150. G4WJT, QTHR. Tel: 01-449-2417.

TRIO TS430S. fm/cw/am filters, immac, £650. Hygain V, 28,010-29,700MHz Spectrum Eprom conversion, repeater shift, full 10m coverage, am/lsb/usb/fm, £120. G4YSU, QTHR. Tel; 0772-612815.

KENWOOD TS830M hf tcvr. Boxed, manual, vgc, £650. Kenwood matching atu, AT230, £100, vgc. G3UCE, QTHR. Tel: Hestbank 822125.

RA17L WITH MANUAL £130, MA79G ssb generator, £130; AVO CT38 valve voltmeter, offers. Buyers collect. WANTED: tuner, rf No.11 for Larkspur C13, also atu, No.7 for C11 tx and any technical manuals for Larkspur series equipment. G4WWX, QTHR.

KENWOOD ATU (AT130) £90. Bencher chrome iambic key (BY2) unused, £65; transformer 240/120 2kW cased £30; freq-meter BC221 240v-psu af-amp speaker, spare valves, tables, £45. Sprague 2X30,000MF 2X5,800MF used, £5. Phones type F1, £6. New valves. Tel: Martyn, 0642-784915 (evenings).

SEND SMOOTH SPEEDY MORSE! Electronic keyer with inbuilt paddle. Adjustable speeds, 6-50wpm. Sidetone with volume control. 9-15v full working order, £19.50. Gilbert, GM0DLZ, QTHR. Tel:

0475-673271.

SWAN ATLAS 210X hf tcvr, with AC power supply and speaker console, £300 ono. G3SEJ, QTHR. Tel: 051-638-5514.

FT102 MINT £475. WANTED: P60 versatower or similar 60' tower. Ham 4 rotator. G3PJK, QTHR. Tel: 061-653-4027.

ZG 10A PSU, £50. Mint condx, sell or exchange for EC10 Mk2 rx. CD pd. Tel: 0463-241211.

FT101ZD FM3, plus all filters fitted and dc-dc converter, FC902 atu, FV101DM digital memory vfo, SP901 spk. All perfect condx and boxed with manuals. Complete station. Would sell or p/x WHY? Tel: Eamonn, 0504-265675.

TRIO TS780 2m 70cm dual bander, SP70, ex condx, £695. Swap Trio/Yaesu hf mobile with fm, hf QRO linear, BBC B, cash adjustment. G0BXN. Tel: (Staffs) 05438-2289.

TILTOVER TELESCOPIC mast, unfinished project 80mm square steel box section, 7.5m long, 60mm o/d, seamless steel tube 7m long, hinge block, pin and top guide, £75. Kev, G4KTZ, QTHR. Tel: (Leics) 0533-606494.

TS520S, £350. Immac condx, orig pkg, some spare 6146B available. Manual, also workshop manual, freq and swr meters available. Reason for sale, possible move into flat. Demonstration by appt. G4IH, QTHR.

4CX250B EIMAC (PAIR, boxed new). Microwave modules MMX1268 tx upconverter 144 in 1268MHz 2W out. Microsoft Z80 cpm softcard for Apple II with discs + handbook. Icom AH1 auto tuned hf whip antenna. QSL crystals (new) 30pF 12MHz tx, 44MHz rx for S20 + S24. Also 10.245MHz. All HC25. Offers invited. Peter G8BCG, QTHR. Tel; 0494-727445.

ICOM 02E 144MHz fm tcvr c/w two power packs, chgr .25,.50, whips. Very little used, £185. MTV435 70cms ATV 20W transmitter, 70cms ATV converter, uhf output, £168. G4OWM, QTHR. Tel; 01-647-8399.

TRIO MINI-HANDHELDS. TH21E, £125. VOX headset, HD Nilad pack, 10W HBPA for above, £15ea. Pye Westminster fm 10-ch £28. W2AU balun 4:1 1kW £10. WANTED: MuTek broadband preamp. Good 6-12ch mic mixer. Nigel, G4PJJ, QTHR. Tel: 0452-75542 (Gloucs).

JRC, JRC, JRC. JST125 tcvr, NBD500G power supply, NFG97 antenna tuner, £1550. NRD525 rcvr, NVA88 speaker, £950. All tested only, brand new, boxed. Tel: 0602-609345.

HY-GAIN TH3 MK111 SNR 2kW triband beam, fully pvc covered, all stainless steel fittings, BN86 balun, 50' coax, totally clean, as new, £285. Diawa MR750PE HD rotator with preset positioning, 60' cable, unused, boxed, as new, £255 ono. Tel: 0602-609345.

DRAKE MN2700 2kW atu/matcher, mint as new, £425. 1kW dummy load DL1000 in HD cast heatsink, £78. Tono 5000E terminal unit with additional 12" green monitor, £595 ono. New, unused, full rtty, amtor, ascii, morse. Tel: 0602-609345.

YAESU YO101 MONITOR SCOPE/manual. Ideal for rtty tuning, output monitoring, linear checking w/two tone generator, £250 ono. Fox Tango ssb filter (2.1KHz) for FT757 or 767, £30, never used. Fox Tango newsletter reprints on FT757/767, £15. Scott, GOIYF, Tel: 0488-72424.

LOOK AT THESE PRICES! 10MB Rodime hard-disc c/w controller, £80. Shugart/CDC 8" floppy drives, £60. S100 boards; 5-slot cardcage, £50. 8085 SBC c/w rom, ram, P10, S10, £80. 64k jaws dram card, £80. FDC c/w 2S10 and CPM, £95. Sony KTX1400 view-data terminal, £100. Z80 SBC, graphics, ram/rom, P10, £50. CBM64 trackball, £25. Hitachi CCTV camera/monitor, £100. Teletext adaptor, £50. View, discdoctor, ultracalc, printmaster, caretaker. Set for £50. Phillips Precision ACVM £45. Box of 10 8" discs, £10. 1" Hitachi Videcons, £5ea. 24v stepper motors, £5ea. All items new/as new. Simon, G8POO, QTHR. Tel: 0661-842389.

TS430S FM BOARD AND all filters fitted. AT250 atu PS430 power supply, MC60A mike, all pristine orig pkg, manual, complete set-up £1050. Microwave modules MML 144/50S with preamp, hardly used, £70. G0BZR, QTHR. Tel: 0925-726485.

TR2400 2M FM HANDHELD 143-148MHz, ST1 base stand, spkr/mic, soft case, mains chgr. Boxed, £170. Also Icom IC4E 70cm handheld c/w 12v adaptor, mains chgr, extra nicad battery, soft case, spkr/mic, boxed, £195. G6HRC. Tel: (Worthing) 0903-830434.

YAESU FT790, £280. FT208R, £180. MML 144/30.LS, £65. Thandar TF200 frequency meter, £90. 70cm 10-ele beam £10. Leader 2m atu £25. All ex condx going QRT. G8WHG, QTHR. Tel: (Cheshire) 0260-272916.

PF2UH PYE POCKETFONE. Fitted RB6, RB11, RB14. C/W workshop manual and spare battery packs, £40. G3XVN, QTHR. Tel: 0767-318882.

MINIBEAM ALTRON AQ6-20/3el only 9 months' old, perfect condx, £80 ono. Also AR2200 rotator c/w additional clamps for pole mounting, £50. Contact Mike G3TMB, QTHR. Tel: 0704-214012.

LEAK "POINT ONE" TL10 amp and trough line fm tuner complete but not working. Any reasonable offers. Richard, G6EAZ, QTHR. Tel: 062981-3391 (early evening).

YAESU FT1 TCVR, all options fm/ram filters, keyer, mint condx, boxes, mic, manuals, £1000. Tentec Corsair 2 ham-bands tcvr 1.8KHz³500Hz filters, HD psu, mic, manuals, 4 months' old, £1195. Both inc Securicor delivery. PX JST125. GW4RLP, QTHR. Tel: 0286-3567 (evenings).

JUNK CLEARANCE. Transformers, chokes, valves, rx and tx units, meters etc. books, magazines. No sensible offer refused. SAE list. G2HLU, QTHR. Tel: (Reading) 0734-61622.

TS811E 25W 70cm base station in FBC, £675. Prism modem 2000 new c/w rom for BBC computer, £75. MMC432/600MHz atv rx upconverter, £25. MMC432/28MHz downconverter, £25. G8WYT, QTHR. Tel: (Sussex) 0444-450265.

ICOM 745 HF gen/cov tcvr, rx tx 100-30MHz. Filters fitted orig pkg + workshop manual, c/w Icom A T500 auto antenna tuner, orig pkg both units as new, £950. G0BEE. Tel: 01-958-6400 (NW London).

ICOM 271E 2m base station. Fitted Icom preamp, 10MHz coverage orig pkg, as new, £500. G0BEE. Tel: 01-958-6400 (NW London).

FT101B £300, 160/10m inc 30m Mainsor batt, Sony 7600D £110. MM4001KB, £95. WANTED: TS120S or FT707 or similar. GW3COI, QTHR. Tel: Abersoch 2675

TRIO R1000 RECEIVER £195. Eddystone 830/9 rx 300KHz-30MHz. Provision external synthesiser £175. CV89A/URA8 frequency shift converter 2xoff CM22/URA8 comparator 1xoff £75 lot. Orig HRO p/pack £8. Advance E1 s/gen 100KHz-60MHz £18. Marconi impedance bridge, TF936 £25. 188 SWM 1960/81 £8. 74 RADCOM 68/80 £5. 120 Wireless World £5. Mains transformer 3kv at least 100MA £8. 390/390 .5a £8. 550/550 120MA £6. Advance uhf millivolt meter VM79 £15. Tel: 01-554-6631.

YAESU FT 290R Mk1 2m multimode portable, NC11C charger, nicads, soft case, full .25W flex-whip, very good condx, £250 ono. Tel: (Cumbria) 0657-3999.

FT790R CASE, charger, flexi whips, Wood & Douglas 10w linear. Puma 10w fm linear. MML432/50 linear. Daiwa CN460M swr/pwr meter. 19-ele Tonna. £475 ono GOGNG, QTHR. Tel: 0933 55366 (after 5pm).

TS940S FITTED INTERNAL ATU and cw filters, £1600. TL922 amplifier £1000. SM220 station monitor, £225. Capco SPC3000D atu, £250. Hansen FS50HP peak holding 2kW power/swr meter, £90. SP930 speaker, £40 or I will swap the lot for a Range Rover. Also for sale fully built Toni cw/rtty tuner, £70. DX400 portable communication rx, £100. Converted 29fm fig, £35. 80W amp, £50. WANTED; TS120S or TS130S. Tel any time Graham, G4VOE, QTHR, 061 740 4126.

HQ1 MINI BEAM QUAD ANTENNA. Good condx. c/w 1:1 balun and manual. Boxed, £75. G0BWF, QTHR. Tel: 09467-28438.

MAGAZINES FOR SALE: RADCOM 1984-87 inc, Amateur Radio March 1983-October 84 plus numbers 1-3. CQ-TV 133-141. Offers please. Buyer to collect. Geoff, G6ZLM, QHTR. Tel; Oxford 66075.

KENWOOD TS830S, MC50 mic, pwr/swr meter and sem transmatch, £725. BBC 'B' computer with manual 30hR basic and tx/rx programs for the amateur, etc £225. All of the above very little use. GW3EUF, QTHR. Tel: Lloyd (Anglesey) 0248 853560.

PSU's 60 and 40 amps 12v. Several of each, £59 inc post. Jaybeam 2m colinear C5, £45. Ambit 2m 25w linear, £29. 2m rx with vfo, £29. Heavy duty mains variacs, £10 each. G4XOX, Tel; 0245 324555.

FT101 WELL USED (any trial) fan, manual, dc leads, spare valves, £160. 1929 Popular Wireless battery, 3 valver with valves (directly heated), wooden cabinet, needs rewire and batteries, £5. Buyer collects. G3VCL, QTHR. Tel: 0703-465793.

FT902DM; Dc-dc converter with cables, fm/cw filters, keyer, SP901 speaker, £625 ono. G4UME, QTHR. Tel: 0524 415159.

TENTEC OMNI C WARC. All filters, psu, manual, etc. £540. VLF convertor, 10MHz IF, £10. Crystals, mostly 80m cw/HC6U, £2 ea. G4BJM, QTHR. Tel: 0908-677127.

YAESU FT208R 2m handheld, keyboard entry, c/w nicad stand, up charger, YM24A speaker mic, manual and case. Mint condx, £185. Tel: Mike, GOGZM, 01 660 8692 (after 6pm).

IC280E 2M FM MOBILE £90. MML144/40 amp with preamp £35. MBM48/70 £20. MET144/8T £15. Yaesu FT780R 70cm multimode, vgc £325. WANTED: IC402 or Belcom 430 70cm ssb tcvr. Bird thruline elements vhf and uhf 100w+. Tel: (Medway) 0634 827602.

FL2100Z LINEAR. Little used, fine condx £550 ono. J-beam TB3 3-ele 10/15/20m yagi, vgc, £175 ono. Tel: Max (Ware) 0920 3564 (evenings/weekend), during weekday (Hoddesdon) 0992 460455.

B+W DM14 MONITOR standard loudspeakers, finished in teak veneer. Height 22.5, width 10, depth 11.5" c/w STAV/14 stands. Orig pkg, £135 pair. Technics M270XK quality cassette deck with Dolby and DBX. Orig pkg £75. G3WZT, QTHR. Tel: 0403-710565.

RADIO SHACK TRS80 Mk111 (twin disk, 48k, psu, monitor +keyboard in one case) £120ono. G3LIV data interface for BBC +Eprom £60ono. JUKI 6100 daisywheel printer £170ono. All in gwo. Buyer must collect. G1ZSN. Tel; (Stockport) 061 430 7515

FDK MULTI 700E 2m tcvr, variable power output 0-25w. Good condx, £120. G4RPA, QTHR. Tel: Bognor Regis 862629.

BARGAIN OF THE MONTH! QTH change forces sale. Trio TS811E 70cm all mode with muTek masthead, preamp £550. Icom 1271E 23cm with masthead pre-amp £650. Pye-Olympic converted 4m/70cm +antenna £65. 4x23ele 1296mcs +stacking frame, £60. GOGQT. Tel: Mark, 01 582 9881.

TWO SHUGART 8" disk drives complete, offers. PF70 10-way charger, £15. WW2 R107T rx gwo, offers. WANTED: Clark scam 40' pneumatic mast or spare parts of! G4AJE, tel: 0354 740441.

TEKTRONIX SCOPES. 546 (one non-fatal fault) £20. 545A for spares £10. CA 20MHz plug in £10. D 1mV diff plug in £10. 750v psu with 620-0-620v 200mA 'doorstop' transformer £10. J-beam 70cms 8/8 £5. G3PJI (John). Tel: (Bucks) 0494-22108.

TS930S AUTO ATU matching speaker, boxed in ex condx, £1100. FL2100Z hf linear also boxed and in ex condx, little used, £550. Pair Mullard 4-400 tubes £30. G4YXA, QTHR. Tel; 04574-64635.

COMPUTER BBC 'B' c/w 200K disc drive, 6502 second processor, rom expansion board, paged ram, modem, software and manuals. All £250 ono. G6USG, QTHR. Tel: 0782-616914.

MONITOR REUTER's model 1201, green monochrome 12" screen composite input cased. Ex condx. £40. G3RDG. Tel: 01-455-8831 QTHR.

TRIO 9130 BASE SYSTEM, Adonis AM503G, Kenwood SW100B, £375. Daiwa 110A £25. Low Pass LF30A, £25. Datong TB3 £90. FT102 am/fm unit, new £27. 2m GPVS Cushcraft 9-ele £25ea. All vgc. G4YIT, QTHR. Tel: 073120-268.

COLLINS 30L1 LINEAR AMP. R/E very late serial. In beautiful order and with new tubes plus spare. WANTED: Collins 2.1KHz mechanical filter. Details please to GW3JUV, QTHR. Tel: (Bridgend) 0656-653875.

ICOM IC201 2M MULTIMODE, £150. Large 12v 18a psu £30. Icom IC255E 2m fm 25w £110. 8-track mains cartridge machine with tapes, £10. G4FKI, QTHR.

YAESU FT757GX CAT, with MH-1D8 hand/scanning mic MMB20 mobile mount, 2 power leads, instruction and technical manuals. Boxed as new. £620ono. NEC110E tx/rx 100w PEP mains/battery operated, digital display, ex condx, £375. Contact GOFLX 0532-824230 (evenings).

ALTERNATOR 5KVA 240v 50Hz 1 phase by Danturl in unused condx. No engine £150. Versatower P60 in 3 acres, 4-bed house +old cottage and out-buildings. Open countryside, no QRM problems Anglesey. Might exchange QTH Clwyd or Cheshire. Tel: 0407-3910.

ROBOT 800 TERMINAL tx/rx rtty/assc/cw/sstv. Also 2M/70cm MM transverter and hf tsvtr for FT290, 14Mz-30Mz. Exchange for large 2m linear or WHY? Tel: 031-447-3905 (after 6pm). GM4ZOA, QTHR.

DAIWA MULTITORQUE ROTATOR 3 motors fitted, £200. 6xQY3-65 valves new, boxed, with bases and data £50. 12v winch 9-ton pull £300. Marconi TF2700 bridge, £100. Racal 836 counter, £30. All ono. Dale, G3VMK, not QTHR. Tel: 0602-706707(Ex 253). Business hours.

MML432 100W, 10W input. Mint condx, never used, £300. MMT432, 2m-70cm tsvtr, 10w input, hardly used, £105. G4IGT, QTHR. Tel: 091-5843563.

PROPERTY OF LATE G3NPU - TS700G £260. IC240 £120. AR88LF £70. Gemquad arms, spider, £60. Bird Termaline 8135 £60. TR2200G £50.Burndept hand talkie on 70cm £25. Pye Europa on 4m, £20. 70cm 48-el multibeam, £10. Class D wavemeter, £10. Multiminor, leather case, £20. Daystrom 3" scope £25. 2A variac £10. 650-0-650V 200mA XFMR, tapped, £10. Windsor universal tester, 20k/V £8. Dave G4BUO, not QTHR. Tel: 0892-870400.

DATONG FL3 AUDIO FILTER. Variable bandwidth for ssb/cw/rtty. Also notch, auto notch, £85. Aldis slide projector SN12, 100W with folding table and screen, £45. Two 444 teleprinters £5ea. Workshop manual £5. Ken, G4WAS. Tel: 0922-475057 (Walsall area).

HF5 80/10m VERTICAL ANTENNA, £30. Two 50m drums unused UR67, unnecessary purchase, £25ea. Postage extra. G4LBH, QTHR. Tel: Luton 415846.

ICOM IC211E 2M MULTIMODE c/w SM2 base mic, fitted muTek front end, £450. AR40 rotator £60. Icom IC2E handheld as new £150. New PRO2004 scanner 25MHz-1300MHz. Superb performance £280. Icom scanner antenna (Discone) as new, stainless steel, £60. DEC equipment inc VT52 terminal, Shughart floppies hard disk, controllers, memories, psu's, backplanes etc - best offer for lot secures. Olympia typewriter, £10. Fujica AX-1 camera c/w filters, all access, £65. G8MAG, QTHR. Tel:0327-53087.

70CM FM HANDHELD Icom IC4E. vgc, with postcode on cabinet. .25 and .50 wave aerials, handbook, either ICBP4 or fast charge ICBP5 battery. Serviced by R Withers £160ono. Cheapo walkie-talkies, part converted to 50.315MHz G4YSS, QTHR. Tel: (Scarborough) 0723-863137.

FT101E Mk2 c/w YC601B digital display and counter, cw filter, matching mic, spare PA tubes. Orig unmodified condx, £395. G3XMM, QTHR. Tel: (Gloucester 422726 (evenings).

GRAND QRT SALE. Please send sae for full list of equipment and components. All manner of things for sale. PN Paterson, G4JOJ, 3 St Oswalds Crescent, Brereton, Sandbach, Cheshire, CW11 9RW. Tel: 0477-33589.

DATONG CONVERTERS DC144/28 £20, PC1 GC £90. For Amstrad 464-RS232C £28, DKtronics speech synthesiser and speakers, £20. Protek Prestel Modem etc £25. Collector's pair ex-WD ringing telephones type F Mk2 £20. Postage £3 each. Any balance refundable. Tel: 0954-50597.

FT209RH WITH FNB4, case strap slow charger, ex condx, all boxed, £190ono. G6TWW, QTHR. Tel: (Guildford) 0483-579840.

SHURE 444 Mic. Desk type £30, inc postage. 2m 10XY not 100% offers. G3VOF. Tel: 04023-73366.

TWO HRO INSTRUCTION Manuals, 1941-£3.50ea. National catalogue 1947 £3. ARRL Hints & Kinks, 1937 £3.50. ARRL Handbook 1934 £5. All post paid Yaesu FR50B rx vgc, one owner, £60 cash and carry. G3AVQ, QTHR. Tel: Henley-on-Thames 576852.

ICOM IC251E, A superb 2m multimode base station. Fitted muTek front end, also inc desk mic ICSM5. Price of £550ovno to include shipping charges. Roy, GU8TGP, QTHR. Tel; (Guernsey, CI) 0481-47918.

IC551 50MHZ RIG. vgc, internal psu, offers please. LDF2-50 Heliax approx 120' plus connectors, offers please. Contact G4GLT (Dave) QTHR. Sae for replies please.

2M FM HANDHELD. Daiwa MT20E 144-146MHz, 1.5W with matching 20W linear amp. Nicads with chargers, rubber duck, plus 5/8W mobile ant, mobile bracket. Spare nicad for linear amp: £160. G4SYI, QTHR. Tel: 01-958-9868 (after 6pm).

ICOM R71E G/C RECEIVER, 100KHz-30MHz. Mint condx £575. G3RDG, QTHR. Tel: 01-455-8831.

FL2100Z LINEAR £450. FT290R, nicads, charger, bag, mic, psu, £275. AR1002 rotator 25yds flex £30. Welz AC30M atu £35. T3-170L swr/power meter £12. CP5 vertical antenna 80-10m £55. Carriage inc. G2FYG, 3 Repton Ave. Derby.

KATSUMI ELECTRONIC KEYER EK150. Brand new, still boxed, input 100-120v ac, 7-13.5v dc. Fully adjustable, 8-60wpm £85. Prism acoustic modem, prestel compatible, 75-1200 baud, £20ono. G4IZB, QTHR. Tel: 0344-774731.

TRIO TS700 2M all mod tcvr. good condx, orig box and manual, £200. G6LDK, QTHR. Tel: 0924-270770.

AOR2002. 1.3GHz-26MHz. Tape, and IF socket for ssb. Immaculate, £435. Trio TS430S, 30MHz-150KHz am/ssb, extras; fm. cw/ssb filters wide and narrow fitted, £735. Both boxed. Data post extra. Tel: 0639-882708.

COMPLETE STATION FOR SALE. Kenwood TS430S, 430 psu 430 speaker, KW AT200 atu, MC60 mic, Weston pepmeter, Kenwood 711E 2m Tokyo linear, 200w 444 Shure mic. Weston pepmeter, all in orig boxes and little used, £1800. Tel: 0726-73943.

YAESU FT290R11 2M multimode with interchangeable clip on 25w linear and nicad pack with nicads. Charger, mobile mount, boxed as new, £425. Kevin, G4WLG, not QTHR. Tel: (Welwyn Garden) 0707-335162 (evenings/weekends).

YAESU FT2700RH 2m/70cm fm 25w, diplexer, £375. Trio TR9000, 2m multimode, PS10 supply, mobile brackets, £310. Mirage 2m 60w linear built-in muTek preamp £75. AMT2 BBC rom £120. TNC220 packet terminal £100. FRV7700 converter, £50. G4SBK, QTHR. Tel: 050841-8231.

VHS CAMCORDER. Panasonic NV-M1. Immac and incl all access. Two psu's, audio, video, vhf and uhf outputs. Also operates as a video player. All contained in lockable aluminium system carrycase. £550ono. Peter, G8BCG, QTHR. Tel: 0494-727445 (evenings).

EPROMS 8k CMOS new eight for £3 inc postage. 16k Eproms CMOS new, £1ea. G6JNS, QTHR.

ALL HEATHKIT; solid state dip meter, HD1250 £30. Dual wattmeter HM2140 £30. Coaxial switches HD1234 £8. RF oscillator IG5280 £20. Power supply IPA5280 £10. Valve voltmeter IM5218 £20. RCL bridge IB5281 £20. Manuals. G3KKH, QTHR. Tel;051-678-8040

FT101ZD 9-BAND manual £480. KW2000B new valves manual, £215. FR101S rx £180. All mint. Heathkit RA1 rx fair, £35. Tel: 0203-450476 (after 5pm).

FT1 USED ONLY AS RECEIVER. Mint condx, all extras fitted, £1100, or accept NRD525 plus cash adjustment. Tel: (Prestatyn) 07456-86295.

WANTED . . . .

AVO 8 PLASTIC OR METAL case or faulty meter, but un-damaged case, also circuit diagram. All expenses refunded. G8HLJ, tel: 051-334-4012.

YAESU FT102 tcvr in good condx with/without fm tcvr only. John, G4PDN, QTHR. Tel; 01-777-2340.

HF LINEAR FL2100 or similar, KW1000, Heathkit, in good working order. GD4EIP, QTHR. Tel:0624-71353.

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Phone: 0327 60178

HOWES FINISHED EQUIPMENT RANGE

Introduced last Autumn, **HOWES transverters** are becoming a popular choice for the Two Meter operator wishing to add a new band to his station. Four and Six Meter transverters are established products, and we have some additional, new transverters "in the pipe line" for release later this year. Brief information on the 6M transverter (pictured above) is as follows:-

- ★ Full 50 to 52 MHz coverage with 144 to 146 MHz radio, on all modes, SSB, CW and FM.
- ★ 10W RF output with very low harmonics.
- ★ Operates from any normal 13.8V DC supply (nominal) with 5A capability.
- ★ Standard version requires 1 to 5W of 2M drive for full output (ALC system automatically adjusts to exact input being used). A 5 to 10W drive version is available as a no cost option.
- ★ Automatic RF operated TX/RX switching, with "hard" switching provided for optional use.
- ★ SWR and reverse polarity protection circuits.
- ★ Silver plated SO239 RF connectors located on rear of unit.
- ★ High quality case manufactured on computer controlled machine tools, finished in two-tone grey with white lettering to compliment modern transceivers.
- ★ Simply connect inline between the 2M radio and a 6M antenna, no set up adjustments or modifications required.
- ★ Operators handbook includes installation instructions, block and circuit diagrams.
- ★ 1 year guarantee including PA transistor.

HC266 (6 metre) and **HC246** (4 metre) Transverters are normally available from stock at **£179.90 inclusive of VAT.** Normal postage is free. Guaranteed Saturday morning delivery can usually be arranged for an extra £10 – phone for details. You could be enjoying a new band this coming weekend!

HOWES KIT RANGE

Over the last five and a half years, our kit range of **QRP transmitters, DC receivers, filters, ATUs** and **station accessories** has brought a rekindling of interest in home construction, and a low cost entry route into the hobby for the young newcomer. There is no need to spend a small fortune to enjoy amateur radio. Indeed, simple, effective equipment that you have built yourself, is often the most satisfying to use. If you have felt that an element of fun and challenge has been missing from your hobby lately, perhaps sending an SAE for our kit range catalogue could prove worthwhile. A QRP project for holiday and portable use could make a refreshing change this summer!

Kits and finished equipment are available direct from us by post or telephoned credit card order, and from our appointed retail stockists at their shops and most rallies. Advice is only a phone call away (office hours) and our catalogue and product information sheets are free if you send an SAE.

73 from Dave G4KQH, Technical Manager

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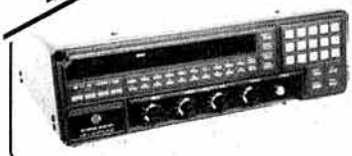

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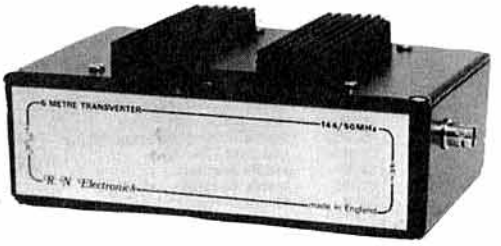

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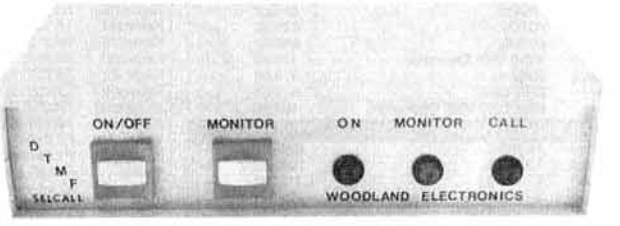

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The last word....

Sir – I feel compelled to reply to Mr T E O'Neil's letter in the March edition of *Rad Com*. I am proud to be licensed in the anniversary year and I am equally proud that the RSGB has secured 5MHz and 70MHz for class B licensees as well as class A's (will be QRV on both hopefully). Mr O'Neil should remember that most people have other things to do other than amateur radio and they have not the time to study morse. Myself, I am studying for A levels so that I can go to university and most amateurs worked for the money to pay for their black boxes.

Mr O'Neil should read the amateur's code which states radio endeavours to be:- balanced, in that amateur radio communication is still a hobby which cannot interfere with duties at home, work, school and community.

I also hear a few amateurs saying "now that I have passed my morse I can go on the shortwave bands". Let me remind everbody, a wave-length of 144MHz is shorter than 28, 21, 14, 7 and 3.5MHz. *I M Bradbury, G7ADF (age 17)*

PS Let's stop these arguments and discuss other important matters such as the deregulation of the spectrum.

Also, could we have a beginner's page(s) please and more on 70MHz?

Sir – Mr T E O'Neil, GM4PRO, hit the nail on the head in the third paragraph of his letter published in March 1988 *Rad Com*.

G D Eddowes, G3NOH

SUPPORT YOUR LOCAL RALLY

Sir – I must admit that "surprise" was not the reaction I expected from Mr Harris (March 1988). I was surprised to be accused of "lack of spirit of adventure". I am sure anyone who has ever tried to make a successful superhet receiver for the amateur bands for under £10 will know what I mean.

If you are 50 miles from London as Mr Harris seems to be, there can be no problem. Here in mid-Northumberland you have to rely on mail-order. We have only had two rallies in ten years. The second one was last Saturday. I am a great believer in patronising suppliers who advertise in "Radio Communication". I notice none of those recommended in the letters of March 1988 do, but in some cases, as those advertisers have the monopoly of certain items, you don't have any choice.

Our magazine is called "*Radio Communication*" – as far as I'm concerned 50 per cent is about communication with all the "black boxes" and 50 per cent is about radio, which is all about construction in all its complexities, so why shouldn't the RSGB extend the list of components already supplied?

As I came out of the rally on Saturday, with my pockets full of goodies from Birkells of Lincoln and all the other exhibitors who bothered to come (not so the RSGB), there was a snow blizzard, the car heater didn't work and I felt 'flu was on. No Mr Harris not lack of "sense of adventure" – more lack of "sense of humour". *P McBeath, RS44030*

The Society does its best to attend as many rallies, exhibitions and so on as it can – and if money, staff and time permitted we'd go to every single one. Unfortunately, it doesn't – so it isn't as simple as "not bothering to come".

CW TO THE FRONT

Sir – Have you every thought what the reaction would be, if the mic socket was located on the back of amateur radio transceivers, instead of the front?

It would be an absolutely crazy idea would it not, then why is the key socket relegated to the back panel of every amateur transceiver.

So to those manufacturers east or west who slavishly perpetuate this convention, please reverse this trend and let those that enjoy cw also enjoy the convenience of a front panel key socket! *R J Howes, G40WY*

WHAT MEMORIES ARE MADE OF

Sir – What memories the cover photograph on this month's *Rad Com* brought back to us old codgers who were scratching around with crystal sets in 1922 with only an hour from 2LO in the evening when it started broadcasting and the irrepressible Capt Peter Eckersley from 2MT Writtle.

Our progress into the world of wireless was governed by monetary considerations. Pay wasn't very good and if you had a job you hung on to it because unemployment still reared its ugly head in those early days. By the 30's most of us had acquired a crystal with the obligatory certificate from QCC and various bits and pieces together with an artificial aerial licence.

Visiting Radiolympia virtually left one's tongue hanging out at the goodies on display and financially beyond one's reach, perhaps a little difficult to understand by our younger members today. Seeing the ever helpful Arthur Milne on the stand, always ready with advice and Clarry in all his glory reminds me that Clarry would always take the trouble to visit our local RSGB Group and sort out RSGB and member problems. Of course such personal contacts were possible in those far off days when the total membership was not what it was today.

During my 49 years as a member I have had occasion to get help from the RSGB on three occasions against defaulting suppliers. In one case a set I had sent for repair had been split up for spares in the workshop . . . the RSGB quickly and efficiently settled the matter with a new set from the supplier. When one considers what one gets from so-called radio magazines stuffed with the same old adverts each month at a pound or so a time, we don't do bad for our subscription – which give us the ads, technical articles and a QSL service plus world-wide representation.

Think on it and if I have gone on a bit, put it down to those people on the front cover who laid down a solid foundation of a Society we enjoy today. *Frank Osborn, G2CVO*

QUALITY OF STRIFE

Sir – I recently purchased a British-made communications receiver from a very well-known amateur radio equipment supplier. When I got it home, I found the performance on ssb to be quite atrocious. There was a full second of extreme distortion at the start of any reasonably strong transmission. It was as if the agc had a significant delay before it came on.

I removed the covers from the receiver so that I could examine the circuit boards, the quality of which had received glowing praise in several press reviews. It took me very little time to discover that one resistor was completely missing. R56's position was silk-screened, but it wasn't there; just two holes full of solder where its legs should have been! From the circuit diagram it looked a fairly vital component, since its absence meant that the emitter connection on one transistor was left floating. I returned the receiver and got a replacement unit – complete with R56. Needless to say it works very much better.

I know we can all make mistakes, but what really troubles me is that the offending unit had no less than four 'inspected' labels stuck inside it. Is this all that is left of traditional British quality? *Roger Barker, G4IDE*

Sounds like a good argument for home-brewing . . .!

CAMERA PSYCHOSIS

Sir – I was interested in the letter in your February issue from Peter Walton, G4WAL, with regard to an automatic camera "taking shots by itself, not taking shots, winding-on by itself and then not re-winding, getting hot, then giving up totally".

I had a similar experience last summer while on holiday in Greece. This was during the heatwave and I put this malfunction down to excessive exposure of the camera to heat.. This occurred at Mycenae where neither of us can recollect seeing any powerful source of rf, and neither had my husband a transmitter with him.

The manufacturer attempted to repair the camera but was returned still faulty. Subsequently they replaced it under warranty. I have since kept my new camera in an insulated gadget bag and had no further trouble.

Joyce Warneford, xyl of G8LXU

NOSTALGIA

Sir – Having studied the superb photograph on the cover of your February issue with great interest, and compared it to the photograph on pages 86 and 87, surely there lies the answer to the decline in amateur radio?

Pages 897 of *Shortwave Magazine*, November 1949, also refers. *C B Raithby, G8GI*

PS Re '2NM set-up, all I have that are similar are a spindle-back operating chair, pair HiZ phones and *one* knob!

BREAKTHROUGH

Sir – I have recently been suffering interference on various channels in the 144MHz band. It can best be described as a high-pitched screech with what sounds like a helicopter in the background.

I traced this, using the usual direction finding methods to a commercial enterprise some 300 yards from my QTH. Further investigation pointed to their telephone system. When telephoning their number and at the same time monitoring the interference it was found that the signal meter would pulsate, and when the telephone was answered the interference stopped or changed to another channel. Upon ringing off, the interference returned.

I reported all this to British Telecom who sent out their Radio Interference Officer who was most helpful and kept me informed of proceedings. They have now replaced the offending telephone unit and all is quiet again.

My thanks to BT for their assistance and understanding. I know this problem has appeared in other areas and hope that this information will be of help to other stations in getting things put right. *S Wilde, G1YGJ*

ADVERT

Sir – I feel Mr M J Grierson, G3TSO, is somewhat unfair to Maplin in his letter to Members' Mailbag, March *Rad Com*, but obviously speaks from his personal experience.

I started to use Maplin about a year ago and am very impressed with their service. A telephone order is usually delivered by the next morning and only occasionally does it take two days, **never** ever a week.

I have no connection with Maplin other than as a satisfied customer. *D Lawton, G0ANO*

GENTLEMEN, GENTLEMEN, PLEASE

Sir – On receipt of March *Rad Com* I started flicking through the pages. Reading the letters to Members Mailbag, I found myself getting hot under the collar at the letter from Mr T O'Neil supporting Mr R Freeman. I was about to blast off a letter stating my indignation at some of his comments when the thought occurred to me that a letter written in the "heat of the moment" may not look at the wider aspects or implications for amateur radio. Consequently, this letter is being written after trying to think through the current debate in the Mailbag column.

I believe that letters written in the style of Mr Freeman and Mr O'Neil containing such expressions as "wally" or "bloody-mindedness" are damaging to amateur radio. Let me explain why. At the present time, it is agreed that there is a lack of fresh young blood coming into the hobby and every encouragement should be given to those who show an interest. I am sure that many youngsters, believing that they would come up against such views within the hobby from their elders (and betters!) would be somewhat discouraged and may well bypass amateur radio for another pursuit. This we can ill-afford.

Over the past few years there have been some excellent debates in Members' Mailbag such as ssb on 10MHz, novice licences, etc. Some of the views and counter views have been outstanding in their reasoning. Unfortunately, some have been emotional and have contained statements which have not been in the best interests of amateur radio. I am in no way trying to stifle debate, indeed without it democracy does not survive – I am just making a plea for members to write from the head and not the heart and to examine the implications of any statements they might make.

I hope this letter expresses my views in an acceptable way. *R Taylor, G8ZHF*

WORKED ALL BRITAIN AWARDS

Sir – I note with interest the recent correspondence from G2VO and the replies from G4VOI and G4AIR. I have been interested in WAB, as a listener, since the RSGB event at the NEC in March 1987.

I confine my listening for WAB activity to vhf, and at the present time have "collected" just over 200

the last...

squares' I have checked through my log and find that just over half of these contacts are from net operation; the other half being asked for their locator, give both the Maidenhead and then their WAB square. When I am able to listen to the WAB net on 144MHz ssb, the format tends to be quite long periods of chat, but that if a mobile (or portable) station arrives in a new square, then there is indeed a quick exchange of signal reports from each member of the net, thereby allowing the mobile to move on or come home.

All-in-all, I think WAB is great; its good clean fun and gives a purpose to listening on vhf/uhf when conditions are flat. I recommend it to everyone.

Stever Beazley, BRS90302
WAB 7509, TQ39 Essex

When I first saw the letter from G2VO in the October issue I was somewhat surprised but decided not to comment at that time; however, you have now asked for comments so you had better have some!

WAB nets are held on several regular frequencies at regular times, and all are made very welcome whether WAB collectors or not; we are really a very friendly lot. **But** when one joins a net, one surely operates according to the procedures which one finds there, and WAB nets meet primarily to collect squares which are activated by mobile or portable stations. The mobile has a list of squares to be activated and only limited time to do it in, particularly in the evening, he also has a (sometimes long) list of stations wishing to work him in each square, many of these may be extremely weak signals. The net controller will organise things so that each gets his fair chance. To illustrate this, a few days ago I activated six areas between 1944 and 2201 and worked 14 **different** stations, not all in each of course! Only one station failed to get a square he wanted, and that has been noted for the future. Oh, by the way, some kind person decided to tune his amplifier (to give the benefit of the doubt!) over us.

The only way to operate is quickly and efficiently. If stations started lengthy QSOs on the frequency there would be many disappointed amateurs and a cold, frustrated mobile who had found his way up some muddy track in the dark only to find no-one able to work him! At other times we are only too pleased to have, sometimes, very extended QSOs of course, and look forward to meeting you on the air.

There are now over 8,000 WAB books, so we are far from a small minority, and WAB activity continues as normal on vhf in winter when others abandon the bands as unusable; they are not. In the vast emptyness of 144MHz outside the noisy southeast there is more than enough room for everyone! And as for the almost totally unused 50 and 432MHz . . . (to start another argument!)

Gareth Foster, G1DRG

CALLSIGN CAR NUMBER-PLATES?

Sir – Radio amateurs on the other side of the Atlantic are permitted to have their callsigns allocated as car licence plates – so why not in this country?

In a couple of years time, the letter "G" will presumably be used on British cars, so – in these days of all information being stored on computers – it should be quite easy for radio amateurs to have their callsigns on new cars, if desired. . . .

Many years ago, the local licensing authorities gave me the number 1155 – does it ring a bell? As far as I can recall, there was no problem – and that was in the days when everything was filed on cards. Today, we have the technology of the 'eighties . . . but will it be as easy to exhibit our callsigns on our cars? I wonder!

Douglas Byrne, G3KPO

An item on this subject appeared in the Novebmber 1987 "News Bulletin".

SIGN OF THE (OLD TIMES)

Sir – I much appreciate the old photograph with a radio theme you are using on the covers of *Rad Com* this year, in particular the one on the February cover, showing Gerald, G2NM, in his splendid overflowing radio shack.

I often get the complaint from this household that I am creating a house within a radio shack when it should be the other way round. The last time these mutterings arose I showed the February cover and pointed out that in the past things were much worse.

I was promptly told that a certain shack was no better. And that, anyway, Gerald was much better-looking than I am, and far better dressed.

Gilbert MacNeill, GM0DLZ

Thanks to all those who have written to say how much they like our 1988 front covers – there's more to come, although no more gentlemen in plus-fours, alas . . .

HOW NOT TO USE 144MHz

Sir – I am getting fed up with stations who do not QSY off the 144MHz cw calling frequency. No doubt I am not the only one to notice and be annoyed by the practice of holding a QSO on 144·050MHz (A1A) and it is not only dx and contest, though that is bad enough. It is mostly older-licensed G stations who probably think they are on hf and should know better, I am a go but even I know the convention of immediate QSY upon securing a contact, and if the station who calls CQ does not send a QSY, then the station replying should suggest this; I do.

It is very anti-social to prevent others from calling CQ or from hearing and replying to a CQ. I do not like transmitting over other stations, even if they are in the wrong, so I just have to sit there or nip in with "QRL?" or "PSE QSY". I have just now heard a G2 and a G3 holding a QSO on 144·050MHz, a quick "QRL?" did the trick.

Please enjoy your contact, but not on 144·050MHz, and let the rest of us make a contact too.

(Name and address supplied)

We quite agree – and while we're on the subject, far too many people still spend a couple of minutes on 144·300MHz exchanging name, report, locator and the name of their second cousins once removed before suddenly remembering that they ought to QSY.

IN SUPPORT OF G3VA

Sir – I notice there have been recent attacks on certain items in G3VA's 'Technical Topics'. Out of the RSGB membership, only a very small percentage contribute to 'Members Mailbag' and those who do cannot be accepted as a fair cross section to ascertain the likes and dislikes of the majority.

The majority are everyday people with everyday problems which leave little time for indulging in correspondence especially when it appears to achieve little apart from attracting hostile criticism; their feelings are voiced at the local club but that is as far as it goes. Of those who do write, many offer interesting and constructive material but a minority are what I think our VK cousins would term 'Selfish wingers'. 'Selfish'? Yes, because they wish to force their personal views on all members through the pages of *'RadCom'*.

As a democratic society, the RSGB should offer a little for everyone. For myself adn many of my friends, G3VA's contribution to *'RadCom'* is the best part and should be enjoyed as it is; it would be much the poorer by removing those items which seem to annoy some – but bring much pleasure to many.

I have been interested to find club members who see a simple valve rig as the best way of getting on hf at a reasonable price when they get their 'A' license and ZS6JC's cw would be ideal for this (or would be with slight mods – see later); valve-related components such as mains transformers go cheap at the club's raffles. Across more years than I care to remember, a few before becoming a life member in 1954, many of the constructional articles offered have risen in complexity to a level beyond the capabilities of many members who find little to interest them. Not that I am suggesting they should be dropped, only supplemented by simpler articles.

In conclusion, may I offer my personal 'beef'? Why drop the traditional resistor symbol for another 'little box' used for anything from filters to relays? When I first came across it years ago in Philips TV manuals I was told it was because the plan drawers they had started to use could not handle the zigzag but not, even today, 'Electronics & Wireless World', 'Ham Radio Today' and 'Practical Wireless' seem to manage much to their credit. It makes a circuit just that little bit more difficult to digest.

G Brown, G3FVW

The ones we hate are the symbols for things like NTC and PTC thermistors and VDRs – for the life of us we can never remember which way round the wretched strokes and lines go! We'll have to get Dick and Smithy back in the Bulletin to tell us. . . .

CONTEST BEEF

Sir – Perhaps even I, who can see neither fun nor point in hf contests, should accept with good grace that they seem to be popular with some. The Americans like the cut and thrust, and take it all so, so seriously; the Eastern block countries can get away with the one obligatory English phrase, "5-9,QRZ" and some can practise their bad manners on a new vast scale; the Continentals can turn the processing up to total incomprehensibility and splatter over at least 10kHz in macho display, and the serious contestants can chain their linears together and **strictly observe** all the rules as they did for the 2nd 1·8Mhz cw Contest, '87, which was declared null and void by the RSGB recently for doing just that (well done, sir, at last!). Meanwhile this weekend, at least CQ Magazine will be able to laugh all the way to the bank at the free publicity it has received at the amateurs' hands.

Well, that should upset everyone! More seriously though, if the RSGB is concerned to limit the intrusive nature of these all too frequent events – and I am heartened to think they might be at last – if we started with urging the abolition of **48h hf** contests, I suppose, others such as I, could bite our tongues a little more and put up with the one-day efforts. I could write more, but I must just give these chaps a few reports, and be a sport . . . Yours ("5-9, what-was-the-call-again").

J Boot, G4NJH

Well, what does the hf contest fraternity think? We certainly agree about 10kHz and more of splattering, though – why on earth do people do it? Would any "splatterer" care to write and put us out of our misery?

MOBILE EQUIPMENT

Sir – Section 54 of The Highway Code states 'Do not use hand held mike whilst vehicle is moving'. Yet in most advertisements in amateur journals including our own, manufacturers importers and retailers advertise 'Mobile Rigs' which include a hand held mike with no option for a different type . . . only as an extra.

Surely it is time our society took a lead towards greater road safety by encouraging purveyors of this equipment to package a 'Mobile' which is going to be used in a vehicle in such a way that it doesn't infringe the code issued 'with the authority of parliament'.

F R Millbank, G1XWZ

Good point. We have published some articles on "hands-free" mobile microphones and so on but we'd like to see some more – come on, budding writers, our page rates are jolly good!

PHONETIC ALPHABET

Sir – As a new member of the radio amateur fraternity may I express my disgust, at the number of radio amateurs who use phonetics such as radio, Canada, America instead of romeo, charlie alpha etc, the list is endless.

We are taught and examined on the correct phonetic alphabet and I find it off putting when callsigns are given using the above "slang", I have to stop and think which letters are meant where as if the correct phonetics were used it would be more receptive to our trained minds. I recently listened to an RSGB broadcast on a Sunday morning and heard the broadcaster using the above "slang".

What chance have we of educating future radio amateurs in this very well disciplined hobby if the incorrect phonetic code is used. Is there any chance of the RSGB and or the licensing authority making the correct code mandatory on all frequencies?

P W Jolliffe, G1XFT

There's no law which says that thou shalt use only NATO phonetics, and indeed some of them don't work very well – as we said in these pages only recently. Any thoughts from readers? Oddly enough, we heard someone at about S2 on 144MHz the other week whose callsign suffix turned out to be OSF – but the NATO phonetics really weren't helping, and it wasn't until the owner used Ontario Sugar France instead of Oscar Sierra Foxtrot that we copied it correctly. Also, many non-UK stations feel a lot more comfortable with country name phonetics than the NATO ones.

.....word

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Three microprocessors. Dual VFOs. Single-button VFO/memory swap. Receive coverage from 500 kHz to 30 MHz. Transmit coverage from 10 to 160 metres, including WARC bands. All-mode coverage (LSB, USB, CW, AM and FM). 100-watt RF output.

QSK operation. Massive heatsink and duct-flow cooling system for continuous RTTY operation for up to 30 minutes.

Computer Aided Transceiver (CAT) System for computer control via operational interface.

Of course, the FT-757GX/II offers the kind of options you'd expect from Yaesu, too. Including standard and heavy-duty power supplies, automatic antenna tuner, hand and desk microphones.

So no matter where you work the DX, take along Yaesu's FT-757GX/II. The full-featured HF rig you'll have a real field day with.

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