

# Radio Communication

The Journal of the Radio Society of Great Britain

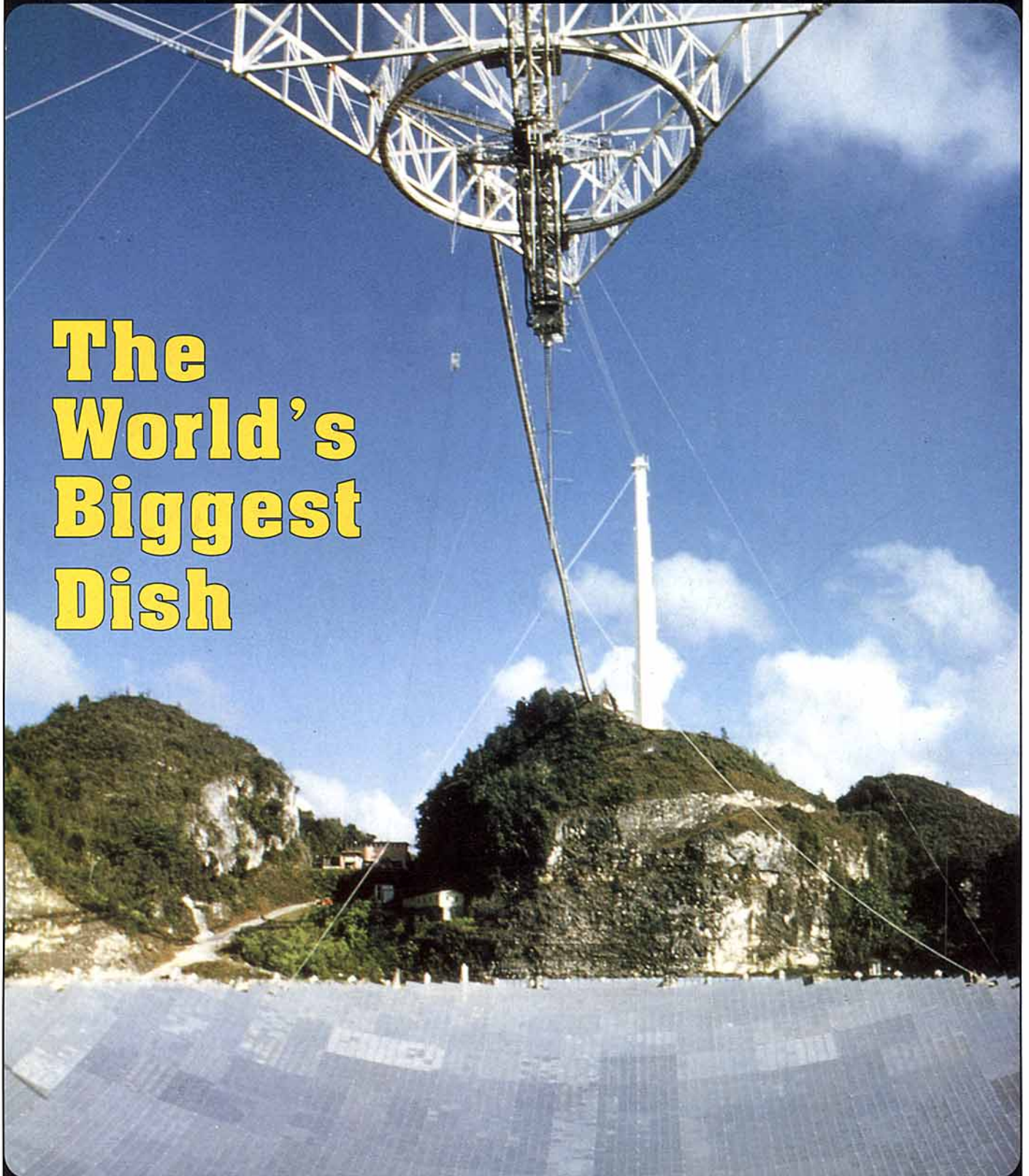
August 1992



Volume 68 No 8

**THE VOICE OF AMATEUR RADIO FOR 79 YEARS**

## The World's Biggest Dish



**Ionospheric Research – page 42**



# KENWOOD



## IN COMMAND

### Kenwood's New FM Dual Bander Sets the Pace

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# Radio Communication



## A Wind of Change . . .

The RSGB is changing. Not only do we have a new HQ General Manager (see page 4) but whilst this *RadCom* is being printed the first RSGB Business Strategy Conference is taking place. On pages 24 and 25 you can see the results of a survey commissioned to help formulate this strategy.

### NEWS AND REPORTS

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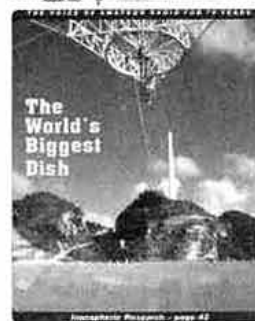
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Radio Communication



#### COVER PICTURE:

Take a look at the size of the buildings in the background of this month's cover. Now look at the dish. This is no trick photography: the dish is one kilometer in diameter! Located at Arecibo, Puerto Rico, the dish is used for ionospheric research. See *Ionospheric Research by Radar*: Page 42.

PHOTOGRAPH: AJ0N.

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# RADIO SOCIETY OF GREAT BRITAIN

THE NATIONAL SOCIETY WHICH REPRESENTS UK RADIO AMATEURS  
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**PATRON: HRH PRINCE PHILIP, DUKE OF EDINBURGH, KG**

Membership is open to all those with an active interest in radio experimentation and communication as a hobby. Applications for membership should be made to the Membership Services Department from which full details of Society services may also be obtained.

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**Trophies manager: Bob Harrison, G4UJS**

**VHF manager: Dave Butler, G4ASR**

**Society historian: G R Jessop, G6JP**

**Intruder watch (IARUMS): David Owen, G0OES**

**Morse practice co-ordinator: Mike Thayne, G3GMS**

**Audio visual library co-ordinator: David Simmonds, G3JKB**

**QSL Bureau Liaison Officer: John Hall, G3KVA**

Correspondence to honorary officers should be passed directly to them (QTHR), not to RSGB HQ.

## ANNUAL SUBSCRIPTION RATES

**Corporate Members: UK and Overseas (Radio Communication sent by surface post): £30.00. Airmail rates on request.**

**UK associate member under 18: £15.00. Family member: £12.00**

**Corporate (Concessionary): £25.00 over 65 or full time student under 25. (Applications should provide proof of age at last renewal date and/or include evidence of student status.)**

**Affiliated club or society/registered group (UK): £15.00 (including Radio Communication). (Subscriptions include VAT where applicable.)**

Special arrangements exist for blind and disabled persons. Details are available from RSGB HQ.

Membership application forms are available from RSGB HQ

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## The RadCom Leader



LET ME FIRST SAY how pleased I am to be here. Before the 'buzz' goes around on 'packet' I will give you brief details of my career, to date.

I joined the Royal Navy as a Junior Radio Operator in 1964 leaving the service in 1990. My experience covers all aspects of communications from CW to satellites, so hopefully we speak the same language. For the past two and a half years I have been employed by M B Caradon plc as a Contract Manager.

I have taken over at a time when the Society is taking stock of the last 79 years, a period of great technological change in communications modes and equipment. There have been many changes, too, in the workplace where marketing and management trends have altered and also the amount of leisure time one has and how one spends it.

Last month's Strategy Conference at the University of Warwick was designed to look into the future. It has provided us with a wealth of ideas and discussion points which now need to be harnessed to take a strong Society into the 21st Century.

It is obviously too early to see positive results from these discussions but I have no doubt that exciting and challenging times are ahead of us all.

I am very much aware of the responsibilities of the HQ to you, our members. Quality of service is all important, and my staff and I are committed to ensuring you have a friendly, professional HQ, providing the membership with a high degree of customer service.

I am also very aware of the history of the RSGB and consider it to be an honour to be appointed your new General Manager. I hope over the next few months to be able to attend a number of rallies to get to know you and to 'talk shop', something I know all communicators like to do.

**Peter Kirby**  
**HQ General Manager**



Tall Ships return to Liverpool in 500-year celebrations

# Commemorating Columbus

● GB0AAF will operate 14-16 August from Langford House, Co Antrim (NI) to celebrate the 50th anniversary of the commissioning of Station 597 there. 597 was a vital repair and research base for the US 8th Army Air Force during WWII. Listen on 3.760, 7.070, 14.260, 21.260, 28.260 and 144.260MHz. Details Colin Tait, G17CML, QTHR.

● FROM 9 to 31 August, GB17USA will operate from the disused airfield at Bovingdon, nr Hemel Hempstead, Herts, to commemorate the 50th anniversary of the B17 bomber's arrival in the UK. RAFARS members are needed as operators; for further details contact Terry, G4PSH, QTHR; tel 0296 85760.

● GAREX hold an Open Day Sale on Bank Holiday Monday, 31 August, from 10am to 2.30pm. Garex is located in the old Station Yard at South Brent, well signposted from the A38 between Exeter and Plymouth. For further information telephone: 0364 72770.

● GB2WV commemorates the 40th anniversary of the beginning of the domestic television service in Wales on 15 August. Operation will be on all HF bands and a special QSL is available.

● IRELAND (EI) has been included in the list of countries covered by CEPT T/R 61-01. This means that a reciprocal licence is no longer required for short term visits.

● THE MINIMUM age for applications for EI licences has been reduced to 14, bringing Ireland into line with most other European countries.

● RNARS has a new Merseyside (HMS Plymouth) Group. More members are needed; for details contact Fred Jones, G8HTP, QTHR.

● GB3HB, the St Austell UHF repeater, will be off the air until September whilst an overhaul takes place. Details, G3IGV.

● ESTONIA BECAME the 168th member of the ITU on 22 April. Lithuania and Latvia joined last year.

● LRMD, the Lithuanian Amateur Radio Society has become the 129th member-society of the IARU.

● GB2MRI is the call of an expedition to Rathlin Island taking place 5-9 August.

**T**HE WIRRAL and District ARC will be operating GB8TS from 13 to 16 of August when tall ships from all over the world visit the Port of Liverpool whose original success was based on craft such as these. Over 70 sailing ships, operating as part of the Grand Regatta Columbus '92, will have completed the final transatlantic leg of the four-month event which celebrates Christopher Columbus's historic voyage of 500 years ago.

GB8TS will be located at Perch Rock Lighthouse, New Brighton, a 90ft tall marble replica of a classic Eddystone design which has guided ships past the rocks where it stands at the river mouth since 1830.

## Vantage Point

LOCATED AT the northern tip of the Wirral Peninsular, the lighthouse provides probably the best vantage point to see the ships both in the river and sailing in and out of Liverpool Bay. The club is grateful to the owner Norman Kingham for permission to use such a good site. Mr Kingham also owns the adjacent Fort Perch Rock, built at the same time to defend to Port at the time of the Napoleonic Wars.

An inverted doublet will be fixed to a stake in the sand with enough guy rope to keep



New Brighton Lighthouse, the site for GB8TS, and Fort Perch Rock are situated at the mouth of the River Mersey.

the end out of the water at high tide. This should allow most HF bands to be used. A dual-band VHF/UHF collinear will be fixed to the safety rail outside the lamp-room. The WAB number is SJ39 and QTHL is IO83LK.

## VHF Articles

TO MAINTAIN a good balance of interests in *RadCom*, a pool of VHF features is required, preferably construction articles. Short 'weekend projects' are the most popular - the sort which will go into no more than two or three pages of *RadCom* - though all types will be considered.

If you are interested, write for a *Style Guide* to: Erica Fry, RadCom, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

## HQ Library

PART OF THE refurbishment of the Headquarters building involved housing properly the Society's large collection of books, magazines and documents, many of which are of great historical interest.

Any member may make use of the reference library during normal office hours and photocopying facilities are available for a small fee.

● Flight Refuelling ARS celebrated its 10th anniversary in May.



Chairman of the Wirral and District ARC Ron Cairns, G3HFA, literally takes to the air, assisted by Secretary Vic Allen, G4UDR, while inspecting New Brighton Lighthouse for GB8TS.

**MORE NEWS  
AND REPORTS  
ON PAGE 8**



# RSGB'92

THOUSANDS FLOCKED to the National Exhibition Centre in May to visit the RSGB's National Amateur Radio Convention. Here's what it looked like.



LAC Chairman John Bazley, G3HCT, (right) talks to Past President Fred Ward, G2CVV.



Ian Cornes, G4OUT, VHF Awards Manager, dispensing advice on the VHF Committee Stand.



The impressive main entrance to the NEC's Hall 7.



Harold Fenton, G8GG, at your service.



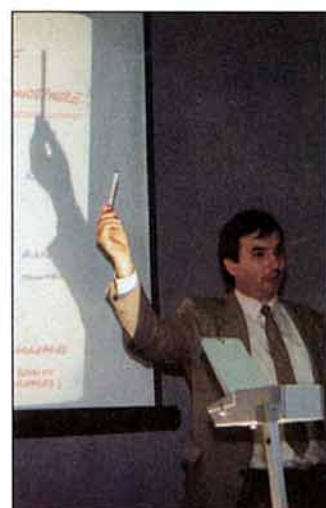
The Scouts try out their test gear.



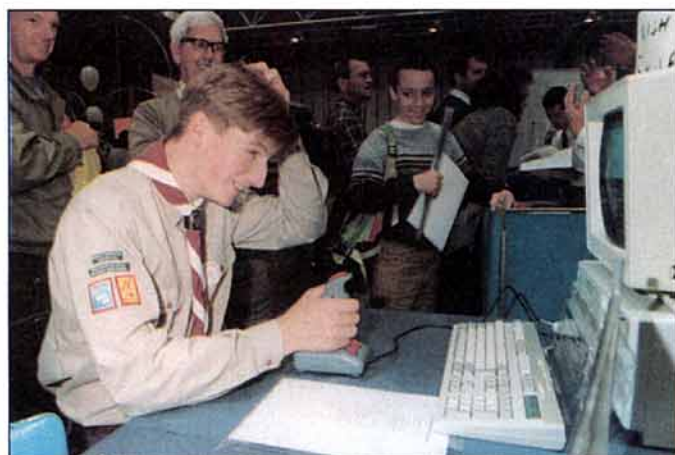
The HF Contests Committee put on a 'live' station, GB1RS, participating in the CQ WPX CW contest. Chairman Dave Lawley, G4BUO, is operating.



Helen and Tony Johnson are happy to demonstrate the loop antennas of AAA Limited. The one in the background is for the LF bands.



"The ionosphere is up there . . .!" Weather man Jim Bacon, G3YLA, delivered one of his popular lectures on radio propagation.



Amused onlookers watch a member of the Northampton Scout amateur Radio Group struggle to land an airplane using the ATC's flight simulator.



Novice Rowena Gaskell, 2E1AAL (right), assists a friend to build her first electronic project on the Guiding stand.





Bob, G7KOQ, of the Military Communications Museum, demonstrates how one of his historic radios should be used.



The SRP Trading stand where Stuart Plested offered the Sangean ATS-803A at a bargain price . . . .



. . . . or, like William Mark Jaggard, aged nine, you could win one in the D-i-Y Radio subscribers' draw.



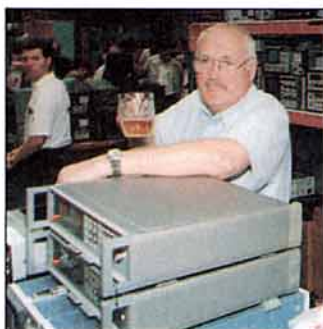
Celia and Les Hawkyard, G5HD, with their popular badge-making machine.



Great interest is shown in the ICOM (UK) stand.



The three editors: Mike Dennison (*RadCom*); Rob Mannion (*PW*) and Sheila Lorek (*HRT*).



"I'm only here for the beer" — Brian Curtis of M & B Radio has a working lunch.



The view of the show from behind the Lowe Electronics stand.



Jandek's Derek Pearson, G3ZOM, exhibited his wide range of amateur radio kits and components.



To greet Novices and beginners were: (left to right) Esde Tyler, G0AEC, Hilary Clayton-Smith, G4JKS; and Joan Case.



## Council Elections 1993

THE COUNCIL is the governing body of the Society and is responsible, on behalf of the Society's members, for the conduct of the Society's business.

Much of this work is delegated to a number of sub-committees who deal with the various aspects of amateur radio and the financial affairs of the Society. However, the overall supervision of these committees and the Headquarters staff and functions, lies with Council.

Council meetings are held every two months in London and election to Council presupposes a commitment to attend. In addition, Council members are expected to deal with individual members' problems and generally represent the Society and its policies through attendances at various functions and liaison meetings.

Because of the size and complexity of the Society's activities, it is hoped that members with substantial management experience, together with a proven track record of involvement in amateur radio matters, will feel able to put themselves forward for election and participate in progressing the work of the Society.

The Society is going through a period of radical change and never was it more imperative that candidates of the right calibre volunteer their services in the cause of amateur radio.

### Qualifications for Election

- (a) A candidate for election must have been a Corporate Member of the Society for at least three years at the time of nomination.
- (b) A candidate for election must submit:
  - (i) Written consent to accept of office if elected
  - (ii) If appropriate, a signed statement that he or she is over 70 years of age or will become so during the term of office if elected.
  - (iii) A declaration of any commercial interest in amateur radio.

### Nomination Procedure

- (a) Each candidate must be nominated by at least ten current Cor-

porate Members. In the case of Zonal candidates all nominators and the candidate must reside in the Zone concerned.

- (b) Nominators may nominate one candidate only.
- (c) Nominations may be made on supplied forms or a plain piece of paper. Nominators should state their address in full and sign the nomination.

### Additional Information

#### (a) Candidates

To assist the membership in voting, candidates may find it helpful to supply a brief statement of not more than one hundred words covering their experience and qualifications in support of their candidature, paying particular reference to their involvement in amateur radio. In addition, candidates may also supply a personal statement of not more than one hundred words. This latter option is intended to allow the candidate the opportunity to state why he or she wishes to stand for Council and what he or she hopes to achieve if elected. Any outrageous, inflammatory or nonsensical claims will be edited as elected members are expected to serve as part of a team.

#### (b) Nominators

Nominators may wish to supply details of how long they have known the candidate and supply any relevant information in support of their nominee.

The indications are that there will be at least five vacancies on Council in 1993. Three of these will be Ordinary vacancies and there will be two Zonal vacancies, one for Zone G (Scotland) and one for Zone C (South East England). There is also a possibility of a vacancy in Zone D (South West England).

A list of those Council Members who retire and create vacancies at the end of 1992 will be published in the September issue of *RadCom*. However, those who wish to seek nomination may write to Headquarters now for the necessary forms to assist with their nomination.

Please address your request to '1993 Council Elections', Radio Society of Great Britain, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE.

*J C Hall OBE, G3KVA,  
 Company Secretary*

## RadCom on Tape for the Blind

THE SOCIETY is now in a position to offer *RadCom* on cassette for the benefit of blind members.

In order to assess the demand, and to set up the administration of the system, would those members interested in receiving their *RadCom* by this method please write or telephone Mrs Janet Cragg at RSGB HQ.

The cassette will be free to those members who voluntarily pay the full corporate subscription but a nominal charge of £10 will apply to those members who take advantage of the free membership rate for the blind.

The cassette will be published at the same time as the printed version.

## RSGB Members Honoured



OBE: Barney Patterson, G13KYP.



OBE: Helen Sharman, GB1MIR.

A PAST President of the Society was awarded the OBE in the Queen's Birthday Honours List. Barney Patterson, G13KYP, who was President in 1967, received the honour for public service.

British astronaut Helen Sharman, who is an Honorary RSGB member because of her GB1MIR operation, also received an OBE. Congratulations to them both.

## Rally Thieves Beware!

DURING THE past year, amateur radio retailers have not only been hit by the recession but have been subject to a number of high-value thefts at rallies and shows. A new initiative put into action at the RSGB'92 show provided dramatic results within 30 minutes of the show opening.

Paul Martin, G0AAF, working on the Nevada Communications stand initiated a sequence of events which enabled Nevada's Managing Director Mike Devereux, G3SED, to challenge a suspect within minutes of an alleged theft with the help of the NEC security staff.

The alleged suspect was arrested and taken away for interview by the police. At the same time, as part of the new initiative, NEC security staff put into operation an undercover plan enabling

the detention of an accomplice who had been using the 2m band to keep in contact with the suspect. Two handheld transceivers valued at over £600 were recovered from the first suspect.

Mike Devereux commented that the dealers were determined to crack down on the increasing number of thefts from stands at shows and rallies. "Ultimately it is the customers who have to bear the cost of such thefts", he said. "Paul Martin's action, combined with that of the NEC security staff, provided that the new initiative worked well. I was particularly impressed with the undercover operation carried out by the NEC security staff that trapped a further suspect within 10 minutes of the operation beginning. I have just one word for potential thieves at shows - beware!"

## Volunteer Examiners Wanted

ROY CLAYTON, G4SSH, the RSGB Morse Test Service's Chief Examiner, reports forthcoming vacancies for Examiners in Bedfordshire and Tyne and Wear. Basic qualifications required by the RA are the ability to receive at a minimum of 20WPM, and to send typical examination test passages at 12WPM. The Society is looking for people who can

additionally demonstrate an ability to deal with nervous candidates on a professional and helpful manner. Anyone living in these areas who are interested in joining the RSGB Morse Test Service should contact Roy Clayton at 9 Green Island, Irton, Scarborough, North Yorks YO12 4RN. Tel: 0723 862924. Interviews will be arranged locally.

## GEC-Plessey Supports YEAR

THE SOCIETY has received substantial support in its efforts to promote Project YEAR (Youth into Electronics via Amateur Radio) by a generous donation of radio integrated circuits from GEC-Plessey Semiconductors Ltd. These devices will be available free with a future copy of *D-i-Y Radio* magazine, in which details of a suitable project will be published. *D-i-Y Radio* is the RSGB's magazine for beginners of all ages. The Society thanks GEC-Plessey Semiconductors for their assistance and practical support for Project YEAR and Novice amateur radio.



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Watch this space for more news, 73's, Chris G8GKC, Gordon G3LEQ & John G8VIQ.

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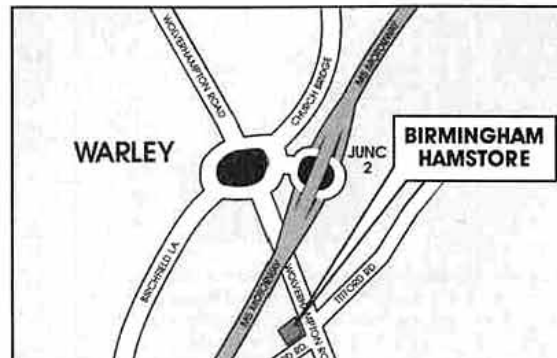
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FT-101ZD 160-10m	£399.00
FT-DX-401 Old but works!	£99.00
FT-DX401 Not working	£49.00
KW-204TX	£89.00
FT-221 2m all mode base	£269.00
R-72 Receiver	£499.00
Liner-2 2m SSB	£69.00
HT-106 6m SSB transceiver	£199.00
TR-715E 2m all mode	£449.00
IC-2E 2m handy	£139.00
R-2000 Receiver	£359.00
Converter for 118-174MHz	£79.00
ICR-7600 25-2000MHz	£599.00
FT-203 2m handy	£139.00
FT-411 2m handy	£179.00
TR-2600E 2m handy	£149.00
IC-3210E dual band	£299.00
FT-727R dual band	£229.00
Carriage at cost. 3 month warranty.	

Send for latest list.

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**VHF/UHF  
All with "N"  
connectors  
"THE BEST"**

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20804 4 el	£32.00
20808 4 el	£41.00
20809 9 el	£39.00
20809 9 el	£39.00
20822 11 el	£95.00
20813 13 el	£55.00
20817 17 el	£69.00
<b>70cm</b>	
20909 9 el	£33.00
20919 19 el	£40.00
<b>23cm</b>	
20623 23 el	£39.00
20655 55 el	£55.00

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Peter Waters G30JV/G0PEP

**MFJ 1278 Multi mode  
Data Controller**

**£279**



The MFJ-1278 has taken the USA by storm and is now available in the UK from stock. For the first time you get nine modes in one box! Use it for Packet, FAX, AMTOR, SSTV, RTTY, Navtex, ASCII, Electronic keyer, CW reader. Probably the most advanced modem ever offered. Now you can spend hours experimenting with the various modes, all at a very modest price and all in one box. Send today for the full details.

**MICROSET POWER SUPPLIES  
&  
LINEARS**



**MAST HEAD PRE-AMPLIFIERS**

PR-145	2M 100 Watt 16db gain — 0.9db NF	75.00
PR11-145	2M 500 Watt 18db gain — 0.9db NF	109.00
PR-430	70cms 100 Watt 15db gain — 1.2db NF	85.00

**MICROSET POWER SUPPLIES**

PT-107	7Amp 13.5V fully protected (from meter)	49.00
PT-110	10Amp 13.5V fully protected (from meter)	69.00
PT-110	10Amp 13.5V fully protected with meter	89.00
PT-120	20Amp 13.5V fully protected (from meter)	119.00
PT-120	20Amp 13.5V fully protected with meter	149.00
PT-135	30Amp 13.5V fully protected (from meter)	149.00

**AMPLIFIERS (with GaAsFET Pre-amps)**

R-25	2m 1.4W in 30W max out SSB/FM	79.00
RV-45	2m 3.15W in 45W max out SSB/FM	99.00
R-50	2m 1.7W in 50W max out SSB/FM	99.00
SR-100	2m 4.25W in 100W max out SSB/FM	159.00
SR-200	2m 10.50W in 200W max out SSB/FM	289.00
V1R-30	2m/70cms 1.6W in 20/30W max FM	229.00
R1-20	70cms 0.8-1W in 15-20W max out SSB/FM	119.00
R-432-90	70cms 6-12m 80-90W max out SSB/FM	389.00

**Ten-Tec OMNI-VI**

Coming soon is the all new Ten-tec OMNI-VI hf transceiver. It includes such extras as Digital signal processor, Automatic notch filter, programmable CW offset, oven stabilised xtals, "Sport" PC interface, new RIT control, 100 memories, fast CW break-in and superb receiver front end. This promises to be the most professional transceiver ever offered to the ham radio market.  
Price £1995 inc VAT.

**AMERITRON HF LINEARS**

**NEW**

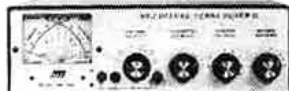
**600 Watts  
£699!  
AL-811**

This linear is incredible value. We have put it through its paces and it really stands abuse. 3 rugged 811A tubes provide up to 600 Watts output from 160-10m. A hunky mains transformer and full metering is included. Used by DX-peditors it has to be amazing value at  
**£699 inc VAT**

**AL-80AX 1kW from 160-10m 3-500z tube. £1099.00**  
Other Ameritron linears are available. Send SAE today.



**MFJ Products from Stock!  
300W  
HF ATU**



The MFJ-948 is a complete 300 Watt aerial matcher in one box. It will match coaxial, balanced feeder, and single wires. A dual needle VSWR/Power meter makes adjustment simple and a 3-way aerial switch completes the package. Fantastic value! **£129.00**

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MFJ-260H	300W dummy load DC 160MHz	35.95
MFJ-816	11L 30/300 Watt power meter	31.95
MFJ-812B	144MHz 30/300 Watt power meter	31.95
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MFJ-207	Antenna-analyzer. Brilliant idea!	99.95
MFJ-557	Self contained CW practice key and oscillator	29.95
MFJ-407B	Electronic keyer. 8.5 WPM Self powered	79.95
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BY-1	Genuine Bencher Paddle. A precision product	69.95
MFJ-704	HF Low Pass Filter	39.95
MFJ-108B	Dual time deck top lock. LCD Display	19.95

**Ten Tec  
Argonaut  
£995**



We are now able to offer the latest Ten Tec Argonaut II at a new factory direct low price. This follows on from Ten Tec's new marketing policy to offer even better value for money. This 5 Watt all mode transceiver has a host of features including general coverage receiver. Ex stock.

**DIAMOND**

**VSWR/POWER METERS**

SX-100	1.6-60 MHz, 30w-300w 3kw	97.00
SX-200	1.8-200 MHz, 5-20-200 watts	69.00
SX-400	140-525 MHz, 5-20-200 watts	79.00
SX-600	1.8-525 MHz, 5-20-200 watts	125.00
SX-1000	1.8-1300 MHz, 5-20-200 watts	165.00
SX-2000	1.8-200 MHz, 5-20-200 watts AUTO	95.00
SX-9000	1.8-160 & 430-1300 MHz, AUTO	190.00

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CP-4	10-15-20-40m vertical with radials	149.00
CP-5	10-15-20-40-80m vertical with radials	199.00
CP-6	6-10-15-20-40-80m vertical with radials	219.00
D-130N	Discone 25-1300 MHz 50 FT cable	84.95
CP-22E	2m 2 x 5/8 6.5dB gain omni directional	49.00
D-707	Active rx. 1.5-1300 MHz 12V	99.00

**FIBREGLASS VERTICALS**

X-50	2m/70cms 4.5/7.2db gain 1.7m long	59.95
X-300	2m/70cms 6.5/9db gain 3.1m long	99.00
X510N	2m/70cms 8.3/11.7db gain 5.2m long	129.00
X-700	2m/70cms 9.3/13db gain 7.2m long	219.00
V-2000	6m/2m/70cms 2.15dbi/6.2dbi/8.4db 2.5m 99.00	
X-5000	2m/70cms/23cms 4.5/8.3/11.7db 1.8m	109.00

**MOBILE ANTENNAS AND MOUNTS**

NR-2000M	23cms/70cms/2m mobile whip PL 259	49.95
D-505	Active rx antenna 1.5-1300MHz 12v	69.00
NR-770R	2m/70cms whip PL 259	35.00
NR-790	2m/70cms 4.5/7.2 db gain 100 Watts	48.00
SG-7900	2m/70cms whip 5.0/7.5 db supergain	68.00
EP-211E	2m 1/4 wave whip PL 259	6.95
M-285	2m 5/8th whip PL 259	16.95
EL-2E	2m 7/8th deluxe whip PL 259	33.95
NR-07C	70cms mobile whip PL 259	25.00
AM-1	Gutter mount fold over type	12.95
I-C-11	PL 259/SO239 cable kit for D3P-G1	9.95
SP-M	Heavy duty magnetic mount with cable	25.95

**"HARI"**

**HARI WINDOW**

**NO TRAPS  
NO ATU  
COAXIAL FEED**

**80-10m model**

**80-40-20-17-12-10m bands**

**40-10m model**

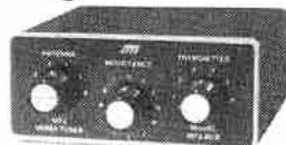
**40-20-10m bands**

**1 KW or 200 W versions**

40-Wind-LP 40/20/10m 200W 21m	£49.95
40-Wind-HP 40/20/10m 1kW 21m	£59.95
80-Wind-LP 80/40/20/17/12/10m 42m	£55.95
80-Wind-HP 80/40/20/17/12/10m 42m	£69.95



### Amazing ATU Bargain £69.95



- 160-10m
- 200 Watts
- Coax feed
- Balanced feed
- End fed wire
- 50 Ohm match

Many hf stations would benefit from an ATU. The kind that go inside rigs are fine but they won't handle long wires and balanced feeders. If you are using a G5RV, end fed wire, Zepp, wire dipole on the LF bands or narrow band antenna system, the MFJ-901 is the most cost effective way of properly matching and tuning the system. You'll also get less harmonic output and have a more efficient radiating system. Order MFJ-901B

### RSGB Books By Return ...

Amateur Radio For Beginners	£3.50
Amateur Radio Operating Manual	£6.95
UK Amateur Radio Call Book	£6.95
HF Antennas For All Locations	£7.25
How To Pass ARE	£6.75
Log Book For Mobile Operators	£1.99
Morse Code For The Radio Amateur	£3.75
Practical Wire Antennas	£7.95
Radio Amateur's Exam Manual	£6.75
Log Book For Receiving Stations	£4.00
Log Book For Transmitting Stations	£2.50
VHF/UHF Manual	£10.24

### Special Publications

Complete Guide to VHF/UHF	£5.95
Marine Frequency Guide	£4.95
Secret Of Learning Morse	£4.95
HF Oceanic Airband Guide	£3.95
QRA Locator Map (Colour)	£5.95
World Prefix Map — New (Colour)	£5.95
SWL Frequency List 1-30 MHz	£8.95
VHF/UHF Airband Guide 4th Ed	£6.95
World Radio & TV Handbook 1992	£18.99
Mastering Packet Radio	£9.99
Add £1 post per book £2 max.	

### Special Purchase!

#### Twin Needle HF VHF/UHF Power Meters

£69.95  
p&p £3



Choice of two models. The HF version covers 1.8-30MHz with forward readings of 200/2000 Watts and the VHF/UHF version covers 2m & 70cm with forward readings of 20/200 Watts. Peak and average readings are available and twin needles make it easy to monitor power and VSWR without switching. **HF order 815B VHF/UHF order 817 + free patch lead.**

### NEW! ALINCO

**DR-119E 2m Mobile**  
50 Watts  
£289  
RX: 135-174MHz



The latest 2 metre mobile from ALINCO now offers superb value. No larger than a car radio it boasts 50 Watts output and extended receiver coverage. Completely re-styled it offers all the usual features including memories, scanning etc, and comes with microphone, mounting kit and full warranty. For more details send or phone for brochure.

### NEW! ALINCO

**DR-599E 2m/70cm  
Dual Band  
Transceiver**  
£549  
RX: 130-174MHz  
AM: 108-143MHz  
420-470MHz



Just arrived, this is the replacement for the DR-590E and has been radically updated. It now includes the AM VHF airband and extended receive capabilities. Also included is the automatic remote repeater function enabling you to operate your own cross-band repeater. Power has been increased to 50 Watts per band and we have the full colour brochure available for the asking.

## Mobile Bargain of the Year!

£219!

Carriage £5 extra



Money back guarantee if not fully delighted upon receipt!

- Compact for modern car
- 14 memories
- Rotary frequency control
- Up/down microphone
- 6 programmable steps
- Reverse repeater
- 4 scanning modes
- High/low power output
- Rx 130-174 MHz

If you know a bargain when you see one you will surely be on the phone to our mail order department immediately. This special offer from ALINCO puts the DR-112EM at the top of any shopping list. These are brand new factory fresh radios direct from Japan with full UK warranty. There's absolutely no catch. Check our earlier adverts and you will see we were selling them for £50 more a few months ago! The price is right and these are real bargains. But the stocks are limited to what is in our warehouse. Once they are gone there is no more. To really convince you, we are offering a full, no quibble, refund if you are not absolutely satisfied when you receive your DR-112EM. That's confidence!

### NEW Packet Radio Kit

£49.95  
p&p £2.00

Ramsey — USA  
P-IBM

- Powered directly from RS-232 port.
- Includes free software for IBM



This is a truly amazing kit for all those who want to get into Packet radio without committing themselves to a large outlay. The complete kit of parts is provided with circuit, board layout and comprehensive manual. It can be put together in an evening. All you need is an RS-232 lead to your computer and cable connection to your transceiver mic socket. You'll be receiving and sending Packet signals in no time at all. If you haven't tried Packet radio, here's your chance to do so with minimum outlay and guaranteed results.

### Dual 24 hour/12 hour Station Clock

£19.95  
p&p £2.00

Ideal for all ham stations, this large LCD clock gives both local and distant times. Completely self contained and battery powered it has a smart satin finish.



### Digital HF Antenna Analyzer MFJ-247

£189.95  
Post Free  
1.8 to 30MHz



This amazing instrument enables you to tune your antenna system in minutes. It has built-in rf generator, frequency counter and meter. All self contained, simply connect to antenna system and watch the effect as you make adjustments in the garden. Amazing!

# New Rigs! Terrific Trade-ins!

## MIDSUMMER MOBILE MADNESS



The TM-741E fitted for 2m and 70cm + optional 10m or 6m module.

Normal price £974.

Our Midsummer package

only **£799.**

Saving £175.

# LOOKIN AT

## THE NATION'S No.1 AMATEUR

### BENCHER is BACK.

We are very pleased to announce that Bencher keys are once more available in the U.K.. Keen CW operators have always said that Bencher keys are a joy to use, and they are equally nice to look at. Choose from the single paddle ST range or the twin paddle iambic BY range. You will never regret owning Bencher quality engineering.

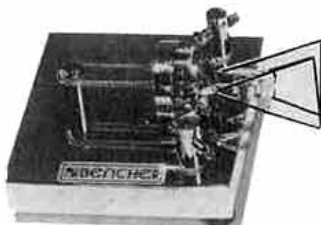
- BY-1 Iambic paddle, black base . . . £59.95
- BY-2 Iambic paddle, chrome base . . £69.95
- BY-3 Iambic paddle, Gold plated . . £199.95
- ST-1 Single paddle, black base . . . £59.95
- ST-2 Single paddle, chrome base . . £69.95
- ST-3 Single paddle, Gold plated . . . £199.95

Also in the Bencher range, the ZA-1A 5KW balun, probably the best in the world.

- ZA-1A 1:1 Balun. 5KW peak . . . . . £24.95

And the YA-1 HF low pass filter, which has a stop band attenuation of better than 80dB and a power handling capability of 1.5KW continuous/5KW peak. Fit it and forget harmonics

- YA-1 1.5KW low pass filter . . . . . £39.95



Why not call in and Test Drive a Bencher Key NOW?

P.S. On looking through an old 1986 price list, I noted that the price of the BY1/ST1 was £67.42 and the BY2/ST2 was £76.97. So, things do go down in price!

### Power Supplies

Bill Lowe always said that good gear at a fair price would always please the customer, and you can't get a better deal than the EP-925.

Practical Wireless review (May 1992) said "A good quality p.s.u. which is sensibly priced"

3-15Vdc Variable, 25Amp Continuous, Temperature controlled Fan and Still

Only **£99**



EP-925

Full Range of Accessories, Aerials, Books and Second Hand Gear



# Package Deals

The TM-741E is remarkable. It combines 2m and 70cm bands in one package, with space for the additional option of either 10m, 6m, or 23cm units. Transmitter output is 50W on 2m, 35W on 70cm, and 50W on 10m or 6m, with 10W on 23cm. For installation ease the front panel pops off and can be extended with the optional cable kit - rig under the seat, front panel on the dash.

Receiver coverage can be extended to cover a very wide range including VHF airband (AM), and operationally the TM-741E is the easiest rig to use we have come across, which is a refreshing change from the multi-button jobs of the recent past. As Chris Lorek said in his HRT review, "Even with the set's many operating modes, I found I was using it quite successfully within minutes of switching it on - even programming the memories was very straightforward."

TM-741E normal price....£759

UT-28 10m module.....£215

UT-50 6m module.....£215

# LOWE'S RADIO RETAILERS!

News from the far-flung corners

## LOWE-KW The network strengthens!

With KW Communications now playing a major role in the Lowe network, existing and new customers in the south east have an unparalleled source of equipment and good friendly advice. Couple this to the excellent standards set by the Lowe technical department and you realise that no-one else can offer this level of choice, service, and value for money.

You are probably familiar with Lowe's traditional product range: Kenwood, Kantronics; RF Concepts; Maldol; Bencher, et al, but at KW you can add ICOM, Yaesu, Alinco, Cushcraft, MFJ, AEA, Tonna, and many others. Everything you may want all under a single roof, and all with the Lowe backing.

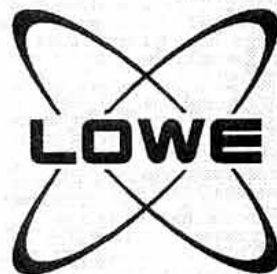
Because I believe in showing everything working (how else can you choose), I am prepared to back it all with my name, and have created "Tom's Shack" in the showroom. Everything carrying the "Tom's Shack" recommendation has been chosen using the following criteria:

*Technical excellence  
Solid reliability  
Ease of operation  
Plain good value for money*

When you buy a "Tom's Shack" product, rest assured it will be a rig I would be happy to use in my own shack, be it new or secondhand.

To celebrate the joining together of the two longest established names in the business, KW customers are urged to visit the showroom near Maidstone over the next few weeks to find out how they can immediately benefit. I have something for you! It won't cost you anything but you must call in to get it.

73 Tom, G6PZZ  
Chatham Road, Sandling, Nr Maidstone, Kent ME14 3AY. Tel: 0622 692773 Fax: 0622 764614



**BUY LOCALLY  
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**DERBYSHIRE Main Showroom**  
CHESTERFIELD ROAD, MATLOCK,  
DERBYSHIRE. DE4 5LE Tel: 0629 580800

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6 Cherwell close, Langley, Slough,  
Berks. SL3 8XB Tel: 0753 545255

**LONDON**  
223/225 Field End Road, Eastcote,  
Middlesex. HA5 1QZ Tel: 081 429 3256

**BOURNEMOUTH**  
27 Gillam Road, Northbourne, Bournemouth.  
BH10 6BW Tel: 0202 577760

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Albert Road, St Philips,  
Bristol. BS2 0XW Tel: 0272 771770

**CAMBRIDGE**  
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**CUMBERNAULD**  
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Scotland. G68 0HH Tel: 0236 721004

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**HF NEWS**

**JOHN ALLAWAY G3FKM**  
10 Knightlow Road, Birmingham  
B17 8QB

**A** WONDERFUL example of goodwill and international cooperation has just been concluded. Those of you who follow the Society's Commonwealth Contest may have found problems recently due to the fact that it was sharing a weekend with the Japanese 59 magazine contest. An approach was made via IARU Region 3 and JARL and I am happy to say that due to their help the problem has been resolved. The HF section of the Japanese contest has now been moved to the second week-end in April and the LF section to the second weekend in January - leaving 'BERU' weekend free.

When I write out rules and results of contests I often notice the extremely low level of listener participation and this puzzles me. Nigel, G3TXF, recently wrote to *RSGB DX News Sheet* giving his opinion that the best amateurs were those who had spent an apprenticeship as short wave listeners. I'm sure that he is right - listening can be fun and is really the only way to learn what to do and what not to do when you get on the air! So why not send in an entry or two to a contest? In view of the low level of interest it shouldn't be too difficult to win a certificate - and as for brushing up your Morse . . . .

### 1992 SEANET CONVENTION

THIS WILL take place in Darwin in the Northern Territory of Australia from 29 October to 1 November. It promises to be a most enjoyable and entertaining event if it follows previous form, and if you can possibly be there it's worth a visit. Reports of previous ones speak in glowing terms! Anyone interested please send me an SAE for details.

Another convention which takes place in Bordeaux on 19-20 September is the Clipperton DX Club event. This is an interesting weekend and includes a 'DX dinner' etc. More information can be obtained from Paul Grainger,

F6EXV, 4 Impasse du Doyen Vizioz, F-33400 Talence, France.

### DX NEWS

THE TV9CEE group will be climbing **Mont Blanc** between 1 and 23 August with the actual ascent taking place between the 10th and 20th. They will be on the air from the base camp on 7.090, 14.120, 21.420, and 28.420MHz (SSB), 7.005, 14.005, 21.005, and 28.005MHz (CW), and 3.735, 14.235, 21.340, and 28.680MHz (SSTV). The altitude camp (at 3297m) will transmit on 14.030, 21.030, 28.030, 14.192, 21.192, and 28.492MHz. A QRP (5W) transmitter will be used from the summit on 14.050 and 14.120MHz. A bulletin will be read each evening on 3.650MHz at 1800. They will also be on VHF/UHF/SHF.

The Heard Island DX Association is planning an expedition to **Mellish Reef** and **Willis Is** which may happen in late August or early September. The group will consist of six experienced operators who will spend seven days on Mellish Reef and three on Willis Is but these periods may be extended. Callsigns requested are VK9MM and VK9WW respectively. Operations will cover all bands - including WARC - and 50MHz and RTTY will also be included. Watch the HIDXA 14.222MHz net frequency for further information.

Bob, GM0DEQ, visited **Seychelles** in April and operated as S79DEQ from Mahe for twelve days and from Bird Is for two. He used a Mizuho 14MHz low power rig with an end fed zepp antenna and worked 20 countries (including the UK and the USA). QSL to GM3UWO (see *QTH Corner*). He is willing to advise anyone else intending to apply for an S9 licence.

WB8HWO is in **Somalia** for a few months. According to the *RSGB DX News Sheet* he originally used the callsign 4U1SOM but now uses T53UN. The same source says that TU4BI in **Ivory Coast** is active on Monday, Wednesday, and Friday mornings on 21.320MHz, and on Monday and Thursday evenings around 14.192MHz. G3GHY has told me that he received a message from 7P8SR in **Lesotho** to say that IRCs cannot be used there and that he cannot answer cards received enclosing them. His address is in *QTH Corner*. *Long Island DX Bulletin* reports D68JM, in **Comoro Is** to be active daily on 14, 21, and 28MHz with a preference for 21.412MHz

### BAND REPORTS

Thanks this time to G2VJ, G2HKU, G3s GVV, KKJ, G4s DBN, DJC, GW4KGR, G4s MUW, NXG/M, OBK, G0KDS and the UK DX Packet Cluster (via G4PDD). If you think that 1.8MHz isn't worth watching just now - see below (mostly courtesy G4DBN . . . .) Stations on CW are listed in italics:

#### 1.8MHz

0100 OY9JD, PT7JR, PY1RO, TU2MA  
0200 CX4CR, HF0POL, LU5JD, PY0FF  
0300 CE3FIP, CX4CR, PT7VB, Z21HS  
1800 BV2FA, VU2/VK2DXI  
2100 UA0QGM  
2200 4J1FS, 4K3OLL, 7X2DG  
2300 PT7BZ, UL7ACS, VK6HD, 4X4YM

#### 10MHz

0600 CO2PX, EA6/DJ8VG, JW0D, K6CH, PZ1DV, TK/G3PJT, VK, ZL  
0700 4K2MAL, G4SMC/BR1  
1900 S79CK/D, S79FT  
2100 HL1UA, ZA1TAH, 3B8CF, 4K3OUL, 5H3RA

#### 14MHz

0500 T30A, T32LN, V63DM, V73DA  
0600 FK8CP, FO4LJ, FW1FM, KH6FKG, NL7HH, ZA1TAJ, 3D2AG, 3D2ER  
0700 A35KB, CE0YFL, V73EU, VR6TC, VR6YL, YJ0AKV, 3D2XV  
1500 AP5HQ, 9M2FR, 9M8FH  
1600 JT7AA, XU8CW, XV7TH, XX9AS  
1800 KH7/KH6JEB, SU1MT  
2000 HS0AC, S92QM, 3X0HNU  
2100 FR/DJ8CR, 5X5WR  
2200 HS0ZAA, JT1BH, JU1T, P31A, P40WF, T53UN, 4J1FS, 9M8PV

#### 18MHz

0700 A35JM, AH6IP, V63BJ  
0800 B70AA, KH7/KH6JEB, OJ0/SM0NZZ  
1200 PJ8AD, V63BJ, OK1IAI/YA  
1300 VS6CT, XX9AW  
1500 C31HK, S92QM, 3B8FP  
1600 D68BD, S79FI  
1700 A22MN, BV2FA, UM8UBA, 8Q7PW  
1800 FR/DF3EC/P, TU2QW, XU8CW  
2000 KH6SB, KL7HF, S79CK/D, TT8ZU  
2200 FM5BH, O4BCZ, P4/W1XP  
2300 HC5AI, XQ0YAF, ZD8LII

#### 21MHz

0700 FK8CP, FR/DJ8CR/G, V51BI  
0800 JT1BV, KH3AE, KH6BZF, T20AA  
0900 A35KB, BY1BJ, KH7/KH6JEB, V73DO, 3C1EA, 4J1FS  
1100 KH8/JE8XRF, T30A, T30ZD, TR8GL  
1500 R20Y/UA0WW, V85PB, VP5P, XU8CW, 9M8DB  
1600 BV7CM, VQ9TW, XV7TH, Y11BGD, YK1AO, 5X5WR, 9M8BL  
1700 AP2MYC, FO/DJ8CR, HS0AC, VP8CKP, 5R8GW, 9M8AJ  
1800 BV3BH, KH7/KH6JEB, P40WF, TU4SR  
1900 FR/DJ8CR/G, SU1ER, TL8IM, V40ITU  
2000 A71BK, JA, S92QM, TJ1AB, XQ0YAF  
2200 JA, VK2XT

#### 24MHz

1500 A71BS, AP/WA2WYR, 5N0HBK  
1600 FS/W1PC, TZ6NU, 9M2AX, 9V1YW  
1700 S79FI, TT8ZH, XX9AW, 5H3RA  
1800 5Z0ZHK

#### 28MHz

1000 FH8CB, VK4QQQ, VK6CA, 4J1FS, 4S7DF, 9K2HA  
1200 A41KW, OY2VO, 9M8ZZ  
1500 FH8CB, HS0AC, Y11RJ, 7Z2AB  
1800 S01A, TU2XR, VP8's AQQ, CFM (S.Ork)  
2000 CE, CP, CX, FM5DS, HC, HK, J73VE, LU, OA, PY, ZP, Z27JV

### QTH CORNER

**KH8/G4ZVS** (see 5W1VJ).  
**S79DEQ** via GM3UWO, E Dahle, 7 Nursery Av, Kilmarnock, Ayrshire, KA1 3DP.  
**S92QM** M. Dehonin, Everestraat 130, B-1940 Sint Stevens Woluwe, BT, Belgium.  
**T30AA** (see YJ0AXV) (QSL direct only)  
**UOH** EUDXF, PO Box 62 02 60, D-5000 Koeln 60, Fed Rep of Germany.  
**V85KX** via G3JKX, 12 Ullswater Close, Priorslee, Telford, Salop, TF2 9RB.  
**YJ0AXV** VK2BCH, R Crosby, Box 344, Forster 2428, NSW, Australia (QSL direct only).  
**ZA1TAD** via IK2FCO, Alex Bruno, 11 via Monreale, I-20148 Milan, Italy.  
**ZK2VJ** (see 5W1VJ).  
**4J1FS** via OH2BU, Jari Jussila, Pilvijarvi, SF-02400 Kirkkonummi, Finland.  
**5W1VJ** via G4ZVJ, A Chadwick, 3 Park Villas, Monkhouse, Cheadle, Staffs, ST10 1HZ.  
**7P8SR** Box 333, Maseru, Lesotho.





A pair of Hans: Hans Berg, DJ6TJ, (left), and Hans Ehlers, DF5UG, represented the DARC at RSGB'92, the Society's Amateur Radio Convention at the NEC.

after 1730. Also mentioned is TU3SR in Ivory Coast who is found near 21.025MHz most days from 1530. According to RSGB DX News Sheet J5UAI has just been licensed in Guinea-Bissau. He holds an American novice licence and is still wary of pile-ups. He seems to prefer 21MHz CW but he has also been heard on 21.327MHz. G3NOM is in the Far East again. He began in May as HS0AC, was then hoping to become G3NOM/JT4, and then XU1NOM again from 29 July to 8 August. However, the last may be cancelled because of the political situation in Cambodia. Also reported from the same country is XU8CW who has been on 21MHz CW around 1500 and F6IRF/XU who usually operated 33kHz above lower band edges and will leave at the end of this month.

G4ZVJ will be on American Samoa as KH8/G4ZVJ between 12 August and 9 September, and on Niue as ZK2VJ from 26 August until 2 September. He will be active on all HF bands - mostly on CW - but also with some RTTY and AMTOR. He may also appear as 5W1VJ from Western Samoa for a short period. FO4OA is due to be on the air from Wallis & Futuna for more than a year.

The North Siberian White Water Expedition will take place from 22 July to 13 August and will be carried out by a group of amateurs from Udmurtia (Obl 095). The route taken will be from

Krasnoyarsk by ship down the Yenisey river to Turukhansk, then by helicopter to the Niznyaya river and by catamarans back to Turukhansk. CW and SSB will be used on 3.5, 7, 14, 21, and 28MHz. The callsign to be used is U0H.

Vince Lear (G3TKN/VO1XG) together with VO1MP will be visiting the islands of St. Pierre and Miquelon during early August and operating as FP/G3TKN and FP/VO1MP respectively. The hope to run two stations covering all bands 3.5 to 28MHz CW and SSB with special emphasis by Vince on 3.5 and 7MHz CW looking for Europe, and the WARC bands. Equipment is a TS950 and IC751A and one antenna, a Cushcraft R7 vertical loaned by Specialist Antenna Systems of Oswestry.

### LEBANON

ACCORDING TO RSGB DX News Sheet it has received a list of Lebanese stations which were properly licensed at the end of February this year. They are : OD5s AW, BE, BU, CN, CX, EI, EP, ET, EX, FB, FE, FG, FH, FI, FZ, GI, HC, HD, HO, HQ, HU, IG, IM, IZ, JA, JE, JI, JL, JM, JU, JW, JZ, KB, KJ, KO, KS, KV, KZ, MA, ML, MM, MP, MS, MU, NE, and OD5/SP1MHV and OD5/SP7LSE (who are with Polish UN forces). Apparently this list is one of members of RAL, the Lebanese radio society, and it is not clear whether non-members are in fact 'properly licensed'.

### ROUND THE WORLD TRIP

G3FNJ HAS sent the following information about SV1BTV which is the callsign of the 30ft craft *Kallipigos*. The ship has no en-

gine and an unusually tall mast for the rigging. George Girstis, aged 32, has been round the world before and has one crew member - Anna-Maria - who is an experienced sailswoman. There is also a cat! Solar cells will charge the batteries for the ICOM HF transceiver and the Sony general coverage receiver. There is also a wind driven generator. Vegetables have been planted on board and when the craft left port it carried 300l of fresh water and 100l of petrol for the 10hp outboard motor of the rubber dinghy. SV1BTV will be on 14.335MHz on the hour.

### AWARDS

#### SEVILLA UNIVERSAL '92

This is being issued by URE for the duration of Sevilla 92. It is for licensed amateurs and listeners and requires contacts/reports with or on Andalusian stations using special prefixes. Each AM7, AN7, or AO7 counts one point, each AM92, AN92, and AO92 two. The special station EF92EXPO counts as five points and must be worked/heard. Stations may be worked on different modes/bands but there must be 24hr between contacts. European stations need 75 points and QSOs between 6 May and 12 October are valid. Send QSLs via the bureau and your log to URE Sevilla, PO Box 479, CP 41080 Sevilla, Spain, no later than 31 December 1992. Please note that *this award is free* - please do *not* send IRCs or money.

#### SOCCER DIPLOMA

Issued by SK7BV, ABF:s Radio-club in connection with the European Football Championship. QSOs between 10 June and 31 December 1992 are required with SK7BV plus another from SM7, two from Gothenburg (SM6), one from Norrkoebing (SM5), and one with Stockholm (SM0). Send certified log extract plus ten IRCs to the club at Yatadavagen 22, S-214 30 Malmoe, Sweden.

### PROPAGATION

G8KG's COMMENT this time is "rather the mixture as before . . ." and his report goes as follows: "The steep decline in average solar indices continued throughout the second half of May and the first weeks of June with the daily solar flux values briefly dipping below 100sfu at the turn of the month and the 27-day average sinking to 120sfu at which point it had levelled off for the time being - at this time last year

it was well above 200. The Boulder A index was below 10 for well over half the period and there were no major geomagnetic disturbances so that HF band conditions were as good as could be expected with the lower levels of solar activity now being experienced. As was to be expected in our latitudes at this time of the year, sporadic E propagation was often the main contributor of activity on the higher bands."

### CONTESTS

#### WAE DX CW CONTEST

1200 8 August - 2400 9 August

3.5 - 28MHz. Single-operator all band, multi-operator single and multi-transmitter and listener sections. Single operator entrants may only operate for a maximum of 30 hours - the rest may be taken in up to three sessions and must be clearly marked in the log. Work stations outside Europe only and exchange RST and serial number (from 001). Multipliers are DXCC countries which count one on each band. Multipliers on 3.5MHz should be multiplied by a factor of four, on 7MHz by three, and on 14, 21 and 28MHz by two. Extra points can be gained from 'QTC traffic'. The rules relating to this are a little complicated and if you are serious about the contest I suggest you send me an SASE for a photocopy of the rules. Listeners may only log a callsign (European or non-European) once per band, and both callsigns and at least one of the exchanges recorded. Each station logged counts one point, each QTC one point. Logs go to WAEDC Contest Committee, PO Box 1328, D-8950 Kaufbeuren, Germany, to arrive by 15 September.

#### LZ DX CONTEST

1200 5 September - 1200 6 September

3.5 to 28MHz. CW only according to Region 1 band plan. Single operator single or multi-band, multi-operator multi-band single transmitter, and listener categories. Exchange RST plus ITU zone (UK is 27). Six points per QSO with LZ stations, one for contacts with own continent and three for other continents. Stations may be worked once on each band and own country counts as multiplier only. Listeners score three points for logging two callsigns and two numbers or only one if they only copy one of the numbers. Multiplier is the sum of ITU zones worked on each

continued on page 19 ▶

#### 1992 WARC BAND STABLE

	10MHz	18MHz	24MHz	Total
G4OBK	59	100	123	282
G2VJ	70	102	107	279
G3KKJ	52	104	76	232
G3ING	34	30	28	92
G4NXG/M	-	53	28	81
G4XRV	71	-	-	71
G4MUW	-	32	37	67
GMOKMJ	-	-	59	59
GW4RGT	13	21	16	50



**VHF UHF NEWS**

**NORMAN FITCH G3FPK**  
40 Eskdale Gardens, Purley, Surrey  
CR8 1EZ

**S**OME FINE Sporadic events on 144MHz generated extra mail in June. On 50MHz there was double-hop Es across the Atlantic on 22 June lasting eight hours. There is news of several DXpeditions and the Perseids meteor stream could be quite good this year.

## REPEATERS

THE SUDBURY Repeater Group has operated UHF relay GB3SU (RB14) for nine years on an ad hoc basis and a rebuild is planned. Funds for this, and to meet rising operating costs, are urgently required. Users are invited to a meeting at the Saracens Head Public House, Newton Green, Sudbury at 1930 on 11 August to consider the future of GB3SU. Further details from Fred May, G8AAR, who is QTHR. Telephone Sudbury (0787) 75091.

Since its AGM on 5 April, the Central Scotland FM Group has recruited 42 new members. On VHF it operates GB3AY (R2), GB3CS (R6), GB3DG (R7), GB3FF (R0), GB3LG (R3) and GB3PA (R1), all accessed by a 1750Hz toneburst and 4s of carrier. The Summer issue of *FM News* includes a map of their positions, a membership list, technical and humorous articles. The secretary is Alistair Fraser, GM3AXX, who is QTHR.

The Repeater Management Group (RMG) has now proposed that the sub-band 430.600-431.825MHz be used for inputs to low power, low specification repeaters with outputs 7.6MHz higher, as per the German system. None of this input section is available in the Fylingdales exclusion zone and 431.0-432.0MHz is denied to those within a 100km radius of Charing Cross, London. The VHF Committee has approved this suggestion which could relieve congestion in SE England.

## PUBLICATIONS

ISSUE NO 2 of Dave Hardy's, G8ROU, *VHF/UHF DXer* includes articles on elevation systems for

antennas by G3NAQ, G3SEK, G4RGK and G4SWX, combining power amplifiers, band reports and DXpedition news. Submission date for the next issue is 5 Sept. Contact G8ROU at QTHR for subscription details.

The June issue of the Worked All Britain group's (WAB) journal *Newsletter 74* is a far superior production to earlier editions, even though it still lacks a Contents page. Editor Kate Wragg, G0FEZ, seems to have mastered a new software package quite well.

The Great WAB Relay is scheduled for 1-23 Aug. This promises activity from some of the rarer areas, so listen for G4WAB/M. G4ZNI and G0FEZ are sponsoring a special certificate for anyone working/hearing 100 areas in this period. Proceeds from the £2.00 fee will go to the RNLI inflatable lifeboat project. The secretary of WAB is Brian Morris, G4KSQ, who is QTHR.

## VALE GM4DJS

READERS WILL be saddened to learn of the sudden death on 17 May of Doug Smillie, GM4DJS, a regular contributor to *VHF/UHF News*. A founder member of the Strathclyde Park ARC, he was particularly interested in magnetometry and the study of radio auroras. His two-part article on the Plotting of Magnetic Deviation and Aurora in the February and March issues of *RadCom* is perfect proof of his experimental approach to the hobby. His son, Douglas, is GM4FKD.

## MOONBOUNCE

JOHN HUNTER, G3IMV (BUX), now has 85 initials in his 144MHz EME log. Recent new ones were UA9SL, WA1JXN, C53GS and UA4NX. Using two 17-ele Yagis, he finds he can compete quite well with other UK four-Yagi stations. The next favourable sked weekends are 25/26 July and 22/23 August so please send reports on what you hear and work.

## METEOR SCATTER

THE MAIN event in August is the Perseids stream, available all day. Alastair McBeath, vice-president of the International Meteor Organization (IMO), reminds us that there were two distinct peaks last year so we should be alert for a possible repeat performance. He suggests a first peak around 2200GMT on 11 August, with a second maximum twelve to fourteen hours later, both times plus-or-minus a few hours.

For computer buffs, the IMO's *1992 Meteor Shower Calendar* suggests the solar longitude (LS) 139.9°, right ascension (RA) 48° and declination (DEC) +58° at maximum. The times when reflection efficiency exceeds 50% are: NE/SW 0800-1800; E/W 1000-0130; NW/SE 1800-0400 and N/S 0800-1330 and 2200-0400.

## DX NOTES

THERE ARE several DXpeditions in August. Tony Ashcombe, G4APA (CHS), advises that some members of the Northern Lights VHF Contest Group plan operation from GD, 8-15 August from the excellent QTH of Robert Ferguson, GD4GNH. Calls, QRGs and modes: GD4IOM 144.129MHz CW, 144.429 SSB, 144.400 random SSB; GD0IOM 144.029 CW, 144.100 random CW; GD0MAN 50.159 for Italian QSOs, 50.095 for normal CW, 50.329 for CW/SSB MS.

They will be QRV on the European VHF net on 14.345MHz for making skeds. G4APA is QTHR and can be contacted on packet @ GB7CRG or GB7MDX. 430 and 1296MHz operation is possible if there is sufficient interest. Needless to say, they will be using potent equipment but will not be attempting any EME this year.

Paul Martin, EI2CA, sent a press release about 'A major expedition to Clare Island, off the west coast of Ireland . . .' 8-15 August to celebrate the IRTS's diamond jubilee year. Calls, squares: EJ60 in IO53 and EJ60/P in IO43. QRGs, modes: 70.243MHz CW/SSB, 144.143 CW, 144.243 SSB, 432.243 CW/SSB. MS operation on 70 and 144MHz is promised at the peak of the Perseids but they will only take skeds on the 20m VHF net, or for 70MHz on 7077kHz, at 0800 local time during the expedition. Paul's telephone numbers are Dublin 900637 (work), 612241 (home) and 907633 (fax). The dialling code from the UK is 010353 1.

Clive O'Hennessey, GW4VVX (GWT), with GW6TGX, plan operation from XS square (IO78) from mid-August. First activity will be from GB0LCS, an exhibition station at the Lairg Crofters Show, with some 50 and 144MHz operation likely. The main effort should start late on the 16th using the call GB2XS (IO78WA). 144.222MHz for MS, tropo and auroral work with 200W and two 17-ele Yagis, and on 432.222MHz with 10W and a 21-ele Yagi. On 50MHz they will have 10W and a dipole and will be QRV on the

20m VHF net. Andy Adams, GW0KZG, should be operating /MM again, this time from the *RRS Discovery*. The planned location till 28 July was IN23GM followed by a Spanish or Portuguese port call on 29/30. Next maritime operation should be from IN47VM until 3 August after which the ship returns to Barry by about the 11th.

Operating times are 0600-0800, two out of three mornings; 1200-1300 and after 1730. All times are BST or 'ship time'. 144.240MHz is his working frequency using 100W and a 12-ele Yagi with masthead preamp. For MS his maximum speed is 200WPM using 2.5min periods with GW0KZG/MM starting on the hour. GW7KES was to circulate packet messages in case of any last minute delays.

## 50MHZ

### PROPAGATION

In his May report, Ray Cracknell, G2AHU (HWR), records that the sunspot number only exceeded 100 on three days - 21-23; the predicted figure was 122 +/-13 for 90% confidence. In spite of this, and the magnetic disturbances, it was a very productive month for DX, as shown in your reports in the July *VHF/UHF News*. There were only five blank days compared with 17 in April when SS numbers and the solar flux (SF) were higher. Ray concludes that this can be accounted for by the onset of the summer Es season.

There were daily Es openings in June, some very extensive with propagation in all directions. Double-hop Es to the Middle East was recorded daily from 29 May to 7 June and again on 20 June. Probably the most spectacular double-hop Es was on the 22nd when the band was open to large parts of North America for eight hours from 1500.

### NEWS

According to Ted Collins, G4UPS (DVN), up to 20 June no permits had been issued to any Spanish stations although several readers worked EAs before then. However, in Poland 3Z4PAR was legal, being an experimental call issued to SP4s KM, TTK, BOS, SHH and SHK for 5-15 June. From KO03GS they completed almost 1000 contacts, over 500 with UK stations. QSLs should go to SP4KM at PO Box 21, PL-10-950 Olsztyn, Poland.

UA3PW (KO84UF) is a new Russian station QRV since 9 June. QSLs to Box 444, 300021



### LOCATOR SQUARES TABLE STARTING DATE: 1-1-1979

Call sign	50MHz	70MHz	144MHz	430MHz	1.3GHz	Total
G4YTL	-	38	279	37	-	354
G0EHV	-	35	175	81	-	291
G1SWH	245	33	179	63	9	529
G4TIF	280	28	204	112	-	624
G0NFH	133	26	101	51	18	329
G4MUT	167	25	155	94	34	475
G3FIJ	1	24	80	22	3	130
G6MXL	87	23	104	55	24	293
G8LHT	193	20	202	93	17	525
GW4LXO	395	2	261	108	48	814
G7EWL	41	2	73	-	-	116
G8PYP	228	1	122	35	-	386
G3IMV	386	-	483	125	52	1046
GJ4ICD	542	-	264	121	65	992
G6HKM	388	-	236	117	55	796
G4RGK	167	-	319	182	58	726
GM0EWX	404	-	211	18	-	633
G6HCV	355	-	241	-	-	596
G4DEZ	141	-	251	62	56	510
G0EVT	187	-	222	60	-	469
G0MGA	249	-	216	-	-	465
G0JHC	405	-	48	-	-	453
G4SSO	80	-	269	99	-	448
G0CUZ	-	-	367	75	-	442
GW6VZW	288	-	143	6	-	437
G4SWX	-	-	404	-	-	404
G1LSB	73	-	177	144	-	394
G6YIN	163	-	158	72	-	393
G4RRA	-	-	299	80	-	379
GU7DHI	272	-	99	2	-	373
GJ6TMM	162	-	151	52	-	365
G0FYD	162	-	191	6	-	359
G4DHF	-	-	342	-	-	342
G1SMD	206	-	112	-	-	318
G0HVQ	235	-	71	-	-	306
G0GMB	-	-	202	103	-	305
GW8JLY	-	-	269	36	-	305
G1UGH	166	-	118	-	-	284
GW4VEQ	-	-	267	-	-	267
G8XTJ	130	-	121	-	-	251
G3FPK	-	-	246	-	-	246
GW4FRX	-	-	235	-	-	235
G4DOL	-	-	223	-	-	223
G7CLY	30	-	149	2	-	181
GM1XOG	181	-	-	-	-	181
G4XBF	-	-	176	-	-	176
G0FIG	-	-	154	-	-	154
GM1ZVJ	72	-	48	-	-	120
GM0CLN	-	-	116	-	-	116
GW0PZT	-	-	111	-	-	111
G7LIJ	-	-	94	-	-	94
G6ODT	-	-	33	49	-	82
GM0GDL	-	-	55	-	-	55
G7JAF	-	-	49	2	-	51
G6AJE	-	-	25	-	7	32
GW7EVG	-	-	28	-	-	28

No satellite, repeater or packet radio QSOs. If no updates received for a year entries will be deleted. Next deadline is 27 August. Band of the month 70MHz.

Tula, Russia. QSLs for this year's ES0SM operation from KO18 go to PO Box 301, EE-2400 Tartu, Estonia. Cards for OH0BBF (KP00/Aaland Is) go to OH2BBF, who is QTHR. The Luxembourg beacon LX0SIX (JN39AV) should be QRV by now on 50.023MHz running 5W to a horizontal dipole.

#### ACTIVITY

The more interesting stations heard/worked during the first week of June included: 1st I2ADN/IG9 (JM65), LX0RL (JO30), TA5A (KM77), 4Z7OIF (KM72), 5B4/G3K0X, 5B4JE and SVs. 3rd 5B4s, SVs, OD5SK (KM74), 9K2TC (LL39), 4Z7 and TA5. From Jersey, Geoff Brown, GJ4ICD, reported the band open to everywhere. 4th 5B4, 5th 5B4 and CU1EZ (HM76).

The 6th was the day of the UKSMG contest and saw fabulous conditions with Es to TA5,

5B4, OD5, 9K2, SV and OH0BBF (KP00) in addition to all the usual, nearer European countries. 7th OH0, SV, 5B4 and OY9JD (IP61). The band was again wide open from Jersey and GJ4ICD reckoned he was pretty well exhausted after 48 hours of solid Es propagation.

Until 19 June, there was Es propagation daily apart from the 16th and 18th. On the 20th I2ADN/IH9 (JM56), CU1s CB, CV and EZ, CN8ST and 5B4 were worked, also UZ2FWA (KO04) whose QSL route is via DK4VW. The 22nd saw spectacular Es with eight hours of double-hop to VE1, VE3 and W1 at least, several readers working new states/squares. Es was widespread all over Europe for many hours and it didn't seem to matter which way you beamed.

Apart from Es, there was an aurora on 8 June with EI, G, GD,

GI and GM worked. There were evening openings to Africa to 7Q7 on 31 May and 5 June; PZ1s AP and EL were worked on the 5th, too. Thanks to the following from whose letters and faxes this was compiled: Terry Chaplin, G1UGH (SFK), G4UPS, Ela Martyr, G6HKM (ESX), John Hill, G7CLY (HBS), Shane Hogarth, G7EWL (NHM), Graham Jones, G8AXE (AVN), Ian Harwood, G8LHT (YSS), GJ4ICD and Brian Goodier, GW0PRM (CWD).

#### 70MHZ

IAN CORNES, G4OUT (SFD), operated in the 7 June CW Contest but found activity poor. He made 10 QSOs, best DX being EI9FK/P (IO62). The first station G8LHT worked after reconnecting his antenna was ZB0T (IM76) on 5 June for a new country and square. GJ4ICD is hoping to get going on 4m if a transverter deal comes off.

#### 144MHZ

ALEC TRUSLER, G0FIG (SXW), is a keen MS operator and reported for the first time. He runs a TS-790E, 15-ele Cushcraft Boomer, single 4CX250B PA and SSB Electronics GaAs FET Supa Amp. June completions included LA8OW (JP50), FC1ODA (JN13), EA3KU (JN00), IW2BNA (JN45), SM4KYN (JO79), 4N2EZA (JN86), HG8CE (KN06), IN3DOV (JN56) and EA6FB (JM29) for a new country.

#### SPORADIC E

The first opening seems to have been a brief affair on 30 May when G0FIG worked IK7HIN (JN81). This opening lasted 10min at Lyn Leach's, GW8JLY (GNS) QTH and less than a minute at Edward Allely's, GW0PZT QTH in Anglesey. Writing for the first time, Brian Underdown, G7LIJ (KNT) reported working I71WN (JN90) at 1650 on 3 June. Nobody else mentioned this event.

On the 6th, from southern England, stations in I1, I7, I8 and YU1 were contacted, plus LZ1UH (KN11) and LZ1KDP (KN12). There was better propagation to NE England, GM, GI and EI, though, but G8LHT in Doncaster heard nothing. GW0PZT worked IT9ZVN (JM78), a QRB of 2238km. GW8JLY recorded two events; to I7 and I8, 0915-0954 and a more extensive one to I3, I8 and I0, 1210-1230.

There was a significant event on the 7th which favoured GM and GI operators. Frank Holland, G10AIQ (ARM), heard the first Es

signals at 1015 and, till 1130, made 19 SSB QSOs with DL, F, I1, I3, I5, 4N2, ending with HG1DRD (JN86). Beam heading (QTE) throughout was 130°.

Gerard Elliott, G14OWA (LDR), described it as "... a terrific opening" in which he worked many stations between 1022 and 1150. There were a few fade-outs and his final tally was 21 Is, 22 DLs, 6 YUs, 3 HB9s, an F and an OE. Best DX was 4N2EZA at 1936km. He worked some stations as near as JO30 square and heard a PI4, which suggests very high ionization.

Between 1104 and 1139 Arlen Pardoe, GM0HUO (FFE), had 20 SSB QSOs with F, HB9, I1, I2, I4, I5, I6 and I0 stations which brought eight new squares. Best DX was IK0SMG (JN61FS) at 1958km at QTE 139°, however he recorded his QTE as 175° throughout. It would be interesting to know if signals were strongest on this bearing. In the afternoon of the 20th, GW0PZT worked CT1WW (IN61) and heard EA7AH (IM67) and ZB0T. GW8JLY heard ZB0T at 1645.

Another spectacular Es opening occurred on 22 June from about 1745 lasting over three hours. Again the more westerly and northerly stations fared better than did those in the east and south. G0FIG worked into HG, I7, YU1, YU7 and 9H. Dave Butler, G4ASR (HWR), contacted 60 YUs, 12 OEs, 17 Is, plus HG, LZ, SP and YO, best DX being an SV at 2400km. Some of it was very short skip, eg G4RGK (IO91ON) worked DLs.

G6HKM confirmed that DX from Essex was less good but Ela did work IS0s YFG and CDS (JM49), plus I3 and I8 areas. Bob Seabourne, G7KXF (IOW), reporting for the first time, worked OE6XHF (JN76), HG8CE and heard IT9TVF in a morning opening 0910-0945. From Doncaster, G8LHT worked into YU3, IS0, IT9, OK3, I3, I5 and I7 areas completing 33 QSOs.

The event was productive for G14OWA in IO64IX who contacted about 70 stations in DL, F, HB9, I, OE, OK, SP and YU. At the end of 2044 he worked OK1FZA (JO70) and OZ2KZR/P (JN89) who were seeking FAI contacts. Gerard's best DX was HA8EK (KN07). From IO86OI, GM0HUO made 46 QSOs between 1802 and 2045 with partners in DL, F, HB9, HG, I, OK, OE and YU at QTE 160-180°, again unexpected headings, especially for Hungary.

GW0PZT (IO72PT) got into the

continued on page 19 ►



# HF F-LAYER PROPAGATION PREDICTIONS FOR AUGUST 1992

The time is represented 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 1.8MHz openings are indicated by a plus (+) sign in the 28 and 3.5MHz columns.

Time / GMT	28MHz	24MHz	21MHz	18MHz	14MHz	10MHz	7MHz	3.5MHz
000001111122	000001111122	000001111122	000001111122	000001111122	000001111122	000001111122	000001111122	000001111122
024680246802	024680246802	024680246802	024680246802	024680246802	024680246802	024680246802	024680246802	024680246802
** EUROPE	.....	.....	.....	.....	.....	.....	.....	.....
MOSCOW	.....	.....	.....	.....	.....	.....	.....	.....
MALTA	.....	.....	.....	.....	.....	.....	.....	.....
GIBRALTAR	.....	.....	.....	.....	.....	.....	.....	.....
ICELAND	.....	.....	.....	.....	.....	.....	.....	.....
** ASIA	.....	.....	.....	.....	.....	.....	.....	.....
OSAKA	.....	.....	.....	.....	.....	.....	.....	.....
HONGKONG	.....	.....	.....	.....	.....	.....	.....	.....
BANGKOK	.....	.....	.....	.....	.....	.....	.....	.....
SINGAPORE	.....	.....	.....	.....	.....	.....	.....	.....
NEW DELHI	.....	.....	.....	.....	.....	.....	.....	.....
TEHERAN	.....	.....	.....	.....	.....	.....	.....	.....
COLOMBO	.....	.....	.....	.....	.....	.....	.....	.....
BAHRAIN	.....	.....	.....	.....	.....	.....	.....	.....
CYPRUS	.....	.....	.....	.....	.....	.....	.....	.....
A DEN	.....	.....	.....	.....	.....	.....	.....	.....
** OCEANIA	.....	.....	.....	.....	.....	.....	.....	.....
SUVA/S	.....	.....	.....	.....	.....	.....	.....	.....
WELLINGTON/S	.....	.....	.....	.....	.....	.....	.....	.....
MELLINGTON/L	.....	.....	.....	.....	.....	.....	.....	.....
SYDNEY/S	.....	.....	.....	.....	.....	.....	.....	.....
SYDNEY/L	.....	.....	.....	.....	.....	.....	.....	.....
PERTH	.....	.....	.....	.....	.....	.....	.....	.....
HONOLULU	.....	.....	.....	.....	.....	.....	.....	.....
** AFRICA	.....	.....	.....	.....	.....	.....	.....	.....
SEYCHELLES	.....	.....	.....	.....	.....	.....	.....	.....
MAURITIUS	.....	.....	.....	.....	.....	.....	.....	.....
HARARE	.....	.....	.....	.....	.....	.....	.....	.....
NAIROBI	.....	.....	.....	.....	.....	.....	.....	.....
CAPETOWN	.....	.....	.....	.....	.....	.....	.....	.....
LAGOS	.....	.....	.....	.....	.....	.....	.....	.....
ASCENSION IS	.....	.....	.....	.....	.....	.....	.....	.....
DAKAR	.....	.....	.....	.....	.....	.....	.....	.....
LAS PALMAS	.....	.....	.....	.....	.....	.....	.....	.....
** S. AMERICA	.....	.....	.....	.....	.....	.....	.....	.....
STH SHETLAND	.....	.....	.....	.....	.....	.....	.....	.....
FALKLAND IS	.....	.....	.....	.....	.....	.....	.....	.....
R DE JANEIRO	.....	.....	.....	.....	.....	.....	.....	.....
BUENOS AIRES	.....	.....	.....	.....	.....	.....	.....	.....
LIMA	.....	.....	.....	.....	.....	.....	.....	.....
BOGOTA	.....	.....	.....	.....	.....	.....	.....	.....
** N. AMERICA	.....	.....	.....	.....	.....	.....	.....	.....
BARBADOS	.....	.....	.....	.....	.....	.....	.....	.....
JAMAICA	.....	.....	.....	.....	.....	.....	.....	.....
BERMUDA	.....	.....	.....	.....	.....	.....	.....	.....
NEW YORK	.....	.....	.....	.....	.....	.....	.....	.....
MEXICO	.....	.....	.....	.....	.....	.....	.....	.....
MONTREAL	.....	.....	.....	.....	.....	.....	.....	.....
DENVER	.....	.....	.....	.....	.....	.....	.....	.....
LOS ANGELES	.....	.....	.....	.....	.....	.....	.....	.....
VANCOUVER	.....	.....	.....	.....	.....	.....	.....	.....
FAIRBANKS	.....	.....	.....	.....	.....	.....	.....	.....

The provisional mean sunspot number for June 1992 issued by the Sunspot Data Centre, Brussels was 65.3. The maximum daily sunspot number was 102 on 12 June and the minimum was 31 on 1 June. The predicted smoothed sunspot numbers for August, September and October, are respectively: (classical method) 113, 111, 108; (SIDC adjusted values) 134, 132, 129.



# QSL

RSGB QSL Bureau,  
PO Box 1773, Potters Bar,  
Herts, EN6 3EP

● J C Holland, G3GHS, is retiring after 12 years as Sub-Manager for the G3LAA-NZZ series. Thanks to him for his long service. An announcement will be made on GB2RS and in RadCom as to his successor.

● Apologies to the Sub-Manager for the GM0AAA-GM0LZZ series who has suffered from an extraordinary amount of published mis-information. Fingers crossed, here are the correct details: She is Karen A Hunter, GM0JHE, and her new address is Flat 2/2, 206 Skirsa Street, Cadder, Glasgow G23 5DJ.

● According to a recent survey conducted among members and non-members, about 4% of members thought the National Bureau did not serve them well

and about 9% of non-members felt the same way. That means about 1100 members think they get a poor deal out of the Bureau. I can understand the non-member figure because we do not handle outgoing cards for non-members but I would be interested to hear from any member who uses the Bureau and feels he is not getting a fair shake.

I will do my best to rectify any shortcomings. Drop me a line and I promise to reply.

● Alex Devereaux, G8PJJ, QSL Sub-Manager for the G8ON-Z series has only recently come out of hospital after surgery. He has asked us to suspend despatch of cards to him for a few weeks so that he can recover in peace. Now Alex handles an enormous number of cards so there will be an unavoidable delay for his customers. I am sure we all wish him a full and speedy return to good health.

● During the Yugoslavian crisis, we are sending all YU2 (Croatia) cards to a certain address and all YU3 cards (Slovenia) to another. All the other YU cards are being sent to the official bureau.

● I am told that there are some

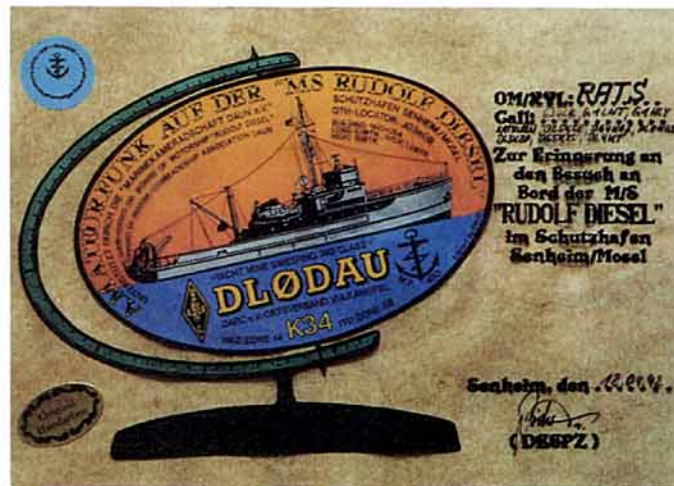
difficulties with the official ZA Bureau at PO Box 66, Tirana, so it's still best to 'route' your ZA cards if you can. If you cannot we will send them to PO Box 66 but anticipate delays or worse!

● For those people who are asked by overseas DXpedition operators to QSL via YASME we are sending those cards marked thus

to YASME Foundation Box 2025, Castro Valley, California 94546, USA. This seems to be working as none have been returned!

● There is no official QSL Bureau in Malawi but the unofficial one, which is very efficiently run by a volunteer out there, can be found at PO Box 2907, Blantyre, Malawi.

John Hall, G3KVA



Designed by DK5PZ, this is the lavish QSL card of the Daun Branch of the Marine Comradeship Association whose headquarters is the (now disarmed) minesweeper *Rudolph Diesel*. The card, measuring a very non-standard 21 x 30cm, was presented to the Reigate Amateur Transmitting Society and was photographed by G00HI.

## HF NEWS

continued from page 15

band. I can supply copies of the summary sheet and specimen log sheet (SASE please). Applications for BFRA awards may be made with logs. In the 1991 LZ DX Contest G3ESF came second in the multi-band category

## RSGB HF and IOTA Convention

26 & 27 SEPTEMBER  
1992

ICL Beaumont  
Conference Centre,  
Old Windsor

Contact: Bob Whelan, G3PJT  
Tel: 0223-263137

Sponsored by Martin Lynch



RSGB, Lambda House,  
Cranborne Road, Potters  
Bar, Herts. EN6 3JE

with 6,020 points, and GM3CFS tenth with 2,128.

### AGCW STRAIGHT KEY PARTY

1300 - 1600 5 September

CW only - using straight (hand) keys only and restricted to the segment 7.010 to 7.040MHz. Call CQ HTP. Exchange RST/serial number/class/name/age (ladies send XX). Classes are A (maximum output 5W), B (50W), C (150W), and D (listener). QSOs between A and A stations count nine points, between A and B seven, and between A and C five. Between B and B four points, B and C three, and between Cs two. Listener logs must include both callsigns and at least one complete report for each QSO. Logs have to reach F W Fabri, DF1OY, Wolkerweg 11, D/W-8000 Munchen 70, Germany, by 30 September 1992.

### THANKS

TO ALL THE regulars and to the *Lynx DX Group Bulletin* (EA2KL), *DX'press* (PA3DZN), *DX-NL* (DL1HBT), the *Long Island DX Bulletin* (W2IYX), and *RSGB DX News Sheet* (G4DYO).

Please be sure to send items for **October** to reach me no later than **18 August**.

## VHF NEWS

continued from page 17

act at 1755, half an hour after hearing the EI stations working the DX. By 1958 Edward had completed about 100 contacts in eight countries - DL, HG, I, OE, OK, SP, YU1 and 4N2. Best DX was IW7BPW (JN09DC) at 2242km. GW8JLY (IO81JM) made 67 QSOs with stations in DL, HG, I, OE, YU and SP in "... a massive opening." On June 23 from 1814, G4RGK worked UC2CBZ (KO34) and RA3LW (KO54) on CW; Dave heard SP4MPB (KO03) working GWs.

### OTHER MODES

On 12 June at 1450, GM0HUO copied beacons OY6VHF, GB3LER and SK4MPI aurorally. Using CW, Arlen worked DL4EBX (JO31) and DL0WAE (JO42) from 1609 but the aurora had gone by 1635. On the 18th at 2237 he worked GW8ELR (IO71) on SSB by auroral reflection.

On 13 June G7LIJ worked the Ekofisk station, LA1EKO (JO16), three LAs and OZ1HNE (JO57) in the late evening. On the 17th GW0PZT enjoyed a day-long opening from Anglesey to PA and

DL, squares worked including JO20, 21, 30, 31, 41, 43, 53 and 54, with best DX DL3LBK (JO54). GW8JLY described it as "... a fairly intense opening to north Germany ..." although QSB was deep. He worked into JO30, 43, 53 and 54.

### 430MHZ UP

IN SPITE OF windy weather, G6HKM found UHF conditions good on 20 June. On 430MHz Ela worked OZ9FW (JO65), DG/F9BDV (JO33) and DD9LW (JO44). On 1.3GHz in the late evening she contacted OZ1DOQ (JO65), OZ6HY (JO45) and PA3GCV (JO32). No other UHF news this month.

### FINALE

THE ABSOLUTE deadline for **October** is **27 August** and for **November**, **24 September**. I am now on CompuServe, ID being 70630,603, so you can use that route for E-mail. The Telecom Gold mailbox is 76:MSX021 and the telex number is 9312111074(CN). My fax machine shares the normal speech line. If voice contact is first established, both parties must push their START button at the same time then replace their handsets, when using fax mode.





# Novice NEWS

MRS ESDE TYLER, G0AEC  
43 Nest Est, Mytholmroyd, Hebden  
Bridge, W Yorks, HX7 5BH

**T**HE LAST date for entries for the Novice RAE exam to be held on 14 September is 1 August. If you believed, as I did, that the closing date was 1 July, you can relax - just a little - knowing that the deadline is not yet passed.

## GB2SM

EXCITING PROJECTS are afoot at the Science Museum. Wayne, G0JJG, has been in touch to tell me about them. The amateur shack there is under re-organisation, after which all sorts of things are planned - more of those when they are imminent.

Activity there ranges through all bands and the callsign GB2SM can be heard every Sunday afternoon between 1300 and 1600 - local time, of course. The band used depends on conditions and the preference of the operator at the time. The station also operates during the day on Tuesdays, Wednesdays and Thursdays.

Listen for it and you, too, may hear of their plans. Better still, if you are around that way, call in and meet the voices - you will be well received.

## A GENEROUS OFFER

FOLLOWING THE item in June *Novice News* (Hats optional) concerning the 6 metre contest station organised by Graham, G7BUR, on Ilkley Moor, Roger Wagstaffe of AKD wrote to me and to Graham.

He offered the use of an AKD 6 metre rig, free of charge, for use on the day of the contest to encourage Novices to run their own station if Graham was interested. Of course he was!

At very short notice, the rig arrived, duly modified, and was put to good use. I am hoping for a further report from Graham to tell you how successful the venture was. I will say for now that the rig was well used.

This offer goes further. AKD are willing to make a similar offer to other groups who are trying to

encourage Novices in a similar way, perhaps at special event stations. JOTA and TDOA spring to mind where Novices abound.

If you are trying to encourage Novices in your area and would like to set up a 'Novices for Novices' section, why not contact Roger (the Proprietor) at AKD, Unit 5, Parsons Green Estate, Boulton Road, Stevenage, Herts SG1 4QG - or ring 0438 351710.

## RICHMOND SCHOOL

MORE SCHOOLS are running the novice course. For instance at Richmond School in North Yorks, four students took the March exam and at the time the information reached me, three had already received their call-signs - John, 2E1AJF; Chris, 2E1ANS, and Philip, 2E1AOJ. Andrew (Chris's brother) was awaiting the result. By the time you read this, two more students will have tackled the June exam - Jonathan and Robert - and will, I am sure, be successful.

Acting Head, Mr Austin Lynch, kindly sent the above information, and added that John and Philip intend to extend their commitment to the hobby, and are working towards the full Class A licence, along with their other studies as time allows.

A generous amateur has lent Philip a communications receiver. He is learning Morse and has built a key. He is an RSGB member and also subscribes to *D-i-Y Radio*.

John owns a Hallicrafters SX24 communications receiver and enjoys listening to it. He has also built himself an 80m receiver and is busy collecting QSL cards.

Andrew has also built himself an 80m receiver (G3RJV's Sudden Rx) which works very well. He too, is collecting QSL cards



Richmond School students. Back row (l to r): John, 2E1AJF; Phil, 2E1AOJ; Chris, 2E1ANS. Front row (l to r): Jonathan, Andrew and Robert.



RSGB QSL Sub-Manager, Mike Shread, GM6TAN, with his mobile shack.

from amateurs to join those from short-wave broadcast stations.

Martyn, G3RLV, who is Head of Chemistry is the Instructor, and at present he is negotiating for accommodation. The School is also looking for some suitable equipment.

As far as they know, Richmond School is the only school in North Yorkshire to run a Novice course - with obvious success. Perhaps this information could encourage others to do the same. If so, I do hope you will tell me so that I can pass it on.

## QSL BUREAU

NOVICES - HAVE YOU sent envelopes, self-addressed and stamped, preferably with stamps marked 24p to RSGB QSL Sub-Manager Mike Shread, GM6TAN, 2a Seatown, Gardenstown, Banffshire AB45 3YQ - and are they big enough to hold QSL cards, and possibly photographs, without bending them?

I ask because I have heard from Mike who lists 52 Novices with cards to send and nowhere to send them! There may be more by now. He says to send at least two envelopes to him, whether you are a RSGB member or not, (though I would *hope* you are!) and your cards will be on their way to you, hopefully on the day the envelopes arrive.

Mike is a Novice Instructor who, so far, has not been called upon to instruct (any potential Novices in the area?) and being in a dreadful location for VHF (I know that feeling) he derives great pleasure from running the bureau. He has made many friends from among the Novice ranks and hopes to make many more.

He is busy setting up a private ambulance service in the Grampian Region and his Bedford ambulance carries a 2m rig, which unfortunately does not hear very many CQ calls due to lack of activity in the area.

It is always nice to put faces to people, so the photo shows Mike - standing beside his other 'shack'.

## ANYONE INTERESTED?

DO YOU LIVE in Glasgow? Are you interested, or do you know anyone who is interested, in taking a Novice training course. Would you like to spend Friday afternoons doing just that?

YAGIS, The Young Amateurs' Group in Scotland, is planning to run courses on Friday afternoons, starting in early July at Glasgow Polytechnic. With five RSGB registered Instructors, there will be up to twenty places on the course. If you are interested, ring Hughie on 041 636 6656. You





The first students to take the Novice RAE at RSGB Headquarters last March: (l to r) Mosley Lopez, Fredrick Brazier, Ian Alford, Simon Potts, Teresa White, Nicholas Whittle.

can leave a message on his answerphone if he is out.

If you are not available in the afternoons, do not despair. There will be another course available in September on Monday evenings. More details next time.

PS - YAGIS success rate so far is eighteen out of nineteen - the other one left the exam. Is it a record?

### KIDLINK '92

CONDITIONS COULD have been better for this event, but some success can be claimed - if only because it introduced a number of children to amateur radio.

I did spend some time listening to the stations taking part on 40 metres. I heard seven and spoke to five - including children. All the youngsters sounded most confident and interested.

Peter, G0GTE, somehow got the job of collating all the information and sent a preliminary report. Thank you, Peter. And now for the story so far: Certainly nine, possibly fifteen, stations were on the air and, at the time of writing, Peter could tell of the activities of six centres, including his own, three of which are Primary Schools.

At these six stations, 558 children listened and 130 spoke, mostly to similar stations. Eight-



Your columnist seen at the RSGB '92 show.

een packet messages were sent.

There was disappointment that international links could not be made and some speculation on the time of year chosen, but of course, a good time for the UK is not necessarily a good time for everyone else. Although the event ran for 48 hours, school hours are fixed.

All the comments will be sent to the UK coordinator, Mike Burleigh, and if there is more to tell after the international discussions have taken place, I shall of course, pass it on. Meanwhile, I shall save the rest until next time, when I should have all the details.

One final comment though - another Peter, G0KLR, persuaded his 'audience' to draw a picture of the amateur he/she spoke to. Luke spoke to me - my family say it is a perfect likeness!

### A PERMANENTLY RADIO-ACTIVE SCHOOL

THAT IS NOT a panic headline, it describes Tetney County Primary School in Grimsby who are, in fact, active on amateur radio throughout the year.

Using the callsign GX0PHA, the older children can be heard every Tuesday and Thursday during term time, on the 40 metre band between approximately 3 and 4.15pm, although the other HF bands are used.

Local industry raised the money to buy the station, the principal sponsors being T H Brown Ltd. Other sponsors include Tioxide UK Ltd, Lindsey Oil Refinery Ltd, Conoco Ltd, Humberside Sea and Land Service Ltd and builders, S J Ellis.

The children are organised in groups of four, so there is a lot of individual attention. This means that during the year each child can participate in approximately

eight one-hour operating sessions. After each operating session another twenty minutes is used for follow-up work; completing log sheets, preparing QSL cards, marking the position of contacts on wall display maps etc. Operating techniques and certain elements of theory are learnt during normal class lessons.

Under the supervision of Headteacher Paul, G0NUE, forty children are involved in listening, learning the phonetic alphabet and certain Q-codes before they are allowed to use the microphone. This means that between two and four sessions are spent in this way before the exciting part. Maps showing contacts and QSL cards on display in the main school entrance show the success of the venture to all who enter.

Paul praises the patience, good humour and interest shown by the amateurs contacted - if you are one, take a bow - if not yet, please listen for them. Many of the amateurs contacted have kindly sent individual QSL cards to the children - often by first class post and this has inspired some of the children to write letters! That, in itself, is an achievement.

The work and organisation involved must have been tremendous, and the hobby must benefit from it in the long term. If this does not produce radio amateurs for the future, I don't know what will!

Grateful thanks from Paul to everyone for their support, and from me to Paul for the information. If other schools have similar ventures to report, please let this column know, you may inspire others to try.

### AN UPDATE

DURING THE school holidays last August, a pilot Novice train-

ing course was run at Pontypool with three students.

One was, sadly, unsuccessful although hopefully he will not lose his interest - and knowledge gained - and will try again. Graham and Damion were naturally delighted when the pass certificates arrived and by the time you are reading this will have their licences. I assume that the apparent delay is because it was too late to apply for the September exam when the course ended and they had to wait until the December one.

At present, the Pontypool Amateur Radio Society is running a Thursday evening course with sights set on the June exam. Again, all boys aged eleven, fifteen, sixteen and seventy-plus the club Secretary is Con, GW0FJH.

### HOW'S THIS FOR GENEROSITY?

PAUL, G0LVV, on becoming an instructor, set to work and made a list of everything needed by a Novice embarking on a training course. He then kindly gave a copy to me for use by others in the same position if they wished.

Not only that, he drew diagrams for the Novice Test No 1, the MF radio and the audio amplifier, just in case Instructors wanted to 'do their own thing' and find the components for themselves.

I think that he deserves a pat on the back for his effort and, even more, praise for his willingness to let others benefit from his experience. Thank you Paul, that is the true spirit of the hobby.

## Practical Antennas for Novices

by John Heys, G3BDQ

An invaluable book for Novice Licence holders or anyone looking for easy-to-build antenna systems.

Members price

**£3.82**

plus p&p



RSGB, Lambda House, Cranborne Road, Potters Bar, Herts. EN6 3JE



# LOWE ELECTRONICS



## Upon reflection... the HF-225 is a great receiver!

The cynics among you will say "He would say that, wouldn't he". So, don't listen to me, read what independent users have said, such as

Larry Magne in *Passport to World Band Radio*

“Best bandwidth flexibility of any model tested.

“Another advantage of the '225 is that it is built to almost professional standards of ruggedness. You just don't expect to find this level of construction quality on a model selling for anywhere near this price.”

The best endorsement comes from what HF-225 owners have written about it:

“The performance is remarkable and in particular the selectivity and the switchable filters provide a performance which is far superior to certain Oriental receivers that I have had over the years.” *G6ITY CEng, MIEE.*

From a professional in the field we had the following comments:

“As a rigorous test one evening, I connected my HF-225 to the HF distribution system and compared its performance to that of a Racal RA-1772 and RA-1792 with the same aerial selected to each receiver... it did give them a run for their money. The strong signal performance, reciprocal mixing, sensitivity etc were not in my opinion significantly worse than in receivers costing ten times as much... in fact I don't think I could hear anything on the Racals which I could not hear on the HF-225.”

## 3<sup>rd</sup> BIRTHDAY CELEBRATION OFFER:

Conceived, designed, and manufactured in the UK with a view to providing a simple to use, high performance "British" receiver, the HF-225 comes complete with a surprising range of facilities fitted. To celebrate the anniversary of its introduction we are giving away a free D-225 Synchronous AM/narrow band FM detector unit with every HF-225 purchased directly from Lowe Electronics before the end of August.

**Do call in at your  
nearest Lowe branch  
and try one out...  
NOW!**

HF-225 30kHz to 30MHz .....£429  
D-225 sync AM/FM detector.....£43.75  
KPAD1 external keypad .....£39.95

**Retailed in the UK by LOWE ELECTRONICS LIMITED**

Chesterfield Road, Matlock, Derbyshire DE4 5LE Telephone: 0629 580800 Fax: 0629 580020





# SWL NEWS

BOB TREACHER BRS 32525  
93 Ellbank Road, Eltham, London  
SE9 1QJ

**R**ON, GU4XGG, wrote about a subject which hasn't been covered recently. He explained that although he has received many listener reports (and replied to them all), the most welcome were two SWL reports he received following a recent trip to Hong Kong, during which time he was VS6GU. In the nine weeks he was in VS6 he made contact with only one G - GW3CDP. He was, therefore, delighted to receive the two SWL reports.

## HAB NEWS

DENNIS, GW6JNE, has provided a report on the up-to-date situation regarding listener participation in the Heard All Britain Award Scheme (HAB). The Annual General Meeting was held at the Drayton Manor Rally and a number of Listener Awards were presented. From a long list, which shows how much listener interest there is in HAB, here are a selection of the Awards which were made:

Sapphire Award - SWL Brown, Honour Roll - SWL Fillmore, Large Squares Premier Award - SWL Gibbs, Islands Award - SWL Ridgeway, Bookholders 4200 Award - SWL Gibbs.

For further information about the HAB Award scheme, Dennis' address is 7 Penrhos Crescent, Rumney, Cardiff CF3 8PB.

## 50MHZ IN FRANCE

IT WAS GOOD to hear again from Michel Monteil (now F-10437). He provided an extremely interesting list of DX heard in March and April. His listening post is in JN15, South of Vichy in central France. His log shows A22, 7Q7, ZS, ZS9 and V51. Recent QSL additions included CT1/G3SDL, IS0AGY, ZS6XL, ZS9A 5V7JG and 9H5ET.

## DX NEWS

THE HF BANDS in May were disappointing. Very few reports have been received this time, so the list of good DX is pretty thin:

- 21MHz: A22MN, S2/HA5BUS, VQ9AC, 7P8SR, 9M8BL
- 14MHz: FR/DJ6SI, TL8IM, V44NK, VP8CBA, ZD8SA
- 7MHz: FY5FY, SU1HV, VP2ETU and 9LING
- 3.5MHz: SM0FWW/OJ
- 1.8MHz: 4J1FS

Most of the action listener-wise was at VHF, and in particular, 50MHz. May provided a very intense Aurora on the 10th, which accounted for the poor HF conditions at that time.

Stations around most of Europe were logged. The Sporadic E season started on cue with YO copied on the 11th. The 12th provided ES (Estonia) for the first time, followed by YU, OK, OE and OH stations. The 14th gave SMs at 1130, YUs at 1300 and the band opened to Africa at 1700 with 7Q7JL and 7Q7XX both good signals into London. The 15th gave a good many Italians, and 16th saw a good signal from CX4HS and an unidentified LU. For the next few days, attention switched to 144MHz where many DLs, OZs, PAs and Fs were heard. I even managed a new square in the shape of GM4PSX in Orkney.

Back to 50MHz where I was lucky enough to hear FR/DJ30S - the DJ6SI trip to Glorieuses Is. The band provided good Es conditions on 21, 22, 23, 26, 29, 30 and 31 May.

Highlights in the early part of June included 5B4/G3K0X, TA5ZA, 4Z70IF and 3Z4PAR (the first ever operation from SP), and Mick Toms, BRS31976, even heard OD5SK. At the time of writing, the latest 50MHz countries heard totals were: David Whitaker, BRS25429 - 73, Mick Toms, BRS31976 - 72, while I had 93. More on 50MHz next month.

## MORE RARE WAB SQUARES

SOME TIME AGO, I promised more details of areas which it is considered are impossible to activate. I have had a few enquiries from intrepid DXpeditioners, so here is the list. If any expeditions result, you saw it first in *SWL News*.

The list is as follows:

- SWO2 (Cornwall) - Seven Stones; apparently no longer possible due to the bombing of the "Torry Canyon".
- SW21 (Cornwall) - Wolf Rock Lighthouse.
- TV79 (East Sussex) - Royal Sovereign Light Tower.

TRO8 (Essex) - Maplin Sands: used by the Army so no permission forthcoming.

NX23 (Dumfries and Galloway) - Big and Little Scares Is: Bird Sanctuaries.

NC47 (Highland) - Rocks only: Nowhere to put an antenna!

NT28 (Lothian) - Inchmikery and Cows & Calves Is: Bird Sanctuaries.

NM23 (Strathclyde) - Treshnish Is / Dutchmans Cap: No landing by boat possible.

NR91 (Strathclyde) - Isle of Arran: Area at foot of sheer cliff.

NA64 (Western Isles) - Flannan Is: No landing by sea possible.

Activity from any of these rare spots seems very dicey, and the fact that expeditions have not been possible since the inception of the WAB/HAB Award Scheme lends extra weight to this theory.

## PEN PAL REQUIRED

OLEG, UA3-122-1393, has been sent some information about the Society by G7APS. He would like to correspond with SWLs in Britain so that he can find out more about listening habits and techniques over here. Oleg has been interested in amateur radio since 1981 and has held his SWL call since 1983. If anyone would like to correspond, Oleg's address is P O Box 113, Nizhni Novograd, 603140 USSR. I shall be trying to find out about SWLing in the USSR and hope to reproduce some news in later issues.

G4KLQ sent details of a Russian SWL who would like to correspond with a British SWL. He is 35 and has two children. His name and address is Alex Usvyatev, PO Box 5, Lobnya 1, Moscowskaya Oblast, Russia 14731. If any useful information for British SWLs comes from the correspondence, please let me know.

## UK SIX METER GROUP

G4UPS HAS BEEN in touch regarding the poor support which the group gets from SWLs in the British Isles. I think that there are currently 2, possibly 3, SWL members only - and one of them is me! I know that this does not reflect the number of listeners who have receiving equipment for the band. The group is hopeful that a mention in this column will be the incentive which listeners need to join. The group produces an informative quarterly *Newsletter*, which in recent issues has

reproduced a squares map of South Africa, news from 'across the pond' and the Caribbean, antenna designs, DX news and QSL information. The yearly subscription is only £5. If any reader is interested, they should get in touch with G4UPS who is QTHR. G4UPS also provided details of the Group's Countries, Squares and Counties Contest to be held over the weekend of 17/18 November. More details on this next month.

## LISTENING ANTENNAS

THIS MIGHT be a timely place to refer to the SWL antennas which G2DYM markets. His latest fact-sheets refer to a number of SWL antennas ranging from an indoor trap-dipole ideal for roof space, attic or bedsit to the well-known G2DYM anti-TVI trap dipole. A number of other antennas, feeder matching units and ATUs are mentioned. If you are interested, write to: Mr R Benham-Holman, at Cobhamden, Uplowman, Tiverton, Devon EX16 7PH, enclosing a large SAE.

## WHERE ARE THEY NOW?

IN SORTING through a pile of old papers just before writing this column, I came across a proof of my March 1983 column. It was interesting to see the 'Final 1982 HF Countries table', which was headed by two regular contributors, BRS8841 and BRS25429. But the question begged where are the other contributors from the table of ten years ago?

If your old BRS or A number appears here, why not drop me a line and tell me what you have been doing in the hobby in the last ten years. The list is as follows:

BRS47745, BRS25901, BRS44703, ORS46084/7Q7, A8808, ORS45992/7Q7, BRS46228, BRS35509, BRS31440, BRS50134, BRS48675, BRS30694, BRS18259, BRS45033, RS45466, BRS30493, BRS30493, BRS50886, RS45184, RS44984 and RS49327.

If I get enough feedback, I will start a regular "Where are they now" feature.

Finding this proof served to remind me how popular the HF table was ten years ago. Would anyone like it to return next year?

## FINALE

NEWS AND comment for the **October** column must be with me no later than **14 August**.



# A Survey of Amateur Radio Opinion

**L**AST NOVEMBER, Council decided that there should be a conference to take a look at the Society to see what changes might be necessary to better serve the increasing diverse interests in amateur radio. To provide information about current opinions, a survey has been carried out using a statistically satisfied sample of licensed amateurs located throughout the United Kingdom. Over 40% of those sent the survey forms responded resulting in more than 1300 replies, ensuring a good statistically representative result.

There have been surveys before but this is the first to be targeted at both members and non-members, taking into consideration the wide ranging interests and views about amateur radio and the Society. It was designed and processed professionally by Mr Roger Western, G3SXW, and the detailed analysis, which runs to 86 pages, was a most valuable tool to guide the Strategy Conference at Warwick University in July. Clearly it would not be possible to produce here the complete works, so here are some of the fundamental and perhaps interesting findings.

## Who Are We?

FIRSTLY, WHO are we and what are our interests in amateur radio? Is the average age increasing as some would suggest; is our interest in amateur radio declining? What about the differences between 'A' and 'B' class licensees? What aspects of amateur radio attract the most interest?

There is a wide spread in the age groups with a younger mix of 'B' licensees (Fig 1). Just over two-thirds of replies were from 'A' licensees and one third from 'B'.

Is our interest increasing or decreasing? Well, the bad news is that more answered "decreasing" and perhaps surprisingly this was more so amongst the 'B' licensees (Fig 2).

An important aspect of this research is to set the benchmarks

**Amateur Radio in the Nineties**  
**ON THESE PAGES** we reveal the results of the first survey of its kind, involving the views of both members and non-members. The findings are sometimes reassuring, sometimes puzzling, but always fascinating.

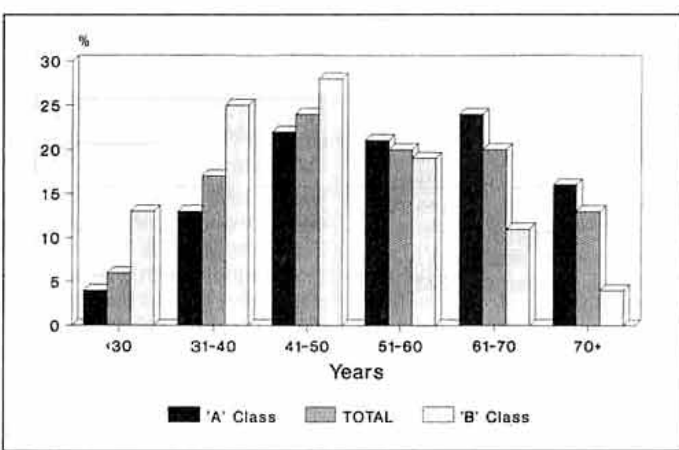


Fig 1: Age of licensees.

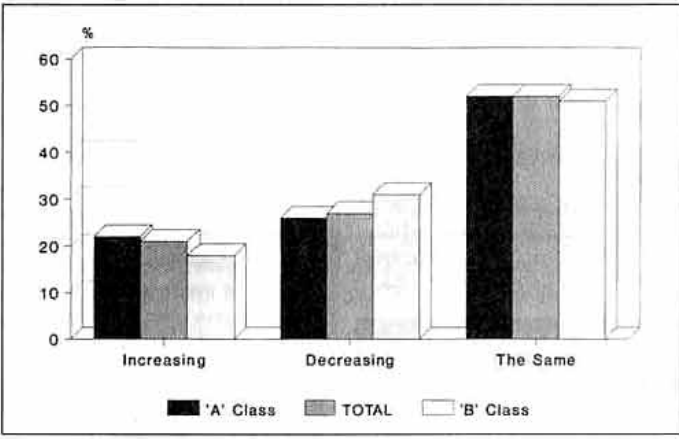


Fig 2: Interest in amateur radio.

against which to compare the results of future surveys so that we can measure change over time.

By the way, after amateur radio the most popular interest is sports followed by gardening then computers. Further down the list there is a significant contingent who enjoy rambling (walking) and DIY.

Turning to the various interests that shape amateur radio today, the findings are shown in Table 1. It is interesting to note

that areas of higher interest for non-RSGB members included computers, UHF, Repeaters, satellites and mobile operation.

## General Opinion

WE ASKED for opinions on a range of important general topics. The proportions who agreed or disagreed with statements are shown in Fig 3. Clearly we have more analysis to

do on all the data as interpretations could seriously influence any future strategy. Many different facets of opinion are apparent in the results, including differences between members of RSGB and non-members, younger and older, class 'A' and class 'B' licensees and so forth.

## Opinions About the RSGB

WE ASKED for opinions on various aspects of the Society. No holds barred - we really need to know! The result is shown in Fig 4. Not surprisingly, members felt more satisfied than non-members but of course many who are non members have no foundation on which to base an opinion. Here there are signs that the cost of subscription has a significant effect upon becoming a member but more on that later. Again these opinions will form a basis for comparisons in the future to see if views have changed.

Members were asked to indicate the aspects of Society work which are important to them. The result is shown in Table 2.

We also wanted to understand what members thought of *RadCom*. On average, 1 - 2 hours is spent reading each month and 59% felt that the balance of technical to non-technical articles was about right. The same number said that the technical level is about right with 24% suggesting it is too advanced and 11% too basic. When asked which particular aspects should be better covered in *RadCom*, practical and construction articles were most often mentioned but computing and operating topics were also requested.

It was also important to ask non-members about their reasons for not becoming a member of the Society (Table 3). The first interesting fact uncovered was that 38% of them had been members at some time in the past.

Clearly the findings of this survey and the comprehensive detailed analysis by demographics, provides a wealth of information for conference and Council to

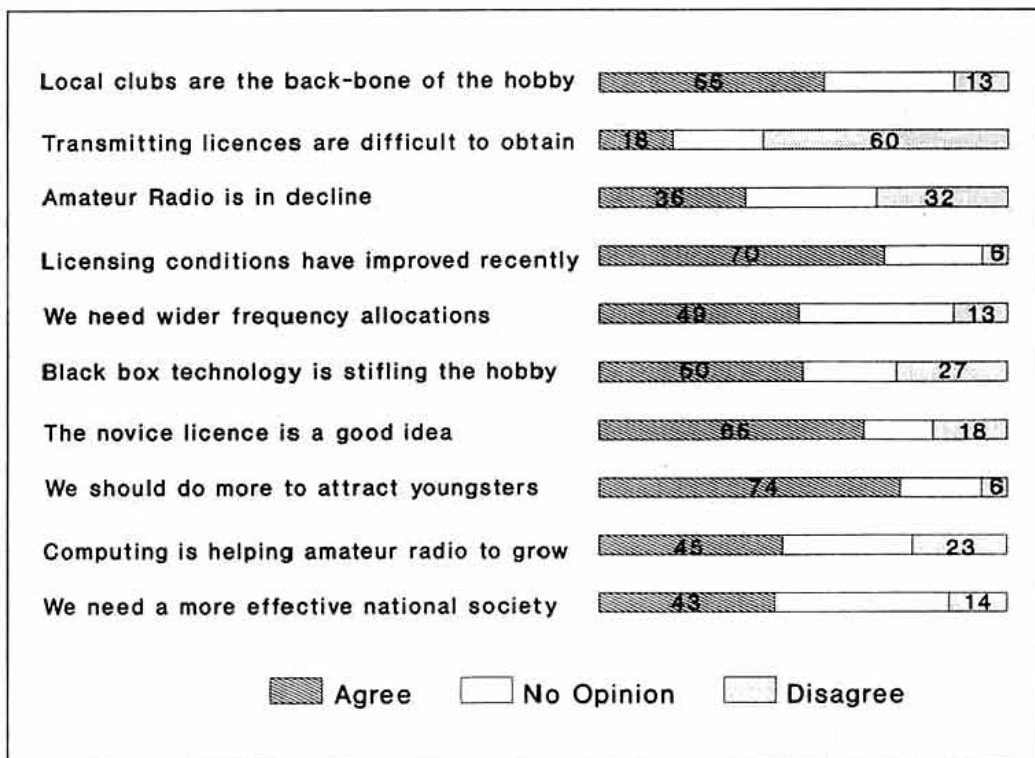


build upon. What of the future? Perhaps the answer was the one most frequently given to the question: which one specific reason might encourage a non-member to consider joining the Society? "When I have more time/interest in amateur radio". We would therefore be very wrong to assume that everyone holding a transmitting licence is necessarily active in amateur radio or even still keen!

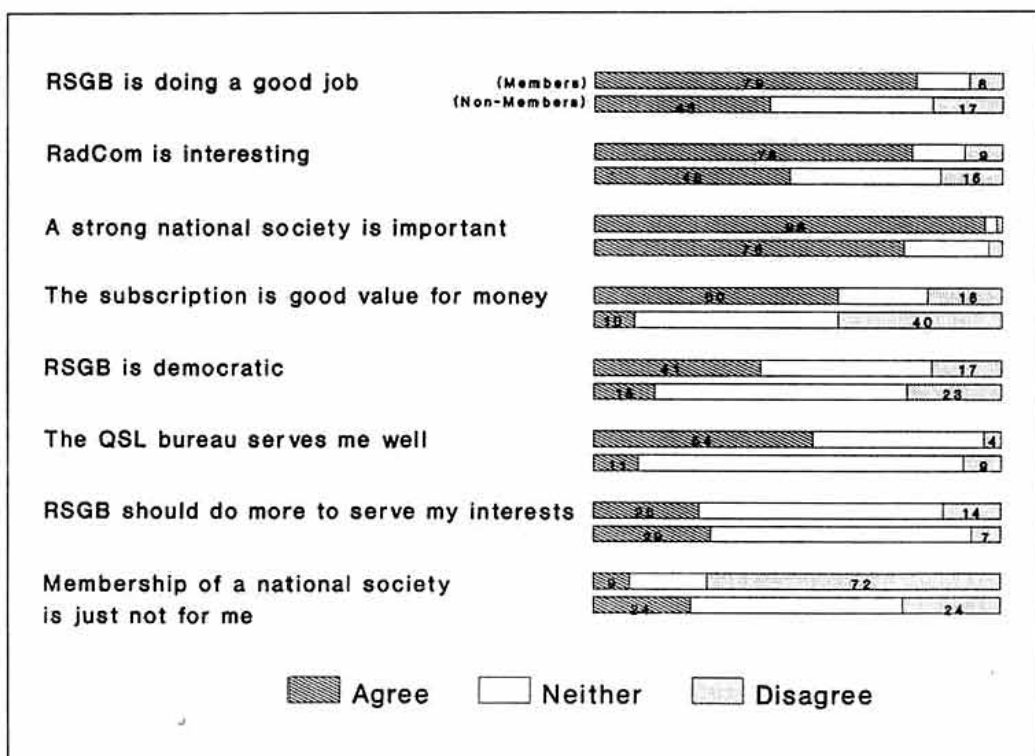
A full report has been provided to Council Members, Committee Chairmen and RSGB Officers. The Society, rest assured, will be studying and acting upon this new data to the long term benefit of the Society and all radio amateurs. We thank Roger Western, G3SXW, for giving his professional services and time to the Society and all those members and non-members who kindly responded to the survey questionnaire.

HF .....	78%
VHF .....	73%
SSB .....	64%
Antennas .....	61%
Construction .....	59%
CW .....	47%
Computers .....	39%
Rallies .....	36%
UHF .....	33%
Propagation .....	31%
Mobile Operation .....	28%
QRP .....	26%
Rigs .....	25%
QSLing .....	25%
Packet .....	24%
RTTY .....	22%
Local Club .....	18%
Satellites .....	16%
Repeaters .....	14%
Contests .....	14%
Teaching .....	12%
TV .....	11%
Raynet .....	11%
Field Day .....	11%
AMTOR .....	10%
EMC .....	10%
Teaching CW .....	9%
Microwaves .....	8%
Awards .....	8%
RSGB Work .....	6%
DF .....	6%
EME .....	4%

**Table 1: Amateur radio interests**



**Fig 3: General opinions amongst members.**



**Fig 4: What members and non-members think about the RSGB.**

Radio Communication .....	89%
Licence improvements .....	69%
Publications/books .....	64%
QSL Bureau .....	59%
Technical help .....	46%
Conventions/rallies .....	36%
Helping affiliated societies .....	27%
Committee support .....	19%
Contests .....	14%
Operating awards .....	8%

**Table 2: The most important aspects of the RSGB's work**

Cost of membership .....	62
No particular reason .....	24
Not interested in amateur radio at the moment .....	20
Would not use the QSL Bureau .....	20
Disagree with RSGB policies .....	17
Just not relevant to me .....	14
Do not want to receive Radio Communication .....	8
Never join national societies .....	7

**Table 3: Reasons for not joining the RSGB.**



# Abuse of Amateur Radio

## Introduction

Most radio amateurs are responsible people who are keen to uphold the fine traditions of amateur radio. They recognise the privileges and responsibilities that go hand in hand with the amateur licence and operate without causing interference or annoyance to others.

Unfortunately a small minority of amateurs choose to operate irresponsibly. Most of them act in full knowledge of what they are doing and the harm and annoyance they are causing. The amateur movement does not want irresponsible operators and this information sheet explains what you can do to help us deal with this problem.

## What is Abuse?

Abuse of amateur radio comes in several forms. However, most of it is designed either to deny access or to offend and annoy by causing deliberate interference, using offensive language or malicious gossip, playing music, pirating call signs and the like. Most commonly it is aimed at open-access facilities such as the voice repeater and packet networks so as to cause a nuisance to the maximum number of people and attract attention. Less common, but just as serious, is the abuser who targets individual operators or specific radio services.

It is worth remembering that vile and abusive language and threats are matters for the police and should be reported to them. Sadly, offensive language is more commonplace these days and courts need evidence that the language used in the alleged offences is worse than that encountered in everyday life.

## What should you do when you encounter abuse?

Rule number one is **do not respond to it**. Experience suggests that abusers want an audience, so ignore them.

Rule number two is, if it occurs frequently, **make a note of it**. Jot down essential details such as the date, time, frequency, location, mobile or fixed, what form the abuse took and any other factors that you think might be useful.

## RA Spells Out Abuse Policy

THE Radiocommunications Agency has produced an Information Sheet called *Abuse of Amateur Radio* which spells out the Agency's policy and advises amateurs on how to help themselves. A curious omission is any reference to the RSGB which set up the Amateur Radio Observation Service, appoints its Organiser and finances it as part of the Licensing Advisory Committee's activities. That aside, the sheet is so useful that it is reproduced in full here with the kind permission of the RA.

Rule number three is **maintain this log** in order to build up a pattern of the abuser's operations.

Rule number four is **make sure the information you collect is precise and accurate**.

## What do I do with this information?

The amateur radio movement has its own observation service and its objective is to monitor problems on the amateur bands and try to resolve them amicably. It is called the Amateur Radio Observation Service (AROS) and is headed by Geoff Griffiths, G3STG (address below).

AROS works quietly and calmly through a network of dedicated observers who operate confidentially.

If you send the information you have collected to AROS either directly or, preferably, via your club or repeater group, then AROS can look into the problem and attempt to resolve it.

Often it will succeed but where abusers persist in their behaviour,

AROS will send fully documented cases to the Agency's Radio Investigation Service (RIS) for possible action.

## What can the Agency do?

Unlike AROS, the Agency's Radio Investigation Service (RIS) has the legal powers to enforce the law. The penalties can be severe. Offences tried in a magistrates court attract a maximum penalty of £2,000 and/or imprisonment for a term not exceeding 6 months. Those tried before a jury can attract an unlimited fine and/or 2 years' imprisonment.

In addition, a court may order all or any of the apparatus of the station and other apparatus used in the commission of the offence (including, in the case of mobile transmissions, the motor vehicle used) to be forfeited to the Secretary of State.

Another possibility is licence revocation. The Agency will seek revocation where it is considered appropriate. Licence revocation is a separate procedure that is quite independent of any court action.

## If the Agency has these powers why bother with AROS?

Amateur radio is a hobby. It is allocated radio spectrum on the understanding that no protection can be given against interference within the bands. The Agency's RIS has to devote most of its resources to dealing with interference caused to the emergency services and others where there is a threat to safety of life. Its next priority is to deal with interference caused to business users who depend upon reliable radio communications for the successful operation of their businesses.

Most radio users will see these priorities as reasonable and understand that the RIS must treat amateur and other hobby uses of radio as lower priority areas. Nevertheless, the RIS does take action against radio amateurs including prosecutions for Wireless Telegraphy Act offences. The RIS has stepped up its activities in relation to repeater and station inspections and it will target these activities in response to AROS submissions. Therefore, by reporting cases of abuse to the RIS via AROS, responsible radio amateurs can help the RIS to maximise the use of its resources.

## Expectations

Enforcement work is not easy. It takes many hours of quiet and painstaking work. It often involves gathering many pieces of information from a variety of sources and then verifying it by monitoring and other investigations. If you are able to help by submitting reports to AROS we will be very grateful. However, neither we nor AROS will necessarily be able to tell you anything about what has been done with your information. What we can do, however, is to assure you in advance that such reports will be treated seriously and in confidence.

If you are able to help then please send your reports, either directly or via your club or group, to: Geoff Griffiths, G3STG, Amateur Radio Observation Service, 11 The Grove, Asfordby, Melton Mowbray, Leicestershire LE14 3UF

Any general enquiries about this information sheet should be addressed to: Radiocommunications Agency, Room 102, Waterloo Bridge House, Waterloo Road, London SE1 8UA; Telephone: 071-215 2297.

## Other RA Information Leaflets

THE FOLLOWING are available free of charge from: The Information and Library Service, Room 605, Radiocommunications Agency, Waterloo Bridge House, Waterloo Road, London SE1 8UA. Tel: 071 215 2352 or 071 215 2072 (24 hour answering machine).

- RA165** Application for an Amateur Radio (Novice) Licence A or B.
- RA166** Novice Licence Information Sheet.
- RA180** Radio Amateur Information Sheet: Licensing.
- RA182** Amateur Radio Callsigns.
- RA183** Amateur Radio Clubs and Societies.
- RA187** CEPT Amateurs (visiting licensees).
- RA188** Application for an Amateur Radio Licence A or B.
- RA189** Application for a temporary Amateur Radio Licence.
- RA190** How to Become a Radio Amateur.
- RA198** Abuse of Amateur radio
- RA200** Electromagnetic Compatibility for radio.



# RSGB Mencap Albania Appeal

## PRIZES!

### Versatower

CLUB RAISING THE MOST MONEY

### 50MHz Transceiver

INDIVIDUAL RAISING THE MOST MONEY

### 2 metre Handheld

CLUB'S MOST UNUSUAL EFFORT

### 70cm Handheld

UNDER 18 RAISING THE MOST MONEY

### 2m/ Marine Scanner

INDIVIDUAL MOST UNUSUAL EFFORT

### 'Mini-Pack' Packet Radio System

LARGEST DONATION FROM OUTSIDE THE UK

### Plus these prizes for runners up in all categories.

Barker & Williamson VS300A matching unit; Pump Action Morse key; Rugby Time Clock; Supa-Tuta Plus Morse Tutor; MP7/14/21/28L medium power capacitor dipole; Digital thermometer; 2m indoor Preamplifier; Microreader MkII.

If the amount raised falls short of the value of the prize in any category, then the RSGB reserves the right not to make the award, but to donate the prize directly to Mencap.

# Appeal



Hans Ehlers, DF5UG, member of the ZA1A team in 1991 visits the RadCom and D-I-Y Radio Stand at RSGB '92 and is delighted with the RSGB Appeal.



## Albania is back on air

MAY RADCOM featured Marti Laine's, OH2BH, DXpedition to Albania in 1991. Until this no contact could be made with radio amateurs in this 'locked away land' which is so close to us [Albania is to the south-west of Yugoslavia and to the north-west of Greece].

## Have you Worked ZA yet?

THANKS TO the ZA1A team radio amateurs can now contact Albania, but it is easy to forget the terrible conditions in which these extremely poor people live.

## RSGB members can help

THE RSGB Mencap Albania Appeal was launched to help improve the conditions of mentally and physically handicapped adults and children who are kept in appalling conditions. One shining light is the Luigi Guvakugi School, Tirana, and with your help, more schools such as this can be opened and staffed professionally.

## Give now!

THESE PEOPLE had no choice in being born in Albania - a country that has stood frozen in a time warp of poverty. Albania needs our help now - later may be too late!

SOFTWARE OFFER:  
SEE JULY RADCOM,  
PAGE 25

"The Albanians need our support and our help in catching up with everything they were denied over the past decades"

Marti Laine, OH2BH (The story of ZA1A)



Have you worked ZA yet? Your support really can help.

For full details of prizes see May RadCom pages 27 & 28

### WIN THESE FABULOUS PRIZES!

Have You Raised Money For the RSGB's Mencap Albania Appeal - one of the most needy causes of the decade

**VERSATOWER MAST** - 10m Mast, 10m Mast, 10m Mast

**50MHz TRANSCEIVER** - 50MHz Transceiver

**2m HANDHELD D-3-E** - 2m Handheld D-3-E

**MINI-PACK** - Mini-Pack

**70cm HANDHELD** - 70cm Handheld

**THERE'S A PRIZE!**

### EVEN MORE GREAT PRIZES

**2m MARINE PREAMPLIFIER** - 2m Marine Preamplifier

**HF ATU** - HF ATU

**MORSE TUTOR** - Morse Tutor

**PUMP ACTION MORSE KEY** - Pump Action Morse Key

**DIPLOME OF DELIGHT** - Diplome of Delight

**DIGITAL THERMOMETER** - Digital Thermometer

**2m INDOOR PREAMPLIFIER** - 2m Indoor Preamplifier

**RUGBY TIME CLOCK** - Rugby Time Clock

**MICROREADER MKII** - Microreader MkII

**2m SUPA-TUTA PLUS** - 2m Supa-Tuta Plus

**HOW TO MAKE YOUR DONATION**

Even if you are not sponsored... your personal donation is of course most welcome

We would like to thank the following companies for their support in this appeal: Strumech Versatower, AKD, Waters & Stanton, Nevada, Martin Lynch, Hatley Antennas, Sisken, Bredhurst, ICS, Datong, RN Electronics, G4ZPY Paddle Keys, Dewsbury, AMDAT, ERA and Mark Furness Ltd.

Make cheques payable to: RSGB Albania Appeal, and send to: RSGB, Albania Appeal, Lambda House, Cranborne Road, Poiters Bar, Herts. EN6 3JE.



# Act Now - Time is Running Out!

*both for this appeal and the people of Albania . . .*



Lord Rix, G2DQU, RSGB Vice-President and Mencap Chairman. Read his message in April 92 RadCom.

THE MENCAP/World Health Organisation/East European Partnership Mental Handicap Project is the first project of its kind to be developed in Albania, and people are enthusiastically watching its progress.

This project works on several levels, a) Albanian carers will train in the UK, and volunteers from EEP will go to Albania to start training staff there: b) EEP volunteers will advise local government officials on training parents and on starting support groups within the community: c) EEP volunteers will strengthen the local Albanian voluntary sector Mental Handicap groups that are emerging. The Albanian Government is very interested in developing this sector, and the President has recently written to EC/Phare asking for funding for the project to cover this work. Fourteen volunteers are scheduled to go to Albania in September.

The funding is going well, but there is still a shortfall of £50,000. With a worsening economic situation, it is certain that vulnerable groups such as those people with a mental handicap will need all the support they can get in the coming year or two. *Make sure that you help to improve the quality of life of these unfortunate people.*

*(Tanya Barron, Programme Officer, East European Partnership of VSO)*



*Would you, your family or your friends like to . . .*

## WIN A WEEKEND BREAK?



*With the agreement of VB Associates we are pleased to change the category for this prize in order to include as many people as possible in this competition.*

*You, or any of your family, can send in as many entries as you like provided each entry includes a £1 coin (or a postal order or cheque made out to RSGB Mencap Appeal for multiple entries). Either cut out the coupon or write the answers on a piece of paper and send to the address below, to arrive no later than first post on **Friday 14 August**. All entries will be put in a drum and the first correct entry drawn on Monday 17 August will be declared the winner. The prize can be taken as a £300 voucher for a weekend-break or a cash alternative.*

*Just answer the following simple questions correctly and send with your £1 to RSGB Mencap Competition, Radio Society of Great Britain, Cranborne Road, Potters Bar, Herts EN6 3JE.*

1. Who is the Chairman of Mencap?
  - (a) HRH Prince Philip
  - (b) Lord Rix
  - (c) Kenny Everett
  
2. What is the country prefix for Albania?
  - (a) AB
  - (b) G
  - (c) ZA
  
3. Which two of these countries border Albania?
  - (a) France
  - (b) Switzerland
  - (c) Yugoslavia
  - (d) Greece

**YOUR ANSWERS:**

1. [   ]      2. [   ]      3. [   ] [   ]

Name: .....

Address: .....

.....

.....

**Don't forget your £1 entry fee!**





The third of our major four-part series in which the UK's top HF DXers reveal the secret of their success

# HF DX

## The Inside Story

**H**F DXING IS NOT only building up an effective station and knowing how to use it. In order to work the DX you need to be on the right frequency at the right time - and that requires a constant supply of information. If you are a newcomer you'll have a lot of questions to ask:

- What are all these unusual call signs?
  - Where are the stations located?
  - In other countries, who is allowed in which parts of the bands?
  - How can you get QSLs from the stations you work - especially the rare ones?
  - When are the major international contests? What are the rules?
- and most important of all:
- How do some people always manage to know about new DX before it happens?

Many of the answers can be found simply by looking them up, so this article begins by listing the available sources of reference data related to HF DX. The last key question is different, though; it's about keeping continuously up-to-date with what's going on around the whole world. Finally we take a brief look at PC software in the shack, both to supplement your information needs and to help in a number of other ways.

### THE DXER'S REFERENCE LIBRARY

*THE RSGB CALL BOOK* is an excellent starting point for your shack library. It contains a wealth of valuable information on call sign prefixes, QSL bureaux, band plans, HF awards, etc. Next on the list comes the *Amateur Radio Operating Manual* (RSGB) which features lots of useful data, particularly in the appendices, as well as being a mine of practical advice on operating technique, propagation and much more.

The *ARRL Operating Manual* is also available from RSGB and contains much the same information, but from a different perspective. If you don't believe it's important to think about HF DX from other people's viewpoints as well as your own, *The Complete DXer* by W9KNI will put you right. In a series of fascinating narratives, Bob Locher shows how you can use scraps of information to deduce exactly when and where a DX station is likely to appear on the band.

There are many other useful reference books and operating

### Part 3 - Information and Software by Don Field, G3XTT

aids, most of them available from RSGB Publications (see this month's *Bookcase*, pages 78/79). These include prefix and great circle maps, the *International Call Book*, ON4UN's *Low Band DXing* and Xantek's *DX Edge*, a tool for working out sunrise and sunset times and displaying grey-lines to predict the best times of day.

This background information will help you to start working DX on the HF bands, but once you've worked the easy ones you'll find yourself in need of more detailed and immediate information as well.

### LISTEN, LISTEN, LISTEN!

WHEN WE SURVEYED THE UK stations on the DXCC Honor Roll we asked if they had any 'secret weapons' for finding the DX. Let them speak for themselves:

- "Only listening carefully around the bands" - Chris, G3SJH
- "Scan the WARC bands; watch the IOTA frequency" - Bob, G3PJT
- "Listen for long periods before calling the DX station" - Roger, G3LQP
- "You must be a good Short Wave listener" - Peter, G3YJI
- "Much patience, lots of listening, very little transmitting" - Peter, G3VIE
- "Listening/transmitting in the ration of 50:1" - Roger, G3KMA
- "Use Rx more than Tx!" - Reg, G3WPF



Fig 2: RSGB DX News Sheet is an essential source of information, delivered weekly to subscribers

"No amount of grey boxes can substitute for the time spent listening, listening . . ." - Dave, GM3WIL

- "Listen a lot!" - Colin, G3JEC
- "Much listening . . . many years as a DX SWL" - Fred, G3NSY
- "Listening - and doing so at the right time and place" - Al, G3FXB
- "Be active on the bands, listening" - Steve, GW4BLE
- "The ability to listen before calling! I will always be foremost an SWL and I have very high regard for amateurs who 'served an apprenticeship' as an SWL" - Bren, G4DYO
- "Listen, listen and continue listening" - Roger, G3NLY
- "Tune, tune, tune, listen, listen, listen" - Bill, G4ADD
- Get the point?

### CURRENT INFORMATION

HOWEVER, YOU CAN'T BE scanning the bands all the time, and if you're not careful a lot of DX will slip through your fingers and be off the air before you even discover it was there. You then start to wonder how it is that other DXers, including many with even less free time than yourself, always manage to be waiting on the right frequency at the right time.

Each and every one of our survey participants uses some source of outside information to supplement his own tuning of the bands. In fact, timely information was regarded as the key factor in DXing success - even more important than the rig, the antenna or operating skill!

The pattern of information sources was very clear, as shown

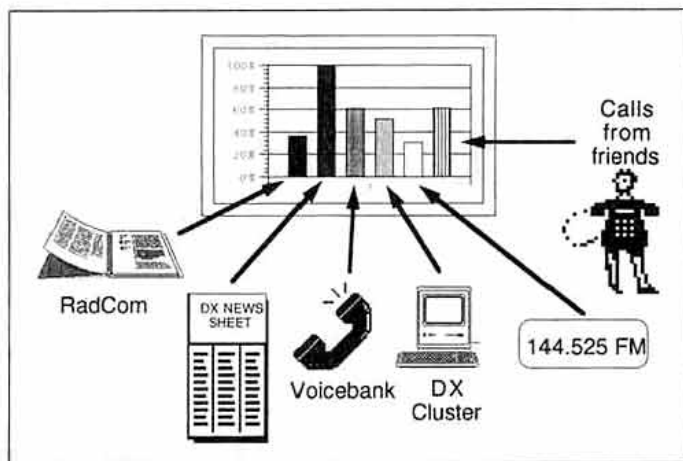


Fig 1: Sources of information used by UK DXers



in Fig 1. Everyone reads *RadCom* but not all regard it as a significant source of DX news, simply because publication deadlines require at least six weeks' notice of forthcoming DX operations. Often this just doesn't happen. Even where a DX operation has been planned well ahead, there are frequently last-minute hitches due to changed flights, operators having to drop out or whatever.

It is no coincidence that every DXer who completed the questionnaire subscribes to the RSGB's *DX News Sheet*: this weekly newsletter is an absolutely essential aid to HF DXing (Fig 2). As G3YJI ruefully admits, "The fact that I did not subscribe to *DXNS* held me back." Since *DXNS* was started over 20 years ago by Geoff Watts, a very active SWL, it has become firmly established as the UK's authoritative source of up-to-the-minute information on forthcoming DXpeditions, QSL information, propagation data, and much else of direct interest to active HF operators.

The weekly publication cycle is just right for keeping up with the majority of DX developments. If a news item reaches *DXNS* editor Brendan McCartney, G4DYO, before the Monday evening deadline, most UK subscribers will be reading about it in their Thursday morning mail. *DXNS* really is the DX News, and it can be ordered from RSGB Publications for £24 a year (UK price). Many other weekly DX newsletters are published elsewhere in the world, especially in the USA. However, G4DYO shares information with them on a reciprocal basis and of course *DXNS* reaches you sooner.

Even a weekly publication cannot tell you what is on the bands right now, or even what was on yesterday. To get around this, DXers have always helped one another by telephoning if a 'rare one' appears unexpectedly. More than one DXer has cultivated a network of SWLs whose telephone calls can be extremely valuable. Over the years local alerting nets have also sprung up on 2m in many parts of the country (generally on 144.525MHz) and these nets also serve as a congregating point for DXers to swap stories about the ones that got away. However, the telephone remains the main alerting route for people who live away from the main centres of 2m activity, or for specialist DXers who are relatively more scattered across the country. For example, Top Band (160m) DXers are quite happy to be phoned at 3am if a rare one turns up!

Another form of telephone alerting has become popular in the last few years. *DX News Sheet* sponsors the *DXNS Voicebank* based on the BT Voicebank service. Information can be input on one number (0426 910240) and listened to on another (0426 925240 - local call charge only for UK callers). Call this number regularly, and you will hear the latest input from fellow DXers.

**PACKETCLUSTER**

DESPITE ALL THE ABOVE, DXers have an insatiable appetite for information and rumour, and quickly discovered that packet radio offers scope for the best DX alerting system yet devised. Some years ago Dick Newell, AK1A, devised a form of real-time electronic conferencing which allowed all connected stations to see everyone else's

messages. This never caught on among general users of packet radio, but DXers immediately saw the potential for sending out DX 'spots' (eg "I have just worked A22MN on 14025kHz") and Dick enhanced his software in respond to their needs. As a result, PacketCluster has now become one of the most useful aids to DXers from Top Band to micro-waves. It combines the immediacy of telephone alerting with many of the facilities of a live DX net, plus the advantages of a computerized information database.

The UK PacketCluster network is growing all the time (Fig 3) and now covers most of England with links to similar DX clusters in mainland Europe. You don't need any special equipment beyond the ordinary packet TNC and terminal, and you connect with the nearest Cluster node using conventional packet nodes if necessary. A DX spot entered at one Cluster node is passed rapidly throughout the system and appears at the terminal of each connected station. The system also caters for short one-line 'announcement' messages, 'talk-through' to individual stations, conventional store-and-forward mail and bulletins, WWV propagation data, and access to several on-line databases (for example, the W6GO QSL Manager database). If you can't do it at home, PacketCluster will also calculate information such as sunrise and sunset times and the beam heading for a particular DX location. All of this is available in close to real-time while you are connected.

PacketCluster also stores its traffic, so you can log in when you arrive home from work and check back through the day's activity. You can do this in a selective way, for example by asking for the last five spots of VP8 stations, or the ten most recent spots on 18MHz. The PacketCluster system has cost thousands of pounds to set up (each node requires a dedicated PC with hard disk, as well as radios, antennas etc) and it is very time-consuming for the SysOps who run it. So if you become a regular user your contri-

butions of both help and cash are likely to be much appreciated; in return you will generally receive a printed manual describing all the PacketCluster features. A typical Packet Cluster screen is shown in Fig 4. Contact John Clayton, G4PDQ (QTHR) for further details.

**NETS**

THERE ARE MANY FACETS to HF DXing and inevitably those who specialise in one aspect tend to form worldwide information networks of their own. For example, it has been common for 160m enthusiasts to meet together on 20m on a Saturday to compare notes and share information; although this net is not running at the time of writing, G3RBP and G3XTT publish an occasional 160m newsletter carrying on a tradition started many years ago by W1BB, the 'father' of Top Band DXing. There are many other specialist nets which meet on the HF bands, specifically to pass information. Another good example is the IOTA (Islands on the Air) net which meets at 1300 GMT on Saturdays on 14260kHz. From time to time island stations will show up on frequency, but the prime focus of the net is

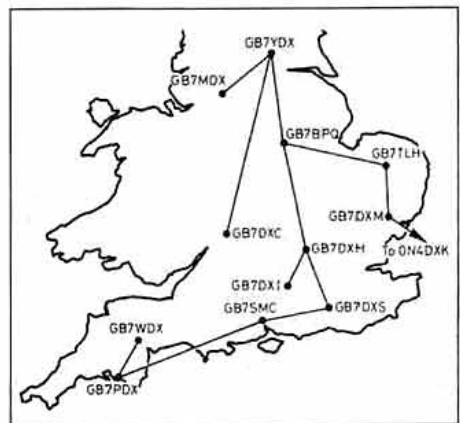


Fig 3: PacketCluster covers most of England with links to the Continent

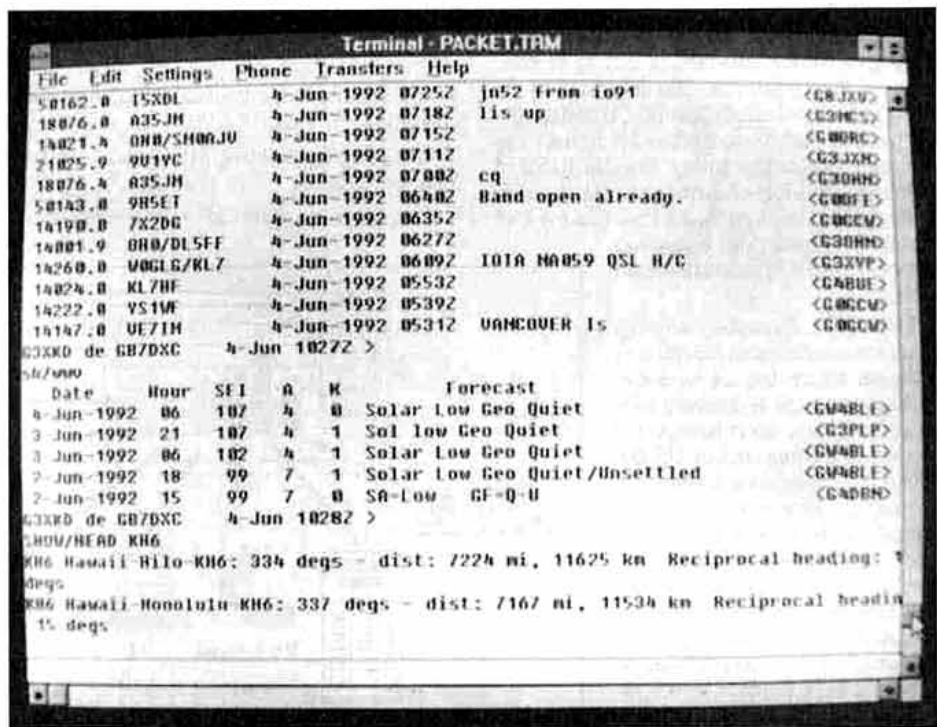


Fig 4: A typical Packet Cluster screen showing DX spots, propagation information and beam headings.





The computerized shack of well-known DXer and contester GW4BLE

to collect and exchange information about current and forthcoming island activity. The OE2DYL publication *Lists and Nets of the World* lists these information nets, as well as those nets which exist specifically to enable DX QSOs to take place (details next month).

If contesting is an aspect of HF operation which grabs your attention, then you need a copy of the *RSGB Contests Guide*, compiled by the RSGB HF Contest Committee and listing all the major contests sponsored by IARU member societies. There are a number of specialist publications aimed at contest enthusiasts, such as the bi-monthly *National Contest Journal* available from the ARRL (order by phone with your credit card).

## YOUR INPUT

ONE FINAL COMMENT on information sources. Most of them rely on input from active amateurs. As you become more active on HF you will recognise what is and isn't likely to be of interest to fellow enthusiasts. If you work a rare station, pass the information on - especially if you also hear him making skeds for another band or mode. If you hear information about a forthcoming DXpedition, then pass it to the editor of *RSGB DX News Sheet* or put it on the Voicebank or the PacketCluster system. Being an information supplier is also a form of enlightened self-interest: once you become recognised as someone who is often 'in the know', other active HF DXers will contact you to share whatever information they have. The more information you share, the more everyone will benefit.

## SOFTWARE

TO THE HF OPERATOR, a personal computer can have many uses. Perhaps the greatest is for logging. Contesters have found computer logging a particular boon, mainly because it reduces the amount of paperwork both during and after the contest (Fig 4).

Some contest logging programs are now extremely sophisticated, offering features such as CW from the keyboard, interfaces to the transceiver (for frequency tracking and instant QSY) and to PacketCluster, on-screen display of QSO rates and running score, and facilities for multi-transmitter contesting.

Many of these contest-inspired features have also found their way into more general-purpose station logging programs. These tend to have additional features such as tracking of progress towards the major awards, QSL tracking and printing, access to databases (QSL information, prefix information etc) and instant calculation of beam headings and distance. By and large, you get what you pay for. Several of the less-sophisticated programs are available freely as Public Domain software, or for a modest charge as try-before-you-buy Shareware. The more highly featured programs are usually sold commercially which allows the supplier to provide a proper back-up service. Programs are available for most personal computers, but especially for IBM-compatible PCs. A powerful program will require a fast machine with a hard disk - a log file can soon run to several megabytes if you are at all active.

Logging takes advantage of the PC as a database engine, able to look up historical data very quickly. Other amateur radio databases are also available, some of which can be accessed via your logging program. For example, a floppy-disc version of the Islands on the Air directory is now available from Canberra Communications and can be used stand-alone or via their Turbolog software. If your funds and hard disc run to it, you can even buy an electronic version of the International Call Book.

Apart from instant look-up, the other thing PCs are good at is mathematical calculation. This has given rise to a whole range of programs for circuit design, antenna design (both physical and electrical) and so on. These are very useful as 'station support', but more

relevant to day-to-day operations are the programs which deal with propagation prediction. These include Geoclock, a shareware program which plots the sun's passage across the face of the earth, showing which regions are in darkness at any given time. There is also a computerized version of Xantek's DX Edge, which again calculates sunrise and sunset times, and also plots the sun's passage on the computer screen.

As G3HCT puts it, "The ionosphere is a great leveller" - but he also uses his PC for propagation predictions, to shade the odds a little in his favour. MINIMUF, MINIPROP and IONSOUND (to be reviewed shortly in *RadCom*) are all programs which take data on solar conditions and make predictions about likely HF-band propagation to specified parts of the world. Although the algorithms used in the most recent programs are getting quite sophisticated, taking full advantage of the power of modern PCs, all propagation predictions need to be treated with about the same level of belief as weather forecasts!

Last but by no means least, PCs offer a way to control your radio and antenna rotator, and to access to communications modes besides CW and SSB. Very few HF operators nowadays are using mechanical terminals for RTTY, AMTOR, FAX or SSTV. Most casual and DX operation on these modes is by way of a suitable electronic terminal unit, driven by one of the many programs available for the shack computer.

Of course, for both logging and data communications, it is essential that your radio equipment and computer can live in harmony together! Sadly, some of the earlier and cheaper PCs were notable for the amount of stray radiation they sprayed around the shack. This is tending to be less of a problem as time goes on, but if you want to copy the weakest signals you may well need to screen and filter the connecting leads, and perhaps screen the PC's case as well. Experience suggests that the worst problems are likely to occur on 28MHz and 50MHz. In the other direction, computers are usually immune to RF from the rig, though I have had problems of distortion on the PC monitor when placed close to a large transformer (eg in a linear amplifier).

## CONCLUSION

WITH TIMELY INFORMATION on current and forthcoming activity, based on intelligent use of the various sources available to you, plus some computer modelling of the most likely band openings, you will soon be well on your way to catching up with lots of prize DX. But having come this far, you also need the skills and instincts to work the stations and get them into your log. The final article in this series will contain plenty of hints and tips to help you do just that.

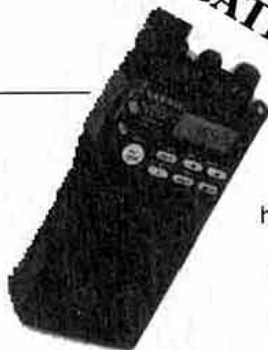
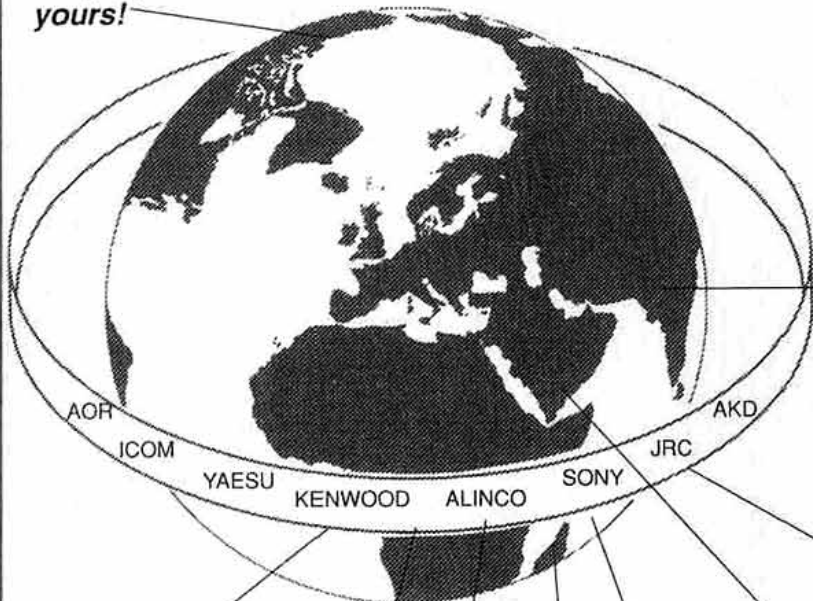
... To be concluded

**HF CONVENTION, 26/27  
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SEE PAGE 44**



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# Maritime Mobile from a Small Boat

By Roger Wheeler BSc (Hons), C.Eng, MIEE. G3MGW

**Y**OU DON'T HAVE to be a millionaire, living in exotic climes to sign /MM. Great fun can be had operating from a small boat around our coastal waters. Since the change in licence conditions I have operated my /MM station from a small (14') fibreglass fishing boat. With relatively low power, and a very simple antenna, I have enjoyed worldwide HF contacts from my little boat, and worked DX by being 'something out of the ordinary'. You may, like me, 'take the DX as it comes' preferring to chat to all comers, however I must admit that when a KH6 or other rarity calls me I do get a buzz of excitement.



G3MGW/MM: A life on the ocean waves.

## G3MGW/MM

MY BOAT IS A DOUBLE-hulled fibreglass fishing boat with a small cabin which houses the equipment. In the forepeak I made a small housing with compartments of marine plywood, that enables the equipment, a TS140S and an MFJ941 ATU, to be fixed securely. Expensive equipment rolling around in a cabin is disconcerting and could be very expensive. The station is powered by a 60Ah car battery mounted *outside* the cabin, and this allows about eight hours of operation.

The antenna is a 5.1m vertical and the ground plane is usually the North Sea! The system resonates as a  $\lambda/4$  vertical for each of the HF bands. This is accomplished by varying the length of the radiator to either 3.75m for 24 and 28MHz or 5.1m for 21, 18, 14, 10 and 7MHz. Matching is via an MFJ941 ATU, and operation on 80m is possible with a 45 turn base loading coil.

## CONSTRUCTION DETAILS

THE ANTENNA IS MADE from four lengths, each 1.5m long, of telescopic aluminium tubing. The largest o/d is 20mm with about 300mm of overlap between sections. Sections are secured with stainless steel self-tapping screws. The lower section is fitted inside a 600mm length of fibreglass tube (this is ex fishing rod and is extruded fibreglass *not* carbon fibre). See Fig 1.

This tube acts as an insulator between the radiator and the ground tube extension. The latter tube passes through the cabin roof and is clamped via a U-bolt onto an aluminium bracket which in turn forms the ground plane connection between the inside and outside of the vessel. It is important not to breach the watertight nature of the fibreglass hull. These inside to outside ground plane connections must be above the water-line. Also I think it

inadvisable in a *small* boat to be very close to the radiator. Hence the ground plane tube extends the radiator by about 2m outside and above the cabin roof. The ground plane tube is securely fixed via a bracket and U-bolt to two stainless plates, one inside the cabin and one outside. These reinforce the bulkhead.

## GROUND PLANE DETAILS

THE GROUND PLANE and its connections used to have a low RF impedance to ground, achieved by using multiple conductors attached to the 300mm long copper tube (or alternatively a low conductivity plate) immersed in the sea. The connection through the hull is via the 10mm bolts holding the stainless reinforcing plates. Ring/tongue crimp connectors have been found very successful and compatible with a marine environment. G3EUW has advised me that the copper tube should have holes drilled in it "to let the water in". On reflection many small (less than the wall thickness) holes will increase the surface area, thereby reducing the RF and ohmic resistance. I usually tie my tube to the boat so that the connections are not strained.

## THE ANTENNA SYSTEM IN OPERATION

ON 24 AND 28MHz THE top whip section is removed (or telescoped) to give an antenna length of 3.75m. On all other HF bands the full height is required. On 80m, a 45 turn coil on a 1.25" plastic pipe is placed over the fibreglass tube and connected in series with the coax (inner) fed to the radiator.

An MFJ941 Versa Tuner II was used to tune the antenna on all the HF amateur bands from 3.5 to 28MHz

I have found the following to be helpful:

1. This antenna 'whips' due to the effects of

wind and sea so when making adjustments or erecting note the following;

- (a) Tie it with nylon cord to the boat
  - (b) Wear a life-jacket
  - (c) Head up to tide and wind
2. Don't operate close to other vessels for EMC reasons and because their wire rigging can cause 'suck-out'
  3. Warn everyone not to touch the antenna
  4. Keep fuel well away from all cables
  5. Keep all other antennas, eg VHF marine, well away from your antenna
- Finally, have fun and good DX, but take care.

## ACKNOWLEDGEMENTS

I WOULD LIKE TO THANK the members of the Brightlingsea Wireless Society for their help and advice.

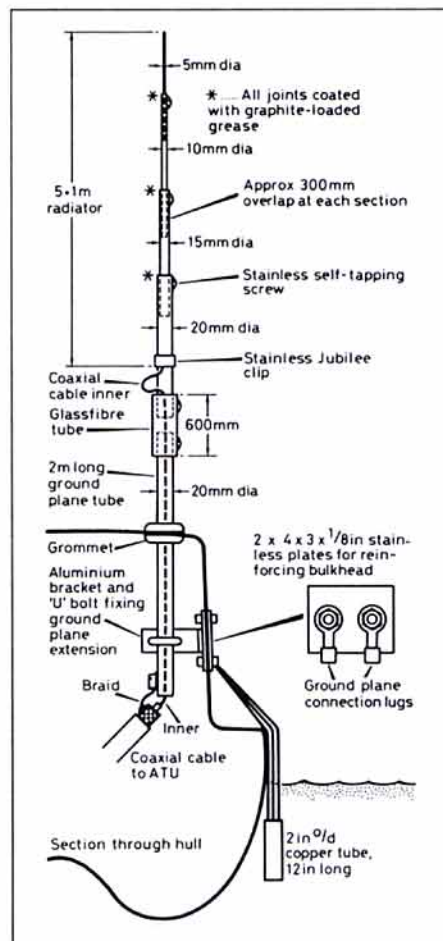


Fig 1: The antenna must be securely mounted.



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CBL-2000	1:1 0.5-60MHz, 2kW P.E.P.	£25.50	A		
<b>HANDHELD ANTENNAS</b>					
CH72S	2m/70cm BNC 0dB/3.2dB	£12.25	A		
CH1200WS	23cm BNC 5.6dB 2x $\frac{1}{2}$ wave	£14.50	A		
CH-600MX	2m/70cm/23cm BNC triband (OK for scanners Rx 120/300/800/900MHz)	£23.50	A		
<b>MOBILE ANTENNAS</b>					
CA-7HR	7MHz $\frac{1}{2}$ wave centre loaded	2.13m	£33.95	B	
CA-14HR	14MHz $\frac{1}{2}$ wave centre loaded	2.13m	£33.95	B	
CA-21HR	21MHz $\frac{1}{2}$ wave centre loaded	2.13m	£33.95	B	
CA-50HR	50MHz $\frac{1}{2}$ wave centre loaded	2.13m	£33.95	B	
CA-285	6m/2m dualband 0dB/3.5dB	1.32m	£20.75	B	
B-22	2m/70cm 3dB/5.5dB Black	0.9m	£26.85	B	
CA2x4MB	2m/70cm 4.5dB/7.5dB	1.99m	£38.50	C	
CA2x4KG	2m/70cm 6.0dB/8.4dB	2.06m	£40.75	C	
CA2-702	6m/2m/70cm 2.15/6.0/8.4dB	2.1m	£46.95	B	
<b>DUPLIXERS</b>					
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CA-520	6m+2m/70cm Duplexer	UHF Conn	£24.99	B	
CF416B	2m+70cm Duplexer	UHF/N Conn	£26.00	B	
CFX-514	6m+2m+70cm Triplexer	UHF/N Conn	£36.75	B	
CFX-431	2m+70cm+23cm Triplexer	UHF/N Conn	£39.95	B	
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RS16	Mini gutter mount		£12.75	A	
RS17	Mini trunk mount		£12.75	A	
CK-3M4B	Mini cable assembly		£16.25	B	
<b>MINI MOBILE ANTENNAS</b>					
B-10	2m/70cm 0/2.15dB (black)	0.3m	£16.95	B	
CHL21J	2m/70cm 0/2.15dB	0.3m	£14.75	B	
CHL23J	2m/70cm 2.15/3.18dB	0.44m	£17.35	B	
<b>BASE ANTENNAS</b>					
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CA2x4MAX	2m/70cm 8.5/11.9dB	5.4m	£102.12	C	
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CF-50MR	6m cut off 54MHz 1kW P.E.P.		£38.75	B	
CF-30H	HF cut off 32MHz 2kW P.E.P.		£80.75	A	
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CD-120	1.8-200MHz 15/60/200W		£76.60	B	
CD-160H	1.6-60MHz 20/200/2000W		£90.85	B	
CD-270D	140-525MHz 15/60/200W		£79.65	B	
<b>COAX SWITCHES</b>					
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CSW-20N	2 way DC-1.5GHz N		£45.95	C	
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PS304	1-15v Variable	24A/30A max	£129.95	D
RS40X	1-15v Variable	32A/40A max	£189.00	D

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CS201G2	2 Way N	DC-2GHz	1kW	£27.50	A
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G-1000SDX	Bell type 450 deg var speed	£376.00	C
G-2000RC	Bell type round controller	£454.00	C
G-2700SDX	Bell type 450 deg var speed	£649.00	C
G-500A	Elevation meter controller	£203.00	C
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G-5600B	Azimuth/elev dual control	£444.00	D
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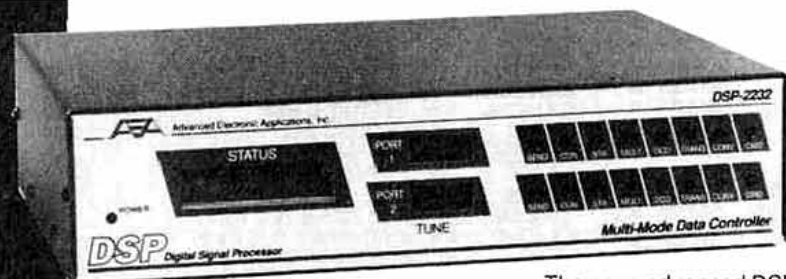
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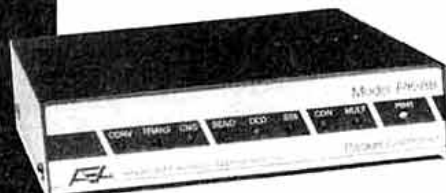
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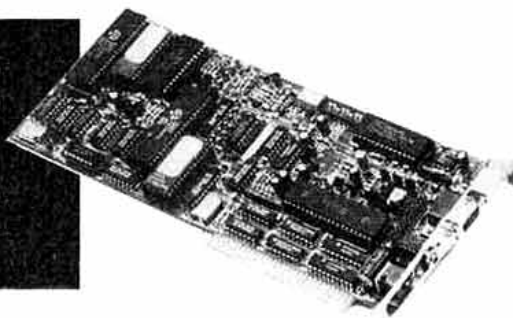
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# Pat Hawker's Technical Topics

## THE FOLDED-TEE ANTENNA

IN *TT*, JULY 1987 and again in August 1991, some details were given of the investigation by Arch Doty, K8CFU, of the advantages of the quarter-wave folded monopole antenna, including the possibility of feeding such antennas directly from 50Ω coaxial cable feeders (or 75Ω cable with different diameter conductors) and the reduction of ground losses brought about by the higher feedpoint impedance. But, as noted then, a 1.8MHz monopole requires a height of some 115ft (35m) - a height not really feasible for the vast majority of amateurs. Even for 3.5MHz a quarter-wave monopole needs a height of some 66ft (20m) or so.

Anthony Preedy, A45ZZ/G3LNP, a professional broadcast-antenna engineer writing from the Sultanate of Oman, has come up with an effective way of reducing the height of folded monopoles with an original design - the 'folded-Tee antenna'. This design was first proposed for use in Saudi Arabia to enable MF transmitters to be tuned rapidly to various frequencies but would seem to offer significant advantages for amateur operation on 1.8MHz and the lower HF bands. Tony Preedy writes:

"DX operation on the lower bands usually calls for a vertical antenna. The height of a self-resonant quarter-wave or half-wave antenna for 1.8MHz is generally beyond the facilities available to most amateurs.

"An 'L' or 'T' configuration is the usual solution to this problem. The 'T' is preferred because, otherwise wasteful high angle (horizontally-polarized) radiation is conserved by cancellation between each half of the horizontal section. But a single wire 'T' for 1.8MHz with a 'reasonable' height of, say, 15m will have a feed resistance of only about 10Ω and requires a matching network if coaxial feeder is to be used. A tuned network will considerably reduce the effective bandwidth of the antenna.

"Fig 1 shows how a 'folded-Tee' antenna can be derived from the quarter-wave folded monopole as described in the standard handbooks or *TT*, July 1987. This is a special form of 'T' antenna developed for MF broadcasting, and largely retains the significant advantages of the folded monopole which are bandwidth, a static discharge path to earth and a moderate feed resistance.

"With similar diameter conductors, the feed resistance of the folded-Tee is four times that of a simple 'T' and varies as the square of the height as shown in Fig 2. A match to 50Ω coaxial feeder requires a height of approximately only one-tenth of a wavelength, although this is dependent to some extent on earth loss resistance. Earth resistance should be minimised for optimum efficiency as with any vertical antenna driven against ground.

"Adjustment is simple and this feature made the antenna attractive for MF broadcasting during the 1991 Middle East conflict. Determine the height which provides 50Ω feed resistance, then trim the top lengths symmetrically at the centre for resonance.

"Dimensions for a 1.85MHz antenna are shown in Fig 3. This requires supports a little over 15m high and should cover the whole band with low VSWR without the need for

base matching networks. The dimensions can be scaled for other bands with final top lengths trimmed for minimum VSWR".

It is interesting to note that a folded-Tee antenna for 7MHz DX with support heights of one-tenth wavelength would have a height of only about 4 to 4.5m. It should prove effective in any location having reasonable earth conductivity, or alternatively could be used with elevated resonant radials or counterpoises.

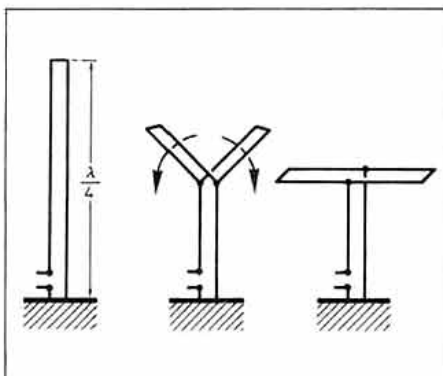


Fig 1: The derivation of the G3LNP/A45ZZ folded vertical quarter-wave monopole antenna.

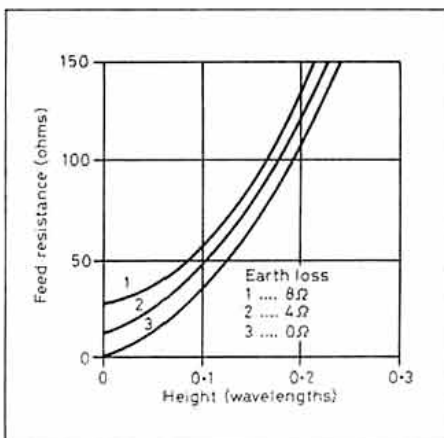


Fig 2: Resonant feed-point resistance versus height for the folded 'T' antenna.

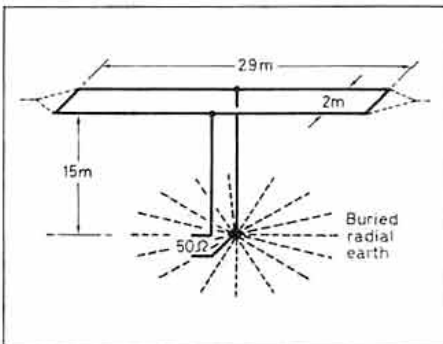


Fig 3: Dimensions for a 1.85MHz folded 'T' antenna. Dimensions can be scaled for higher-frequency bands.

## EFFICIENCY OR EFFECTIVENESS?

SEVERAL COMMENTS HAVE been received concerning the criticisms levelled generally by Dr John Belrose, VE2CV, at the looseness of terminology found in amateur-radio publications with particular reference to the comments in *TT* (December 1991) on the G4HOL horizontal loop antenna.

Dr Brian Austin, G0GSF, felt that VE2CV was too severe in his criticisms of *TT* and of G4HOL's comments on the performance of his loop on 3.5MHz but also brings out the important difference between antenna 'efficiency' and antenna 'effectiveness'. He writes: "G4HOL didn't say in *TT* that his new loop had 9dB more gain than his sloper but simply that it 'was consistently some 9dB better'. That surely is completely fair comment since that is what he observed on the signals and over the period of time concerned. At no stage was gain actually mentioned.

"I certainly agree with VE2CV when he says that there are probably more erroneous statements made and written about antennas than any other aspect of amateur radio but in my experience *TT* has not been guilty of many, if at all.

"One example of loose terminology which I see and hear often involves the concept of efficiency. Frequently one will hear amateurs comparing antennas on the basis of their 'efficiency' when, in fact, they don't mean efficiency at all. If they had said 'effectiveness', I would have been entirely satisfied since effectiveness can be a subjective assessment of an antenna's performance. It is not a characteristic that is defined mathematically, unlike 'efficiency' which is. AJ Henk, G4XVF, in his articles about electrically small loops (*RadCom*, Sept/Oct 1991) made the distinction between efficiency and effectiveness very clearly, but maybe it needs restating in completely general terms lest anyone thinks that only such small antennas can be inefficient.

"Mathematically the gain,  $G$ , of an antenna and its directivity,  $D$ , are related by the radiation efficiency or just the efficiency,  $e$ , thus  $G = eD$ . As in all cases where efficiency is involved in engineering we mean the ratio of output power to input power, usually expressed as a percentage. Since the output power from an antenna is a measure of how well it radiates, we would expect the radiation efficiency to involve the radiation resistance  $R_{rad}$  and the overall loss resistance,  $R_{loss}$ , of the antenna. Hence:

$$e = R_{rad} / (R_{rad} + R_{loss}) \times 100 \text{ per cent}$$

"For most antennas that amateurs use in a fixed installation, the radiation efficiency will be very close to 100%, in which case gain and directivity can be used interchangeably. However, mobile whips with sizeable loading coils and any other antenna containing significant amounts of lumped loading may well be rather inefficient: the so called Australian Dipole and the T2FD which have become popular again because of their broadband performance by trading efficiency for bandwidth. In both cases their radiation efficiencies, which vary with frequency, are typically less than 50 per cent and considerably less than that at the low end of the HF band".



If I have understood G0GSF correctly (and to save protests from users of Australian dipoles and T2FD antennas which use resistive loading) he is emphasising that antennas which have only low or moderate efficiency can yet prove quite effective in certain applications. For example, the small loop in those situations where an antenna of dimensions comparable to half-wavelength is impracticable; or the Australian dipole where multi-band operation matching adjustments are more important than radiating every watt of transmitter output - 50 per cent efficiency, after all, represents a drop of only 3dB, or less than one S-point. After all, it is only the power radiated towards the target area, at the right elevation angle for the propagation conditions at that moment, which governs the signal strength.

**ANTENNA MODELLING WITH ELNEC AND MN-PRO**

DR BRIAN AUSTIN, G0GSF, as we have noted in *TT* over the years, was one of the early users of computer-modelling of antennas based on the Methods of Moments including pioneering work in validating derivatives of the original Numerical Electromagnetic Code (NEC) software programs.

His studies have recently been expanded to include two MININEC programs that have been written by radio-amateurs - ELNEC written by Roy Lewallen, W7EL, and MN written by Brian Beezley, K6STI. G0GSF writes:

"I've noticed in a number of *TT* items of late that the MININEC-derivative programs, such as ELNEC and MN, are becoming increasingly popular. As you will remember I've long been a user of MININEC from its very first version, which was written for the Apple computer in the early 'eighties, through each development since, including THE MININEC SYSTEM and MININEC from the original developers of the code. Within the past few months I've been able to use both ELNEC and MN-PRO. Without a doubt these two very similar 'amateur' programs, leave the 'professional' codes in the shade as far as 'user-friendliness' is concerned. In fact, once one has experienced the ease with which a virtually unlimited range of wire-type antennas can be analyzed using them, I see no need to go back to the 'professional'; PC-based programs.

"Both benefit enormously from having very useful graphics capabilities 'built-in'. Whereas THE MININEC SYSTEM does too, it is a tedious business to use it and even then the graphics available are somewhat limited. ELNEC and MN-PRO have graphics which form an inherent part of the programs and which are very easy to access by just a couple of keystrokes.

"Anyone who has used the earlier PC Moment Method codes to analyze antennas will no doubt have encountered the problem of inaccuracy when modelling any antenna containing wires which join at an acute angle, such as the inverted vee. It was realized quite some while ago, when many people were 'validating' these codes, that the accuracy could be greatly improved by tapering the segmentation scheme used on the wires,

particularly in those regions where the current distribution was known to be critical. For those unfamiliar with what is meant by this it should be realised that the program works by treating a wire as consisting of a number of short elements, called segments, which are joined in series. If the length of these segments is progressively reduced along the wire then the segments are said to have been tapered. This process is quite tedious to do manually but is most necessary if an accurate value is required for the input impedance of an antenna.

"Both ELNEC and MN-PRO contain automatic tapering facilities, selectable by just one or two keystrokes, for performing this task. To show just how effective they are in computing the accurate impedance, see Fig 4. This shows the calculated input impedance of a halfwave inverted vee antenna, in free space, for various values of included angle. This theoretical curve is from "Analysis of the symmetric centre-fed V-dipole antenna by J E Jones (*IEEE Trans Antennas & Propagation*, AP24, May 1976, pp316-322).

"Also shown on the graph are the values for input impedance computed by NEC (the large main-frame moment method program) and by MININEC without tapered segments, and then after using the automatic tapering scheme mentioned above. It will be noticed that all the programs compute the resistive component accurately but that the untapered MININEC shows an increasing error in the reactive term as the included angle is decreased. Note that how both NEC and the tapered MININEC schemes produce excellent agreement with Jones' results.

"I've subjected these new codes to a fairly extensive set of my own validation tests and they've been shown to produce very good agreement with results from NEC, experimental data and the antenna 'literature'. Of course, any computer-based analytical technique is just as capable now, as they ever have been, of producing results which are clearly nonsense (ie GIGO - Garbage In =

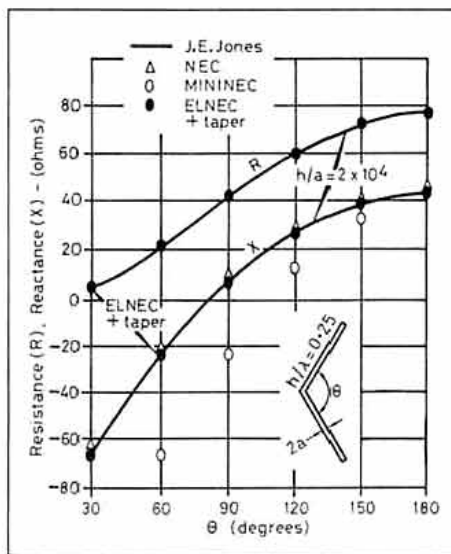


Fig 4: Calculated input impedance of a half-wave inverted-vee antenna showing the extremely close correspondence between the 1976 theoretical curve of J E Jones (*IEEE Trans A&P*) and computer-modelling using NEC and ELNEC + taper whereas the MININEC program shows significant divergence on the reactive component. Note that all three programs agree in the resistive component.

Garbage Out) if the user makes inappropriate or simply incorrect decisions when setting up the model. So, as previous *TT* warnings have made clear, a good understanding and 'physical feel' for how antennas behave is still necessary when using these new antenna codes".

Al Christman, KB8I, is another amateur concerned with engineering education who has underlined the value of computer modelling of antennas using MININEC and ELNEC. In 'Phased Driven Arrays for the Low Bands' (*QST*, May 1992, pp49-52), he shows how arrays of driven monopoles and also inverted-vee arrays offer great promise for directive low-band arrays when the various elements are fed at the correct amplitude and phase. This is an approach long used for directional broadcast MF arrays but in the past usually considered difficult for amateur designers. He presents ELNEC-computed horizontal and vertical radiation patterns over real earth for four-square, three-in-line and cross vertical arrays, and the three-in-line inverted-vee array: Fig 5. He provides references to the literature on the design of suitable phasing networks while expressing the hope that some enterprising amateur will manufacture and sell a phasing box making it easier to experiment with multi-element driven arrays.

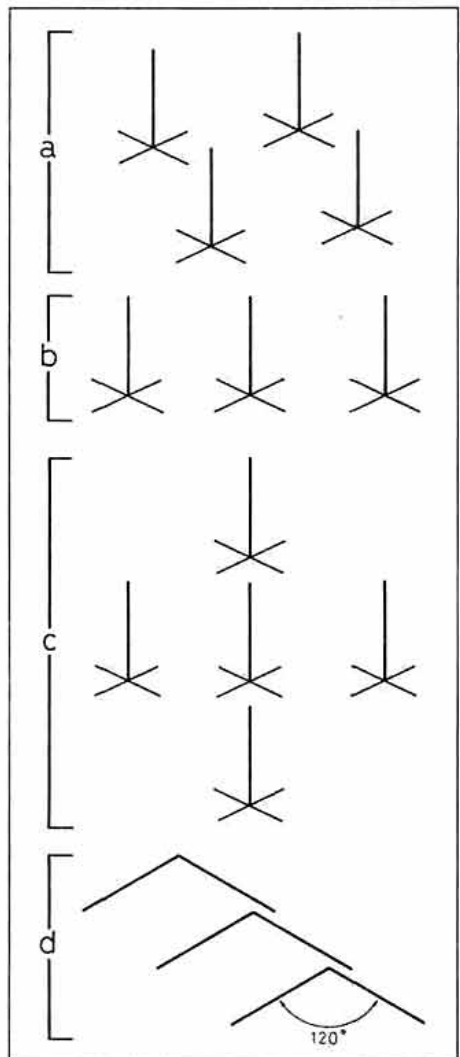


Fig 5: Four types of directive arrays subjected to computer-modelling by KB8I in the May *QST*. (a) Four-square array of monopoles. (b) Three-in-line array. (c) Cross (five-square) array. (d) Three-in-line inverted-V array.



## THE FRINEAR 400 LINEAR - A KISS VERSION

77, FEBRUARY 1990, p30 included a 400W linear amplifier from Frits Geerlings, PA0FRI, which he had developed from an earlier 100W design based on a single PL519 (or PL509) television line-output (sweep) valve. The 1990 design used three PL519 valves in parallel with some quite complex ancillary circuitry in order to obtain the full legal output from the three valves.

PA0FRI has now sent along a simpler, lower-cost version of his amplifier using four instead of three valves but with otherwise an appreciably reduced component count: Fig 6. As from his earlier designs, he has condensed constructional information into a single annotated diagram plus a minimum of additional notes. Care should be taken to use suitably rated components etc and to

remember always that any equipment using lethal high-voltages (1250V with a peak current of over 1A) must always be handled with extreme care. Note also that in this amplifier the series heaters of the PL519s are powered directly from the mains supply.

PA0FRI adds that, compared with the 1990 design, the extra PL519 provides as much or more output with lower anode dissipation per valve; however forced air-cooling using a quiet computer fan is advisable. The input capacitance of the valves must be tuned out in order to obtain drive and low SWR by the grid-drive multiband impedance-matching system. This offers a simple 'remote' front-panel mounting with solely a 5mm hole for the 50ohm cable in the amplifier enclosure. The input twin-gang variable

capacitor (2 x 320pF) is from an AM broadcast radio. For an amplifier intended for use only on 1.8 and 3.5MHz the input tuning network can be omitted.

The screen-grid and cathode resistors help to equalise the loading of the four valves. Output on 28MHz is reduced by the relatively low efficiency, which in turn is a result of the lay-out, the PL519's input capacitance and the minimum capacitance of the output tuning capacitor. To achieve maximum output power on the 28MHz and WARC bands, the taps on the output filter need to be adjusted experimentally.

PA0FRI reports that the amplifier shows up well in a two-tone test and that on-the-air reports are encouraging. He drives it with a Yaesu FT7.

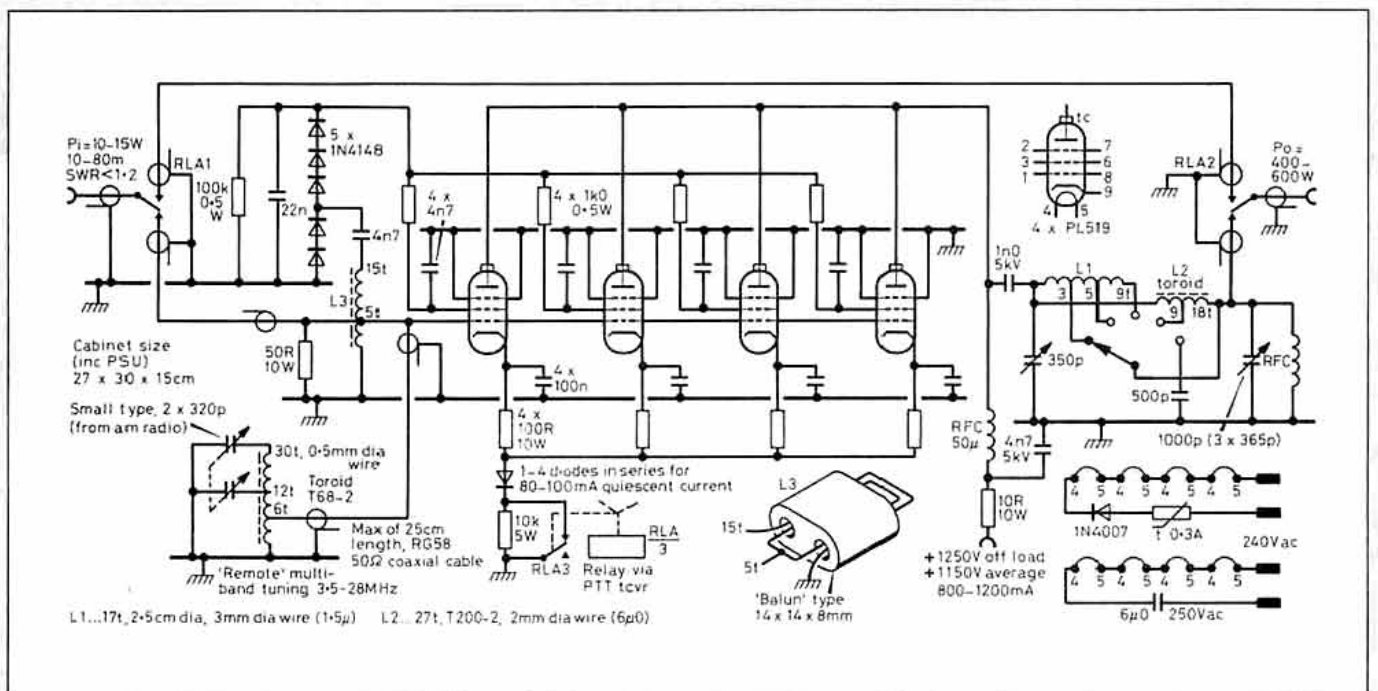


Fig 6: The 'Frinear 500' high-power linear amplifier using four PL519 TV valves (F H V Geerlings, PA0FRI).

### MATCHED PAIRS OF VALVES

THE RECENT 77 ITEM based on Z21HF's guide on how to get maximum life out of sweep tubes (TV line output valves) stressed that when buying replacement valves it is preferable to use 'matched pairs' in order that the load is shared equally between them and that non-matched pairs can differ significantly. Z21HF also noted that with the increasing rarity of some TV valves, a good case can be made for modifying a transceiver so that transmitting type valves (still available) such as the 6146 can be fitted.

Some interesting additions to the subject of matched pairs is to be found in Bill Orr's, W6SAI column, 'Radio FUNDamentals' (CQ, May 1972). His many years with Eimac has left W6SAI with an excellent insight into the whys and wherefores of valves and valve amplifiers. This time he explores the recent trend for advertisers to offer matched pairs of transmitting type valves such as 6146s, 572Bs, 3-500Zs etc. W6SAI, not unnaturally,

considers the use of TV valves not intended for use as high-power RF linear amplifiers as a 'royal pain in the neck' since parallel-connected sweep tubes needed to be hand-selected to equalize the load: "More often than not, one would run red hot while the other one ran cool. By hit or miss, two tubes that would share the load equally could be picked out of a bunch. Such 'matched pairs' were often daubed with a spot of paint to identify them and then sold at premium prices. That was the penalty paid for using tubes in a service for which they were not intended".

He adds: "When the sweep tubes were gradually phased out of amateur equipment, the popular 6146B tube took its rightful place as a linear amplifier for SSB service. Designed from the start as transmitting tubes, it was not necessary to match them, as manufacturing tolerances were held tight enough so that all tubes worked equally well in RF service - true enough when the tubes were made by reputable manufacturers: RCA, General Electric, Sylvania, et al.

"Those days are gone forever, however! Everybody is making tubes that are branded 6146Bs. Some are good and some are bad, but they all sport the 6146B label. The mavericks of the bunch seem to be those imported from China. At last count there were over a dozen companies in China making transmitting tubes. One or two of the companies produced rather good products . . . some of the other Chinese manufacturers vary in quality and operating characteristics to a marked degree. They do not seem to have the quality control and knowledge necessary to produce world-class products.

"Regardless of quality, transmitting tubes are being imported in large numbers into the United States and other western countries from China and sold under recognisable brand names the copyrights of which have expired.

"I recently examined a bunch (perhaps 20) of 6146Bs from China made by various manufacturers and all imported by one distributor. The height of the glass envelope varied from one bunch of tubes to the next; some of the



worst examples would not fit into the amplifier compartment of a Kenwood TS-830, for example, as the tubes were too tall.

"Mechanical assembly varied. Just by looking at the tubes it was easy to tell which ones were poorly made. Testing them at maximum plate current rating revealed that the operating characteristics varied widely. Such tubes have to be sorted out as to manufacturer and then separated into 'matched pairs' by testing under full load - I wonder how many importers have the desire, the test equipment and the knowledge to do this. The bottom line is that properly made transmitting tubes do not have to be matched for amateur service. The fact that many of the imported tubes sold today have to be matched is a sad commentary on overseas techniques and also on the US tube manufacturers who have deemed it not cost-effective to remain in the business. Transmitting valves are now imported into the USA from several European and South American countries, the ex-Soviet Union and China. Some overseas tubes are fine products. Some are not".

**STATE OF THE ART SHF TRANSISTORS**

TO THOSE WHO REMEMBER the first difficult days of solid-state devices which could only occasionally be persuaded to function at HF let alone VHF, the continued progress of the technology must excite wonder - with low noise devices now available at reasonable cost capable of operation well up into the SHF spectrum.

A paper 'Ultra-high-speed modulation-doped field-effect transistors: a tutorial review' by L D Nguyen, L E Larson and U K Mishra of Hughes and the University of California (*Proc IEEE*, April 1992, pp494-516) shows that ever since the first demonstration of mobility enhancement in modulation-doped heterostructures in 1978 "we have witnessed an explosion of research and development of the Modulation-Doped Field-Effect Transistor (MODFET) - also known as the High Electron Mobility Transistor (HEMT), Selectively-Doped Heterostructure Transistor (SDHT) and Two-Dimensional Gas Field-Effect Transistor (TEGFET) - for microwave and millimeter-wave device and circuit applications." Probably, the term HEMT will be the most familiar in view of their use in 12GHz low-noise amplifiers for the reception of direct satellite broadcasting (DSB).

The authors point out that "At the present time, and for the foreseeable future, the MODFET is the fastest three-terminal semiconductor device in the world. In five years alone (1984-89) the speed of state-of-the-art MODFETs, which is commonly characterised by their current gain cut off frequency ( $f_c$ ), has increased by a factor of five; from 50GHz in 1984 to 250GHz. As a result of these improvements, the frequency bandwidth that is accessible for communication and data processing by transistor circuits has grown by a factor of five. We expect this trend to continue at roughly the same pace during the early 1990s, resulting in MODFETs with  $f_c$ s as high as 400GHz."

The paper discusses in detail the various ways in which these improvements have been

brought about. Fig 7 shows the noise figure of experimental and commercially-available low-noise MODFETs.

"On system applications, the authors note that one of the most popular system applications of low-noise MODFETs is in DBS at Ku-band (11-12GHz) in Europe and Japan. Due to their extremely low noise, discrete MODFETs are almost always used as the preamplifier in a typical DBS receiver, followed by one or more GaAs MESFET monolithic microwave integrated circuits (MMICs). The use of the low-noise MODFET preamplifier has resulted in substantial improvements in system performance at little additional cost (typically \$2-\$5 for a packaged, 0.25µm gatelength device).

"As described by Konishi, a Matsushita Low Noise Downconverter consisting of a 0.25µm MODFET and three GaAs MMIC chips is capable of achieving a system noise figure less than 1.3dB with an associated gain of 62 +/- 2dB from 11.7 to 12.2GHz, which is quite a remarkable achievement for a commercial, low cost, high-volume system."

A futuristic form of semiconductor device seems to be foreshadowed by current work at the Universities of Nottingham, Glasgow, etc by M W Dellow, and also by S Gregory, D M Lutz, et al, as reviewed by Sean Washburn, in 'Single atoms as transistors' (*Nature*, May 21, 1992, pp199-200). Recent experiments indicate that the limits to making transistors smaller may be reached only at the level of single atoms:

"Three independent groups of researchers now show that electrical current can be controlled by the configuration of an individual atom's quantum-mechanical state and that the state itself can be switched on and off." Such truly micro-tiny devices, it is foreseen, could find application for gigabit computer memories!

**FEEDBACK**

AN UNFORTUNATE PRINTING SNAFU made nonsense of the two mathematical statements in 'Toroidal cores defended' (*TT*, June 1992, p39) although the results as shown in Table 1 were correct. The formulae should have read:

$$\text{Peak envelope power } P = V_{rms}^2/R = V_{pk}^2/2R$$

$$\text{And } A = \sqrt{(RP)} / (4.44fNB_{pk})$$

Similarly the 'commonly available toroids' need be no larger (not 'longer') than approx 2in diameter to satisfy the highest figures shown in the Table.

Dick Biddulph, G8DPS, spotted my lack of knowledge of modern automobile electrics in the item 'Going mobile safely' (*TT*, May) where I suggested that British cars have positive earths - a memory from some 40 years ago when I ghosted a book on automobile trouble tracing! G8DPS writes: "I take issue with you because I can't think of any British car less than 20 years old that has a positive earth. Also, no common British car has air-bag restraints although I expect that they will be with us before too long".

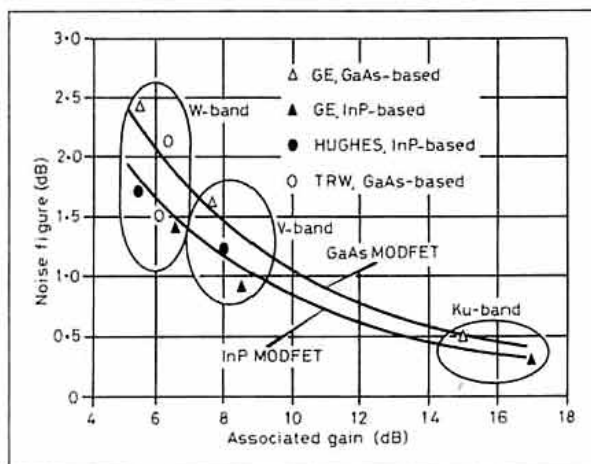


Fig 7: Noise figure of state-of-the-art low-noise MODFETs versus their associated gain. (*Proc IEEE*, April 1992)

**REMOVING GUY ROPE STAKES WITHOUT EFFORT**

CLIFFE SHARPE, G2HIF noted the item by R Smith, G1TPS on using a specially-made extractor to remove stakes from hard ground (*TT*, May 1992, 40). He writes:

"I have been removing stakes from hard ground after field-day and /P events for the past 40 years and have long since abandoned the use of a G1TPS-type extractor in favour of a 'more powerful with less effort' system.

"The only equipment required is a standard car jack of the type which has a short arm that plugs into the side of the car chassis. Fig 8 is self-explanatory. I can vouch for the effectiveness of this approach having recently removed four 5ft stakes from my garden clay. If the stake is longer than the extension, a few bricks under the jack is usually sufficient to extend the pull in two or three goes."

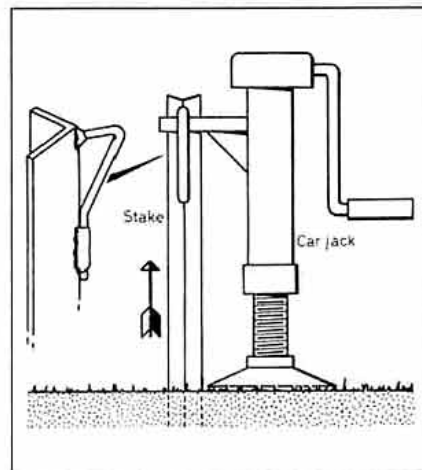


Fig 8: G2HIF's recommended method of removing stakes from hard ground with the use of a standard car jack of the type which has a short arm that plugs into the side of the car chassis.







# Ionospheric Research by Radar

by Roald Steen, AJON

**I**T IS THE IONOSPHERE which makes possible short wave radio contacts with amateurs on the other side of the globe. The ionosphere is a part of the upper atmosphere, but since it is difficult to reach, being too high for aeroplanes and too low for most satellite orbits, investigating it relies mostly upon electronic remote sensing methods.

Two remote sensing methods dominate ionospheric research. One of these is the older method of ionospheric radio soundings, usually presented in the form of diagrams called ionograms, while the other is the newer technology of ionospheric radar.

When, in 1901, Marconi was able to send the first radio signals across the Atlantic ocean, it became obvious that there had to be a phenomenon in the atmosphere which is capable of reflecting radio waves so that they can travel over long distances. The altitude and structure of the reflecting region of the atmosphere was first determined by two British scientists, Appleton and Barnett, in 1925.

They used a radio transmitter which transmitted short pulses while being swept across a band of frequencies, and a receiver whose output was measured against a time base synchronised to the transmitter. The round trip time for the reflections from each pulse was measured, and the altitude at which each pulse was reflected could then be deduced. When recorded on paper, the result was an ionogram.

Radio soundings of the ionosphere are still being obtained by a number of observatories around the world, as they are a useful tool in the work of forecasting ionospheric behaviour. The relationship between ionospheric behaviour and the sunspot cycle became evident after the analysis of ionograms taken during an entire cycle: similarly, the daily and seasonal variations in ionospheric behaviour are apparent in ionograms recorded at different times and seasons. During World War II, ionospheric research using these techniques became militarily very important.

One of the limitations with vertical ionospheric soundings is that this method does not give a very accurate picture of the maximum usable frequency that can be used on any particular path. The highest frequency that appears on an ionogram is the highest frequency reflected at 90° incidence to the ionosphere. While this can be related to the maximum frequency propagated at angles less than 90° by what is known as the Secant Law, the relationship is only approximate.

peaks, and these peaks give rise to the various ionospheric regions - known as the D, E and F layers.

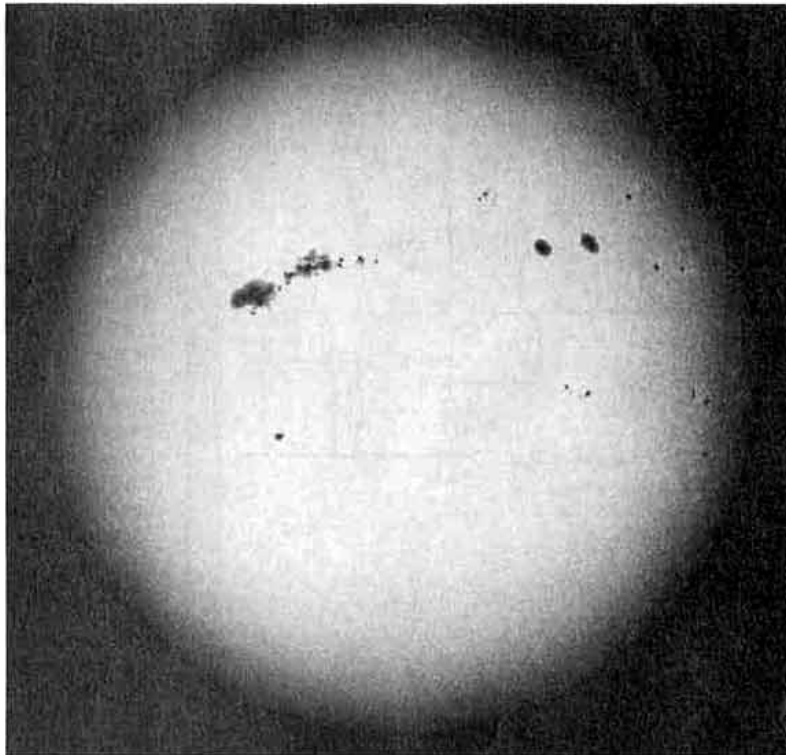
Ionospheric radio soundings are a radar detecting the strong, mirror like reflections from the ionosphere. More advanced techniques of detecting the returned signals from the ionosphere became available in the years after World War II, and the radars used today have extremely powerful pulses mainly in the VHF and UHF bands. The main US observa-

tory for ionospheric soundings is located in Boulder, Colorado. This observatory is operated by NOAA, and produces several ionograms each day: it is not the only one, however. For the majority of ionospheric soundings, the upper frequency limit is about 16MHz. Although higher frequencies are used for long distance communication, they are rarely reflected back to the ground vertically. Only those frequencies which can be reflected back from near to the transmitter site can be used in ionogram preparation.

When the RF pulses reach the ionosphere, a small amount of the RF is scattered and returned. These returns are extremely weak, which is why very high power transmitters, high gain aerials, and sensitive receivers are needed. The returned signals are processed to detect small variations in the time of arrival of each part of the pulse, as well as small changes which occur in fre-

quency and strength. The variations in strength can indicate variations in the electron density, while frequency changes are indicative of movement (Doppler shift) and temperature in the ionospheric region where scattering took place.

A much better and more detailed picture of what is happening in the ionosphere can be derived from radar, rather than simple ionospheric sounding. There are several reasons for this. One is that anything beyond the F region does not show up on an ionosonde, unless outside the Earth's atmosphere, and although these 'topside soundings', as they are called, have been made from satellites,



Much of the X-ray and ultraviolet radiation from the sun is emitted from the vicinity of the sunspots.

Higher frequencies are reflected if they are incident at less than 180°, and, because they suffer less absorption, are often the best frequencies to use for long distance communications. There is a 'skip distance' between the range from a transmitter at which the ground wave dies away, and the range at which the signals are reflected from the ionosphere back to the ground.

The highest frequency which is returned from 'normal' incidence (ie at 90°), is called the 'critical frequency', and this frequency is related to the number of free electrons existing in the ionized gas. There are various heights at which the electron density reaches

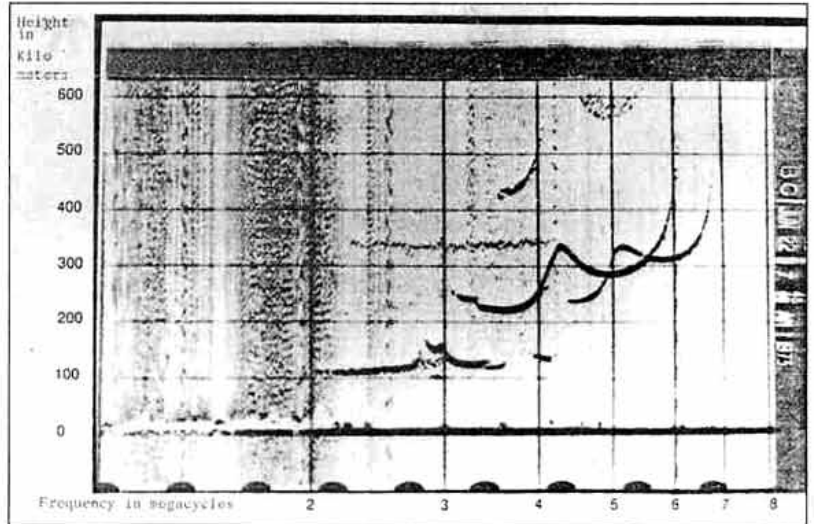


the ionospheric radar gives a much better picture of the ionisation profile. Another area in which ionospheric radar has proved its worth has been in providing information on the chemical composition of the upper atmosphere. This is very different from that lower down, having a higher proportion of hydrogen, while much of the oxygen is in atomic rather than molecular form.

Solar heating results in much greater temperature variations in the thin gas of the ionosphere than in the relatively denser gases of the lower atmosphere. This results in movement of the gases, and thus the charged particles, and their interaction with the Earth's magnetic field leads to a partially vertical movement. The speed and direction of the charged particles can be measured by radar. Additionally, ionospheric radar can detect turbulence, which appears to be caused by bubbles of low electron density originating in the lower ionosphere, and rising through the higher density regions.

**JICAMARCA**

THE FIRST LARGE ionospheric radar facility was built at Jicamarca in Peru. This location was selected because it



An ionogram produced at the NOAA observatory in Boulder, Colorado (see photograph below).



These modest buildings house the transmitting and receiving equipment of the NOAA ionosphere observatory near Boulder, Colorado. The observatory, which produces several ionograms every day, is remotely operated.

is near the geomagnetic equator, which is not identical with the geographic equator: the geographic equator is a line round the earth midway between North and South geographic poles, while the geomagnetic equator is midway between North and South magnetic poles. Additionally, the ionosphere is higher and more turbulent near the geomagnetic equator, which makes the Jicamarca location an extremely interesting one for ionospheric studies.

The Jicamarca radar, built and financed by the American National Oceanographic and Atmospheric Administration, (NOAA) is a unique radar facility. It consists of a rectangular array of a total of 9216 dipoles, and is constructed on a plain in the Peruvian highlands: it operates on 49.9MHz with a peak pulse power of 4MW, and was transferred to the Peruvian government in 1969.

**ONE KILOMETRE DISH**

A SOMEWHAT BETTER known facility is that at Arecibo, in Puerto Rico. It was originally built as an ionospheric radar facility, but has been found to be an excellent radio astronomy observatory, especially after upgrading. The ionospheric radar facility is on 40.12MHz and 430MHz, with a peak pulse power of 2.5MW, and an antenna gain exceeding 40dB at the higher frequency: the unique feature of this antenna is that it is a parabola 1km in diameter, constructed in a natural depression in the ground. The feed system is suspended on cables from the surrounding hills, and can be steered. This antenna achieved fame for radio amateurs in 1964 when it was used for moonbounce on the 70cms band. It is operated by the National Astronomy and Ionosphere Center of Cornell University in Ithaca, New York.

Newer facilities have been constructed which are substantially smaller than either Arecibo or Jicamarca. Both of these stations are limited to observing the ionosphere in the vertical direction, while the newer observatories are composed of two antenna systems some distance apart. This allows scanning the ionosphere in the horizontal as well as the vertical plane, allowing the studies to cover a large geographical area. One such facility is located at St Santin, in France, while there is



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**Afternoon:** Island DXpedition session; How to mount an expedition; Problems and solutions.

**Evening:** DX & IOTA Dinner; Speeches; Presentations; DXpedition slide show.

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'HF transceivers' Peter Hart, G3SIX/Ian White, G3SEK.

'Information systems' Don Field, G3XTT.

'Operation techniques' Martin Atherton, G3ZAY.

'Linear Amplifiers' Ross Clare, GW3NWS

'Home built HF equipment' Mike Grierson, G3TSO.

'SWR and other mysteries' Peter Chadwick, G3RZP

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Clipperton DXpedition, Vincent G0LMX/FOOCI.

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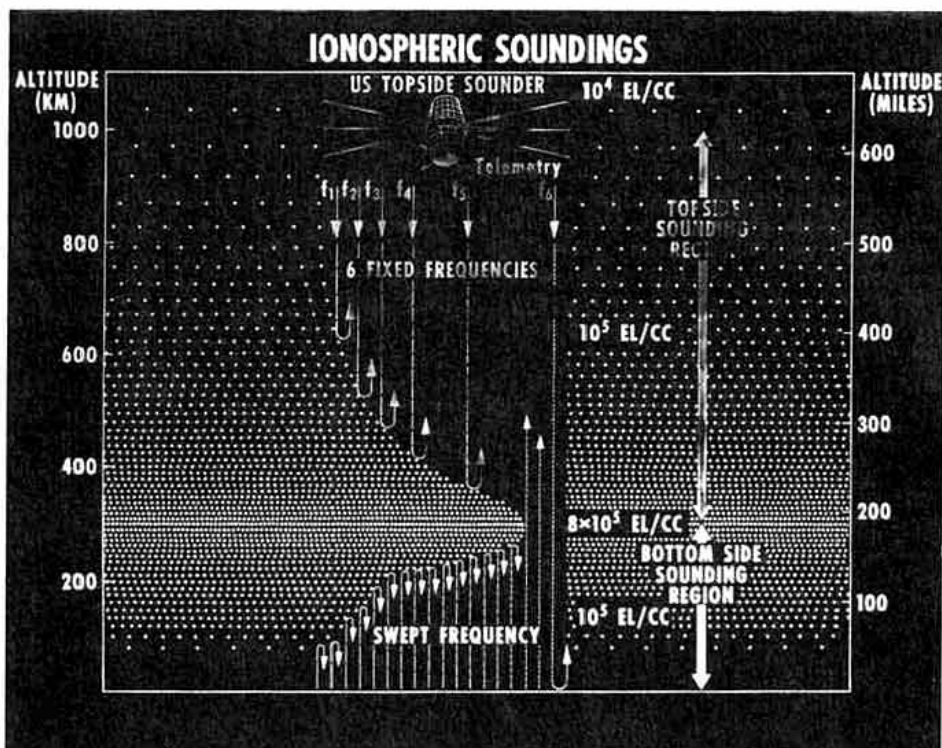
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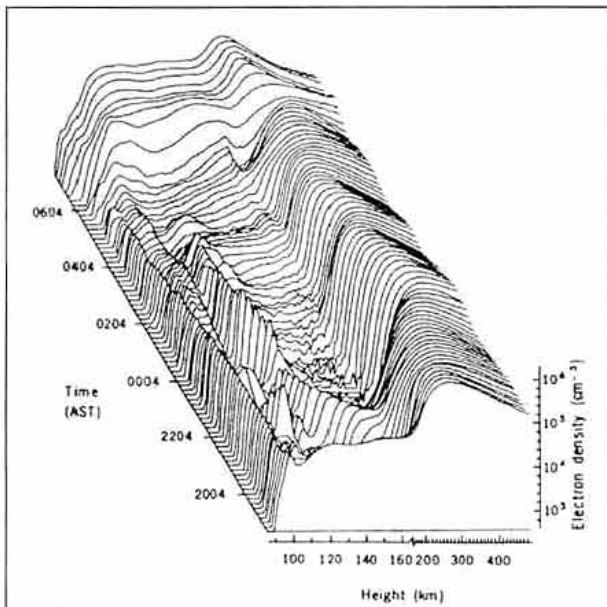
## IONOSPHERIC RESEARCH



Ionospheric radio soundings are being conducted by transmitting a number of short pulses that sweep across the medium wave and short wave radio frequency bands. Topside radio soundings have been conducted through the use of satellites.

another in Norway - the EISCAT, or European Ionospheric Scatter, station. This is a European venture, part owned by the UK amongst

others. The reduction in size, and the lower power levels of modern ionospheric radar facilities have become possible as a result in



Electron density of the ionosphere during a 12 hour period over Arecibo. The diagram, which is in local time, clearly shows the stratification of the ionosphere.

the improvements in receiving technology, which have allowed receivers to have a higher effective sensitivity. The improvements in computer technology in the last few years has been significant in allowing much greater analysis and data processing of the received information to take place. However, despite the development of these advanced radar facilities, the use of ionospheric radio soundings is still an important feature in the work of preparation of propagation forecasts.

Ionospheric radio soundings can occasionally cause a short burst of interference; however, the benefits obtained from the results far outweigh the occasional interference problem caused. Without these investigative signals, propagation forecasting would be much more difficult.

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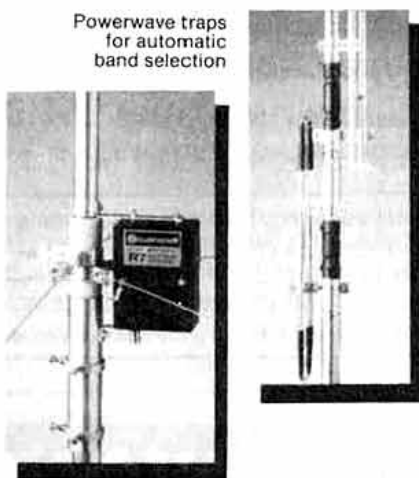


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Radiation Angle, Deg	16
Frequency Selection	Automatic
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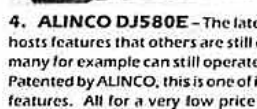


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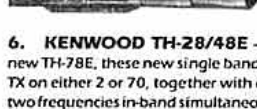
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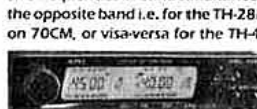
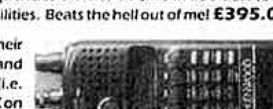
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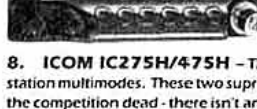
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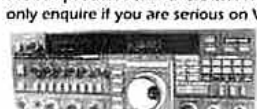
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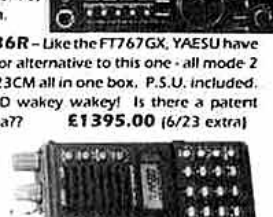


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# A Practical Synthesizer

for ex-PMR VHF Transceivers

The second of a two part article by Bernie Pallett, G3VML

**T**HIS CIRCUIT HAS BEEN designed to ensure that it is impossible to transmit spurious interference whilst the synthesizer is out of phase lock. All synthesizers become unstable for very short periods when changing from one frequency to another, the worst possible case for my synthesizer design is approximately 0.25 seconds.

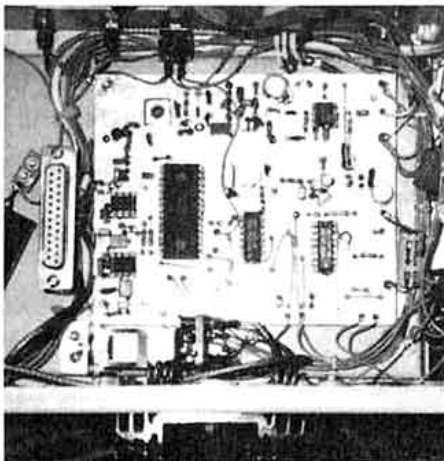
The circuit is shown in Fig 5, with relay RLA energised by the +12 volts present at the synthesizer module lock detect output. Capacitor C31 removes any transient noise from this supply, which can especially be present during channel changes. Diode D6 offers back EMF protection for transistor TR4 (located on the synthesizer module). Whilst relay RLA is energised the PTT input circuit is completed via relay contacts A1 and diode D7 to the base of transistor TR5. With the microphone PTT switch open circuit, transistor TR5 will fully conduct, therefore the Tx/Rx output will be 0V (short circuit). The repeater output derived at the junction of contacts A1 and diode D8 will be high (open circuit). Transistor TR6 is fully forward biased and completes the charging current circuit, via diode D8. Transistor TR7 is also fully conducting, permitting Relay RLB to be fully energised.

When the microphone PTT switch is closed, TR5 ceases to conduct, the repeater output becomes low (short circuit to 0V/Ground), the Tx/Rx offset output becomes high (+12V) and transistor TR6 switches off. TR7 will continue to conduct until capacitor C33 has sufficiently discharged via resistors R44 and RV1 after which RLB de-energises. The discharge time for capacitor C33 is adjustable by pre-set resistor RV1. The relay contacts B1 switch +12V between the transmitter and receiver circuits. The adjustment of RV1 should be such that the relay B1 change over contacts inhibit the transmitter +12V supply sufficiently until the synthesizer is returned to the phase lock condition.

Should the synthesizer develop a permanent fault such that a continuous out of lock condition exists, +12V from the phase detect output will be removed, causing RLA to become de-energised. Opening relay contacts A1 will break the PTT input circuit, which prevents any further transmission.

## CONSTRUCTION AND TESTING

CONSTRUCTION AND TESTING should not present too many problems for those used to



A view of the synthesizer/VCO board. The highly versatile MC145151P chip can be clearly seen.

building their own equipment. The component layout was not found to be all that critical, which can be borne out by the fact that I built several prototypes, each with a slightly varied component layout, and all worked first time.

Although the final product was assembled on a purpose built printed circuit board, measuring 120 x 120mm, an alternative method might be to construct the circuit as two separate modules. The first module could contain the VCO and Buffer circuits, based on the printed circuit board, whereas the second module could contain the synthesizer, filter circuits and the divider interface. The second module could be assembled on Veroboard.

After assembly, before applying power, carefully check the circuits to ensure that there are no wiring errors. After power up

check that the reference oscillator is working correctly, adjust the trimmer capacitor VC28 to obtain a frequency counter indication of 8.5333MHz. To achieve this result it may be necessary to change the given value of C29 by the select-on-test method. An HF receiver with an accurately calibrated frequency read out may suffice in place of the frequency counter for this and further frequency checks. Check that the VCO is functioning, which will be apparent by a terminal output waveform whose frequency will range from about 10MHz to about 13MHz.

Connect a DC voltmeter, set to the 10 volt range, between the junction of resistors R1 and R2 and ground. Note the loop-error signal voltage levels at channel sections of 144MHz (transmit mode) and 146MHz (receive mode), the voltmeter should indicate about 2VDC and 8VDC respectively. To achieve this result it may be necessary to adjust the core of T1. In the case of the lower IF option, or if the Varicap D3 has been substituted by another type, it may be required to change the value of capacitor C3 to obtain the correct test results. Reconnect the DC voltmeter to the output terminals of the lock detect driver stages, note that the voltmeter indicates 12VDC. Place a short circuit between the junction of resistors R1 and R2 and ground, and observe that the voltmeter reading falls to 0V.

## AIR TESTING THE FINISHED PRODUCT

THE COMPLETED PRODUCT met all the technical requirements that I set out to achieve, but with one very minor exception. There was

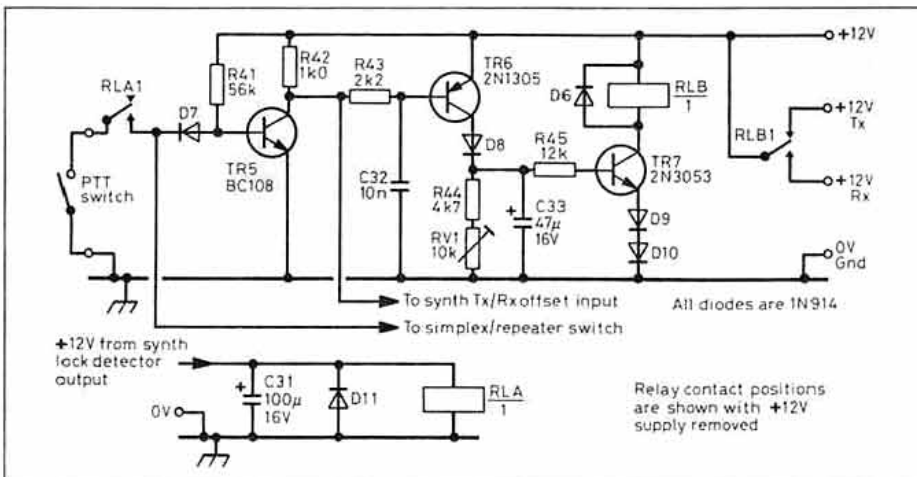


Fig 5: The push-to-talk interface. Transmissions are inhibited if the synthesizer is out of lock.

## COMPONENTS LIST

## SYNTHESIZER AND VCO

## Resistors

All 0.25W 5%

R1	82k
R2	27k
R3	100R
R4	100k
R5	22k
R6	100R
R7	1k
R8	100R
R9	2.4k
R10	2.4k
R11	4.7k
R12	4.7k
R13	100R
R14	1k
R15	220k
R16	160R
R17	100R
R18	100R
R19	22k
R20	390R
R21	300R
R22	33k
R23	100k
R24	10k
R25	2.2k
R26	43k
R27	10k
R28	100R

## Capacitors

All values are microfarads unless otherwise stated. All are miniature types.

C1	0.01 polycarbonate
C2	1000pF ceramic
C3	100pF ceramic
C4	390pF ceramic
C5	390pF ceramic
C6	0.1 polycarbonate
C7	0.1 polycarbonate
C8	0.033 polycarbonate
C9	82pF ceramic
C10	470pF ceramic
C11	0.1 polycarbonate
C12	0.1 polycarbonate
C13	0.1 polycarbonate
C14	0.1 polycarbonate
C15	120pF ceramic
C16	1 polycarbonate
C17	1 polycarbonate
C18	0.1 polycarbonate
C19	0.1 polycarbonate
C20	390pF ceramic
C21	220pF ceramic
C22	120pF ceramic
C23	0.01 polycarbonate
C24	100 16V electrolytic

C25	0.1 polycarbonate
C26	0.01 polycarbonate
C27	47pF ceramic
C28	5.5 to 65pF trimmer
C29	27pf SOT ceramic
C30	0.1 polycarbonate

Note: Lead spacing for polycarbonate capacitors, 0.1 and 0.01 is 2.5mm. For the 1.0 capacitor the lead spacing is 5mm.

## Inductors

T1	Toko KANK3334
L1	130µH fixed 5mm lead spacing

## Semiconductors

TR1	2N3819
TR2	BF274/BF273
TR3	BC108
TR4	2N2905A

## Integrated Circuits

IC1	CA3140E
IC2	MC145151P
	Stockists: Cirkit etc.
IC3	CA3140E
IC4	R560C
IC5	UA7805UC

## Diodes

D1,D2	IN4148
D3	MVAM115 (or near equiv. 1/2 BB212)

## IC Sockets

28-way DIL	Qty 1
8-way DIL	Qty 3

## Crystal

Crystal X1	8.5333MHz Type HC25U Quartzlab
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## HIGHER IF OPTION

## Resistors

All 0.25W 5%

R29	100k
R30	100k
R31	100k
R32	100k
R33	100k
R34	100k

## Diodes

D4	1N4148
----	--------

## Integrated Circuits

IC6	74HC283
IC7	74HC86

Stockists: Cirkit, Maplin etc.

## IC Sockets

16way DIL	Qty 1
14way DIL	Qty 1

## LOWER IF OPTION

## Resistors

All 0.25W 5%

R35	100k
R36	100k
R37	100k
R38	100k
R39	100k
R40	100k

## Diodes

D5	1N4148
----	--------

## Integrated Circuits

IC8	74HC283
IC9	74HC283
IC10	74HC86

Stockists Cirkit, Maplin etc.

## IC Sockets

16way DIL	Qty 2
14way DIL	Qty 1

## PRESS-TO-TALK INTERFACE

## Diodes

D6,7,8,9,10	1N914
-------------	-------

## Transistors

TR5	BC108
TR6	2N1305
TR7	2N3053

## Resistors

All 0.25W 5%

R41	56k
R42	1k
R43	2.2k
R44	4.7k
R45	12k

## Variable Resistor

RV1	10k linear
-----	------------

## Capacitors

C31	100µF 16VW electrolytic
C32	0.01µF mono
C33	47µF 16VW electrolytic

## Relays

RLA	micro min. (eg Maplin stock No BK47B)
RLB	12 Volt min. SPCO (eg Maplin stock No JM18U)

some slight synthesizer noise (1041Hz) on the transmitted carrier, although this was not sufficient to cause any unsolicited comments on the subject from other participating amateurs during the course of these trials. I also found that voltage transients present on the +12 volt supply rail, especially when switching from receive to transmit, can cause momentary loss of synthesizer lock, but this problem was easily overcome by placing a 1000µF electrolytic capacitor across the supply rail.

## CONCLUSION

THE TOTAL SYNTHESIZER module component cost was about £40, but by using salvaged components and shopping around where possible I am sure that there is scope for reducing this cost by at least five pounds. Without doubt the most difficult part of the development was the low pass filter circuitry.

This task would have been much easier

had I opted for an overall 25kHz channel spacing (2083.3334 Hz reference frequency), but this would have ultimately resulted in a 21.4MHz transmit-receive offset, utilising the Tx/Rx offset facility of the Motorola MC145151P IC.

## REFERENCES:

- (1) Motorola MC145151 product data sheet (dated 1980).





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TRANSLATED AND EDITED  
BY ERWIN DAVID, G4LQI

**U**SING ONE SIZE of quad loop for all bands (Fig 1), with a circumference ranging from approx  $\lambda/2$  on 7MHz to  $2\lambda$  on 29MHz, I expected a wide range of feed-point impedances. To get a feel for the problem, a single element was measured with the other element left non-resonant and therefore not affecting the measurements. My readings ranged from  $33\Omega$  on 7MHz to  $560\Omega$  on 29MHz, highly reactive and balanced. Mutual coupling between two active elements would probably make the situation worse. This rules out direct single-coax feed and also the use of ferrite or powdered iron in the baluns. Air core baluns were indicated. Units with a 4:1 impedance ratio promised a better match to my 17m of RG217/U to the shack than 1:1 baluns, especially on the highest frequencies, where coax losses due to mismatch were highest.

### HOW THEY WORK

I MADE THE BALUNS of coaxial cable as shown in Fig 2a. Two equal lengths are connected in parallel at their unbalanced (left) ends and in series at the balanced right side. Assume that we could measure the instantaneous HF voltage on the centre pin of the left-end coax connector and find it to be +100V with respect to earth. That results, as is shown, in +100V and -100V respectively on the two output terminals, ie 200V between them, balanced with respect to earth. But that would be too simple. There would be a short-circuit between the +100V at point X and 0V at Y which must be eliminated. That is done by coiling the lower cable as shown in Fig 2b. Between X and Y there is now the reactance of that coil; if sufficiently high, point X no longer 'sees' point Y and there can be a voltage difference between them. For the top coax there is no such problem as both ends are at the same potential, but I did coil it up anyway, just for neatness.

This balun produces a 4:1 impedance transformation only if both cables are terminated in their characteristic impedance; I used  $75\Omega$  coax, so for 'flat' lines a purely resistive, balanced load of  $2 \times 75 = 150\Omega$  would be required. Looking into the unbalanced end of the balun, an impedance of  $75/2 = 37.5\Omega$

Editor-in-Chief Dick Rollema, PA0SE, described in *Electron* (NL) his own 7-29MHz DJ4VM Cubical Quad. This is a well-known beam but Dick has simplified its feed and phasing system, replacing the customary open-wire feeders with coax circuitry. We quote him here on his universally useful **air-core baluns**.

would then be seen. As noted before, the DJ4VM loop is everything but  $150\Omega$  resistive. Unless the length of the cables in the balun is short with respect to the wavelength, the balun produces an additional impedance transformation which is largest when the cable lengths are near  $\lambda/4$ . This can add to or subtract from the 4:1 ratio. In the extreme, the impedance at the unbalanced end can even be higher than that of the balanced load! But that does no harm; the balancing action is valid over the whole intended frequency and impedance range.

### CONSTRUCTION

THE BALUN ASSEMBLY is shown in Fig 3. None of the dimensions, materials or cable types are critical. However, if two baluns are to feed two equal elements in a reversible

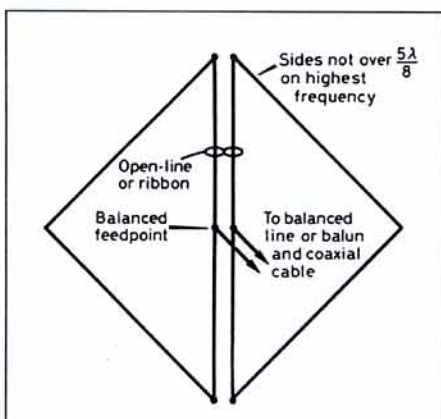


Fig 1: The DJ4VM quad loop. Normally, an open-wire feeder connects its feed-point to an ASTU in the shack. On bands where the loop circumference is larger than  $1.0\lambda$ , extra gain is realized, which just about pays for the extra loss of using coax at high SWR. PA0SE considers this a fair trade-off for the convenience of coax and a much simpler ASTU.

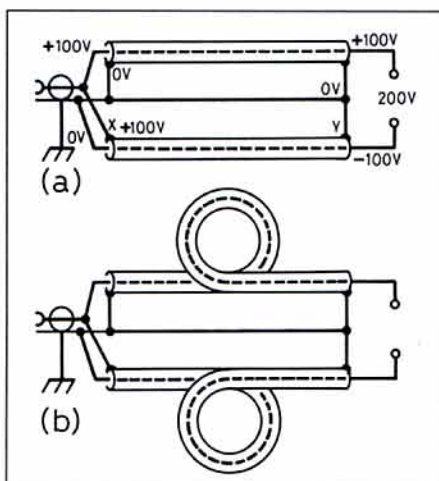


Fig 2: Principle of the 4:1 coax balun. Short-circuiting the voltage between X and Y in (a) is remedied by the self-inductance created by coiling the coax as in (b). The upper coax is coiled for neatness only.

beam, the two baluns must be identical; also mark which of the balanced terminals is connected to the centre conductor at the unbalanced end, so you can get the phasing right. The formers are made of grey 110mm OD PVC waste pipe

I used matching end caps for the balanced ends; these are not cemented on, but made removable by securing them with three self-tapping screws which, like all hardware in this project, are stainless steel. An N-socket on a copper bracket is mounted inside the formers for connection to the RG213/U coax feeder. N-connectors are waterproof by design, though mine are sheltered by the formers - I thought that worthwhile. For the coax windings I used left-overs from cable TV installations ( $75\Omega$ , specs similar to Uniradio M203 - G4LQI). Two equal lengths of 2.94m go into the two 8-turn coils. Short bare-wire jumpers from the outer ends of the coils pass through tight holes to the inside of the former, from where short lengths of the same coax connect to the N-socket. Note the '!' in Fig 3; the jumpers at that point, and only at that point, connect the core of the outside coax to the braid of the inside coax and vice versa.

The jumpers to the bolts in the end cap, which serve as terminals for the loop connections, are made of separated figure-8 flex. At the terminal end I used solder lugs; at their other end they are fed through small holes in the former and soldered to the inners of the coils. A similar jumper connects the N-socket flange to one of the self-tapping screws that hold the end cap to the 2in box-section boom of my beam. All coax ends, solder connections and feed-through holes were fixed and waterproofed with epoxy cement. Three coats of clear yacht varnish protect the completed assembly against ultra-violet light. After four years, the baluns are like new.

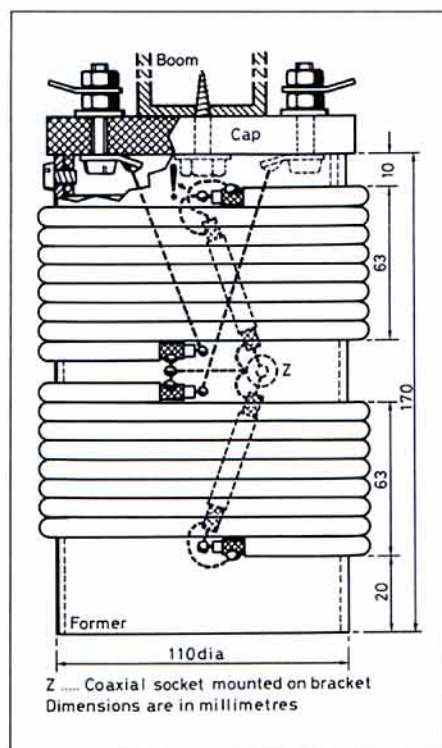


Fig 3: Construction of a 4:1 balun of  $75\Omega$  coax on a PVC former. The dashed connections are inside the former. The flange of the coax socket is earthed to the boom (wire not shown).



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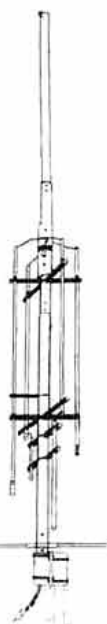
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# Q R P

GEORGE DOBBS G3RJV

St. Aidan's Vicarage, 498 Manchester Road,  
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FOLLOWING QUICKLY on the heels of the *G QRP Club Antenna Handbook*, described in my last QRP Column (and now available from RSGB Sales, see page 78), a new beginners book on QRP has recently appeared from the USA written by K7YHA who now writes the QRP Column for *World Radio* magazine.

Rich has just produced his first book on QRP called *Low Power Communications: Volume 1 - QRP Basics*. Published by Tiare Publications, the book is 100 pages of sound advice for the would-be QRP operator. The author describes it as a QRP primer which contains this statement about low power communications in its introduction:

"Low power communication just doesn't happen. Successful QRP contacts are the product of intelligence, the proper 'mind set', training, developed skills, planning and goal setting . . . in this book you will learn operating techniques that will enhance your chances of getting into the other guy's log book: propagation theory, short and long term goal planning, how to organise your low power operating efforts and much more."

The book contains sections on History, The Mindset, Getting Started, Antennas, Basic Operating, Advanced Operating, Contesting, Milliwatting, Digital Operations, Solar Power, Getting Organised, Computers and QRP Organisations. As the back cover says, "Here's the lowdown on low power operating from one of the experts".

I wish I had a copy years ago when I began to venture on the bands with low power signals. It could have saved me a lot of time, frustration and foolish mistakes. It contains a lot of information in a condensed form and, much of the operating advice offered for the QRP operator would also help any operator, at conventional power levels. There is also a lot of sound advice for the Novice operator on the HF bands. The book is obviously written for the American market and many of the products and details mentioned are American, but the advice, and many of the items described, are accessible to the UK reader.

The G QRP Club has bought in a stock for UK QRP Operators. The book can be obtained from Dave Aizlewood, G4WZV, 36 King Street, Winterton, Scunthorpe, DN15 9TP for £6.50 plus £1 postage. Cheques should be made out to 'G QRP CLUB' and please send an address sticker as G4WZV is not a mail order company but simply a radio amateur trying to help other radio amateurs.

## NEW COMMERCIAL QRP EQUIPMENT

SOME TIME AGO in this column I bemoaned the lack of available commercial QRP equipment. I am pleased to be able to announce the

re-birth of an old friend and the advent of a new QRP transceiver.

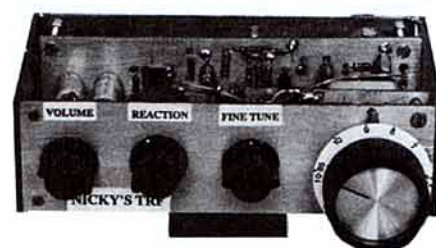
In *RadCom* February 1991 p46 I did a user review of the Mizuho MX14S, a 20 metre SSB/CW metre handheld transceiver, giving some 2 watts RF output on any 50kHz section on the 14MHz band. There are versions for other bands. No sooner had interest been aroused in this little radio, than the supply dried up. Thankfully another Japanese company has taken over the production of the MX range of handheld transceivers and they are now back on sale. They are capable of surprising results. The UK agents, Waters and Stanton presented an MX14S to the G QRP Club for a prize draw at the RSGB National Convention RSGB'92.

We took it back to the home of G4LQF and tried it out on the doublet antenna available at the G4LQF shack. I managed to raise a UC1 on SSB but was then seriously upstaged by another operator who calmly proceeded to work VU2JJQ on 2W from the tiny transceiver to a back garden doublet in the middle of Birmingham!

MFJ Enterprises, a company from the USA, has become well-known for their range of amateur radio accessories and station equipment. MFJ have recently produced a 20m CW Transceiver, Model MFJ-9020. The transceiver is a single conversion superhet and produces 4W of RF output in the CW section of the 14MHz band.

The MFJ-9020 is a compact transceiver for what is probably the most popular band for QRP operators. I managed to use the transceiver, which was linked to its matching Antenna Tuner and Portable Power Pack, at the QRP Hospitality Suite in a hotel at Dayton. Under these difficult conditions, it gave a good account of itself. Shortly I hope to receive the MFJ-9020 to test for a user review in *RadCom*.

Both the MX range of hand-held CW/SSB transceivers and the MFJ-9020 are available in the UK from Waters and Stanton. Their address and telephone number can be found in their advertisement (page 10/11).



Nicky's TRF receiver (see text) in the version built by G3RJV. A good example of a simple, but effective, amateur radio project.

## A SIMPLE IDEA BEARS FRUIT

THE TRF RECEIVER has been around for a long time but in recent years the direct conversion receiver seems to have taken its place as the simple option for building a short wave receiver. Although many builders still play with simple TRF receivers, offering as they do the option of AM reception of broadcast stations. In *RadCom* October 1987, Pat Hawker offered a novel circuit for a TRF receiver which was noted by Colin Davis,

G3VMU. When Colin wanted to build a simple receiver for his son he used these ideas as the basis.

The resulting receiver he called 'Nicky's TRF'. It has an aperiodic untuned input stage, feeding an FET transistor as a infinite impedance detector, followed by audio amplification stages. The feedback for the detector stage is provided by a Q Multiplier: a Colpitts Oscillator loosely coupled to the detector and controlled by a 10 turn potentiometer. This arrangement gives amazing sensitivity and almost unbelievable stability from such a simple circuit.

When Nicky's TRF was about to be published in *Sprat* (the Journal of the G QRP Club) I decided to build the receiver to see how it worked. For what it is, it is quite a receiver. It turned out to be my most enjoyable 'one night project' for many years. I hope that sometime the circuit may be described in *RadCom* or *DIY Radio* so that others can enjoy it. In the meantime Kanga Products have produced a kit for just over £10, so others will enjoy the fruits of G3VMU's work for his son.

## TRUMPET BLOWING

WHY SHOULDN'T A *RadCom* columnist blow his own trumpet? The hosts at the QRP Hospitality Suite at the Dayton Hamvention are the QRP Amateur Radio Club International, the main QRP organisation in the USA. They issue an impressive array of awards for QRP operation but they had one award that had never been issued. This is called the 'QRP Roll of Honor'. It is issued "in recognition of outstanding service to the QRP ARCI" but up to this year there had been no recipients. The club certainly put that right because they issued four of them on one day. The recipients were: Roy Lewellen, W7EL, well known for his contribution to QRP circuit design, especially his 'Optimised Transceiver' which is perhaps the most copied QRP transceiver design; Doug DeMaw, W1FB, probably the best known and most popular amateur radio author of recent years; 'Randy' Rand, AA2U, the first person to work over 300 countries using a power of 5W or less, and myself.

I am still not quite sure how I got included into this august list of American radio amateurs, but it was a pleasure and an honour to receive the attractive framed certificate which now proudly fills a space on my shack wall.

## THE G QRP CLUB MINI-CONVENTION

THIS POPULAR Northern gathering of the G QRP Club is to be repeated again on Saturday 17 October. Again, the venue is St Aidan's Hall, Manchester Road, Sudden, Rochdale, about three minutes drive from junction 20 on the M62. Beginning at 10am and ending at 5pm, the day includes a lot of socialising, a programme of lectures, a large bring and buy sale, a display of homebuilt equipment and sales of components and kits. This is not a commercial Radio Rally but rather a group of like minded radio amateurs meeting together. Readers wishing to know more can obtain an information sheet by sending me an SAE to the address above.





# EMC

MEGAN SMITH, G0MEG  
EMC Committee Secretary

THIS MONTH I HAVE some pictures from the RSGB'92 National Amateur Radio Convention at the NEC in May, a 'happy ending' to the series on PIR's, some news from the United States and a technical article on teleswitches researched by G1OSC. What's a teleswitch you may well ask? Well read on and you might find you have one lurking in a cupboard under the stairs!

## WHAT IS A RADIO TELESWITCH?

A RADIO TELESWITCH is an electronic switch which is installed in some houses in certain areas to control off-peak loads such as storage heaters. A teleswitch receives BBC Radio 4 Long Wave on 198 kHz and decodes some slow phase modulated data which tells the teleswitch when to switch the off-peak load on or off. This allows electricity companies to control many megawatts of heating load in thousands of houses by remote control so that they can 'shed' load rapidly when there is a sudden peak in demand.

## HOW CAN THEY AFFECT AMATEUR RADIO?

OF PARTICULAR INTEREST to radio amateurs are unwanted signals radiated by electronic products, of which the teleswitch is only one. The Schlumberger model RTA teleswitches use a 6.080MHz clock frequency which is divided by four to 1.520MHz then further divided down, mixed and phase-locked to the 198kHz Radio 4 Long Wave carrier. A characteristic of the interference from this model of teleswitch is that it is on precise multiples of 1.520MHz because all teleswitches phase-lock to the same highly accurate 198kHz carrier. The harmonics also have a small amount of frequency modulation which corresponds to the low rate phase-modulated data on the Radio 4 Long Wave carrier. This modulation can be heard clearly on an HF or VHF SSB receiver as a 'warbling' sound.

Schlumberger Industries of Felixstowe have kindly supplied the EMC Committee with copies of reports from an independent EMC test laboratory which tested two types of Schlumberger Teleswitch Model RTA. The results for the two types differ slightly but both generate many harmonics of 1.520MHz. In the range 0.15 - 30MHz signals conducted via the mains supply were measured. Of these, the harmonics of 1.520MHz which fall within amateur bands are the 14th (21.280MHz) and the 19th (28.880MHz). The radiated emission spectrum above 30MHz shows a

large number of harmonics at various different levels. The 33rd (50.160MHz), the 34th (51.680) the 95th (144.400MHz) and 96th (145.920MHz) fall within amateur bands. 144.400MHz is the meteor scatter SSB reference frequency while 145.920MHz is within the amateur satellite allocation.

## WHAT STANDARDS DO THEY MEET?

THE SCHLUMBERGER type RTA teleswitches were tested by an EMC test laboratory against BS 6527:1988 which is the English Language version of European Norm EN 55022:1987. This is a specification for interference generated by information technology equipment (ITE) although the new generic emission standards for all electronic equipment (EN 50081-1) are basically very similar to the BS 6527 and EN 55022 class 'B' limits.

According to BS 6527, the class 'A' limits are derived for typical commercial establishments for which a 30 metre protection distance is used and they may be too liberal for domestic establishments and some residential areas. The limits for Class B equipment are derived for typical domestic establishments for which a 10 metre protection distance is used. The BS 6527 class B limit is 30dB $\mu$ V/m at 10 metres between 30 and 230MHz. Equipment sold in the UK is not yet required to conform with BS 6527 however.

Both teleswitches were found to comply with the BS 6527 class 'A' HF (conducted) and VHF (radiated) limits with sufficient margin that it can be deduced that they would also meet the more demanding class 'B' limits. The HF harmonics were well within the 'B' limits. At VHF, the the highest level harmonic was not in an amateur band, being the 100th harmonic at 152.000MHz, but was still within the 'B' limits. The harmonics in the 2 metre band were within the 'B' limits by at least 10dB. The harmonics in the 6 metre and 70cm bands were at a lower level than those in the 2 metre band. There were also detectable UHF harmonics in the 70cm amateur band.

## ARE THE STANDARDS ADEQUATE?

IF A PIECE OF EQUIPMENT complies with BS 6527 'B' limits, this does not guarantee freedom from interference to all types of radio communication. With VHF/FM broadcasting for example the field strength at the boundary of the service area of a transmitter is 54dB $\mu$ V/m at a height of 10 metres above ground. BS 6527 'B' limits should, therefore, give adequate protection to VHF/FM broadcast reception with a roof mounted aerial at least 10 metres from the source of interference, but not necessarily when using a portable broadcast receiver near ground level or with an aerial closer than 10 metres to the source of interference.

The problem with existing EMC standards as far as radio amateurs are concerned is that the received level of amateur signals may be very much weaker than broadcast signals, so that EMC standards designed to protect broadcast reception are far from adequate for protecting amateur reception. For example, a

piece of equipment which complies with BS 6527 'B' limits is still permitted to produce interference at certain VHF frequencies with a field strength of up to 30dB $\mu$ V/m (31.6 $\mu$ V/m) at a distance of 10 metres.

In the case of narrow band interference such as a clock harmonic, a 30dB $\mu$ V/m signal would be a very significant signal in a VHF amateur band. On the 144MHz band, for example, a half wave dipole in such a field would, in theory, deliver about 10 $\mu$ V into 75 $\Omega$ . This represents a power level of -88dBm at the receiver input (whether 50 or 75 $\Omega$ ). The 1990 IARU Region 1 conference (See June 1990 *Radio Communication* page 11) has defined S9 as a level of -93dBm (93dB below 1mW) for 144MHz and above, so -88dBm at the receiver input represents an S9+5 dB signal!

On 50MHz, the EMF from a half wave dipole would be 2.88 times larger (9dB), (See 'EMC Matters', *RadCom* April 1990) and the interfering signal power at the receiver input could be -79 dBm. Clearly, with a yagi antenna on any band the received levels would be increased due to the gain of the aerial if it is pointing at the source of interference.

## THE ROLE OF THE RIS

THE RIS (RADIO Investigation Service) of the Radiocommunications Agency can investigate interference to protected services such as broadcasting and PMR (Private Mobile Radio). For example, some PMR users have suffered interference from computers, pub video games etc if a harmonic happens to fall exactly on the PMR frequency. If radio amateurs suffer similar interference on amateur bands, they cannot expect the RIS to investigate because amateur radio is *not* a protected service.

## EMC COMMITTEE TESTS

SCHLUMBERGER Industries have loaned two teleswitches to EMC Committee member Dave Lauder, G1OSC, for investigation. He found that the screened box around the electronics, which is designed to prevent the digital electronics in the teleswitch from interfering with its own receiver, is effective at 198kHz but not at VHF. G1OSC found that the emissions in the 2 metre band could be reduced significantly by modifications to the screening and decoupling. This approach would not affect the large number of teleswitches now in use. Investigations of external solutions have shown them not to be practical, particularly in view of the need to ensure the unit's operation is not affected.

## OTHER TYPES OF TELESWITCH

THE INTERFERENCE DESCRIBED above only applies to Schlumberger Model RTA teleswitches. There are though, a number of other manufacturers of teleswitches, GEC, Landis & Gyr and Hortsman. For example, EMC Committee Chairman Bob Peace, G8SOZ, has a GEC model RT 1BBCB FB installed in his house but Bob cannot detect any interference from this teleswitch in any amateur band.



Simon Pryce, G0MGA, has reported interference on 50.160MHz, 144.400MHz and 144.200MHz all with the same characteristics. The first two frequencies are consistent with a Schlumberger model RTA but the third is not. If the signal on 144.200MHz comes from a teleswitch, then it is of a type not known to the EMC Committee. We would be grateful for any information on any other types of teleswitch.

## FUTURE DEVELOPMENTS IN ELECTRICITY METERING

G1OSC AND EMC COMMITTEE CHAIRMAN, G8SOZ, have attended a meeting at the Electricity Association (formally the Electricity Council) to discuss RFI aspects of electricity metering equipment. The EMC Committee is concerned about the eventual replacement of conventional electricity meters with electronic metering equipment. If new electronic meters were to generate RFI in amateur bands, it could be far more serious than, for example, computers and these can be bad enough! Unlike computers, every house has an electricity meter and the same model is likely to be installed throughout an area. The meter is of course permanently connected and operates 24 hours a day.

The EMC Committee has written to OFFER (the Office of Electricity Regulation) calling for low levels of RFI from new electronic electricity meters which are eventually expected to be installed in every home in Britain.

## PIR HAPPY ENDING

I MENTIONED SOME PROBLEMS which were encountered with a Wickes DIY alarm kit in April *RadCom*. Following that, Alan Strong wrote from York to say that he had also found that a similar system was susceptible to relatively low-power UHF from a handheld, and had also written to Deans Park Electronics with no success. However, on advice from his local Wickes manager he telephoned Deans Park Electronics. He spoke to one of their engineers who explained that the company was developing a PIR with improved RF immunity and sent replacements free of charge which enabled Alan to get back on-air with his packet station.

The replacement models were REX models REX-T and REX-P which are manufactured in Israel for Visonic Ltd. The data sheet gives a quoted immunity over the range 1-1000MHz of 11V/m. Alan Strong calculated that this field strength equates to about 10 metres distance from a VHF/UHF aerial of 6dB gain, fed with 100 watts. He wrote that he understood the immunity figure for automotive components to be nearer 50V/m to avoid malfunction from on-board or passing RF sources, and thought that this level of immunity would be preferable and appropriate for installations adjacent to amateur radio installations.

Incidentally, he was able to improve the immunity of the original PIRs by fitting an RS Components ferrite sleeve, part number 239-056 (£1.25 each including VAT), over the incoming six core cable where it entered the detector housing, and suggests that these



Watched by Bob, G8SOZ, and Megan, G0MEG, Mickey Mouse picks the EMC survey winner . . .



. . . who was Martin Prestidge, G2BXP. He donated his prize to the RSGB Mencap Albania Appeal.

ferrite sleeves may be a useful component for other similar problems.

One last word! An EMC Committee Member discovered that he caused his neighbour's PIR-operated lighting to come on when he turned his beam round while *not* transmitting! The conclusion was that the beam appeared 'warm' against the cold background of the night sky, and so the movement triggered off the sensor.

## CALLING CQ-MOO?

*ELECTRONICS WEEKLY* reported some new techniques in producing 'electronic tags' in its 8th Jan issue this year. The company which pioneered the method, ISD, is using a new chip bonding technique which should reduce the cost of the 'tags' to around one US dollar. One possible use is for tracing baggage on the world's airlines. The chips have a programmable ten digit identification code and use a frequency in the 27MHz band allocated for industrial, scientific and medical applications. The article claimed that because of this "This means that the frequencies are free from interference everywhere in the world."

Another use for the chips is as cow tags. The chips can be put in an inert package

which can survive in a cow's stomach so that they can be traced if they are lost. A far cry from the days of Heidi and the tinkling cowbells on the Alps! Anyway if you get trouble with cows or wandering suitcases on your next HF Field-day perhaps it would be wise to check your frequency!

## ANIMAL FARM?

IF YOU DON'T GET ANY problems with 27MHz cow tags, then watch out for giant mice! As you can see from the photographs, Mickey Mouse was around at RSGB'92 at NEC Birmingham. Actually it was *RadCom* Editor's son Paul dressed up to collect for Mencap, but he was persuaded to draw the winning form in our EMC survey. Those of you who didn't manage to get along to NEC will think I have gone even more barmy than usual but I will explain.

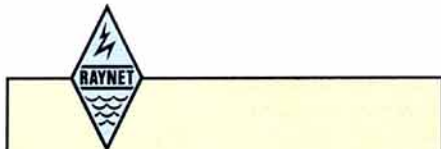
The EMC Committee decided to do a short survey about what sorts of breakthrough/interference people have suffered (or caused) in the last year. Although it can't be considered statistically representative, because it covers just those people who attended NEC on the Saturday, it should give an indication of the sorts of problems which are occurring. Detailed analysis will have to wait until the next *EMC* column I'm afraid, as the deadline for this (August) issue is early June.

I spent most of Saturday at NEC giving out the survey forms at the entrance helped by Committee members G3JW1, G3ZCV and Chairman G8SOZ when they weren't on the stand answering questions. We gave out around 2000 forms and nearly 200 people put completed forms in the box on the stand.

To encourage people to fill them in, we gave a prize of a £10 book token to the form pulled out of the box at 4.30pm. Hilary Claytons-Smith, G4JKS, recorded the proceedings for posterity as my camera had gone 'on the blink'. Paul drew the winning form, and just as we were checking the call-sign G2BXP, we heard it announced over the public address that he had won the Mencap lottery 2nd prize! Mr Prestidge from Birmingham was very pleased to be presented with the book token and said he had never won anything at all before. He very generously gave the £10 to the RSGB Mencap Appeal.

It was very nice to meet some of you and especially to know that people do read the column, even if you don't like all of it! This year I think there were fewer people bringing problems to the stand, but those who did come had much more difficult ones. Telephones and computers are top of the league after TVs and videos. We even had the unusual situation of a TV emission causing a problem to an amateur on 2m rather than the other way round! However, the standard advice is still appropriate for most cases - make sure that you get on well with your neighbours before there is any chance of a breakthrough problem, so at least if one occurs it can be sorted out in a friendly way. Secondly, but by no means least, carry out 'good radio house-keeping' ie keep antennas away from buildings and house wiring where possible, make sure your connections are sound, check your equipment regularly, use common sense about power levels if you live in a particularly difficult building.





**RONALD M COWAN, GM4SRL**  
516 Clarkston Road, Netherlee, Glasgow  
G44 3RT

## RAYNET ON SHOW

RAYNET WAS INVITED by the Emergency Planning Association to provide an information display stand at the Association's Annual Conference which was held in Portsmouth from 29 June until 2 July. As well as a photographic display, RAYNET members were on hand to answer questions, and the National Committee produced a special handout aimed specifically at the User Service.

## EXERCISE MERCURY

A MID-AIR COLLISION between a large passenger and a cargo aircraft was the scenario for Exercise Mercury which was held recently by the West Midlands Fire Service Emergency Planning Department. There were both fatalities and survivors on the passenger aircraft, and the cargo aircraft contained six pallets of chemicals.

There were four exercise locations; a disused-railway siding off Leabrook Road in Wednesbury, an area between blocks of flats and Handsworth Wood, Birmingham, the Birmingham Canal at SP 0395 8825, and the Olton Reservoir in Solihull.

The exercise was to test the West Midlands Major Emergency Plan, a document which took two years to prepare. About one thousand personnel, including fire, police, ambulance and members of voluntary organisations took part.

RAYNET was included when the Chief of Emergency Planning Officer's staff asked all West Midlands County members to be placed on stand-by. Over seventy members responded and twenty one of these were deployed at some of the crash sites, rest centres and the CEPO office at the West Midlands Fire Headquarters.

Packet radio and 1296MHz were used very effectively to provide links from the RAYNET control station in Birmingham to the fire headquarters, in addition to the 2 metre and 70 centimetre bands which were generally used. Five members operated the control station with good coverage over the affected area.

Some of the usual problems were overcome. However one which occurred is worthy of note. Severe interference was experienced at one site and the source was found to be the unattended Band Three radio in someone's car which was parked next to the local RAYNET vehicle.

The exercise proved to be useful to all who took part and the experience gained by participating in this type of event, which was as near as possible to a 'live' incident, was invaluable.

## EXERCISE REDCOAT

THE ARGYLL NORTH RAYNET Group was invited to take part in Exercise Redcoat which was held in the Oban area in June by the Health Board Emergency Planning Officer. The exercise was designed to test the responses of both the Ambulance and Hospital Staff, and took the form of a single decker bus which crashed near North Connel, about six miles from Oban.

On this occasion RAYNET did not take part in the exercise itself, but were tasked with providing communications for the exercise's 'directing' and 'umpire' staff who were based at three locations.

Owing to the terrain, direct communications were not possible and two crossband talk-through units, one in a member's house and one vehicle-mounted, were used. Two metres was used at all locations, with the 'link' being done on 70 centimetres.

As Vodaphone transportables were also tested during the exercise, obvious comparisons were made between making direct calls via Cellular radio and passing messages via RAYNET. I am pleased to report that although the cellular sets worked well, with some exact positioning problems owing to the terrain, RAYNET, with its written messages, was well received by all the staff involved.

It is important to remember that RAYNET is a valuable resource, capable of sending written messages to their required destination, where the recipient can act on the content of the message without having to become involved in a telephone discussion, and a timed record is always available.

The RAYNET members involved in the exercise were invited back to the West Highland Hospital by Health Board Emergency Planning Officer after the event for a hot 'debrief' buffet.

## DISPLAY PHOTOGRAPHS

A PACK OF DISPLAY photographs is available for use at exhibitions, open days, meetings etc. These are in constant use, and as much notice as possible should be given, as they often have to travel the length of the country between events. Contact your Zonal Representative for details.

## NOVEMBER RADIO COMMUNICATION

ITEMS FOR THE NOVEMBER column should be sent to Ron Cowan, GM4SRL, at 516 Clarkston Road, Netherlee, Glasgow G44 3RT by the 31 August. Articles about service for the Emergency Services, either exercises or 'live' help, will be most welcome.

THIS IS THE LAST TIME that this column will be published under the *Raynet* heading. However, it will continue to be appear in *RadCom* quarterly, still written by Ronnie Cowan, GM4SRL (pictured). The column's scope will be broadened

to encompass all types of safety and emergency work carried out by radio amateurs.



## TALK-THROUGH PERMITS

PERMISSION FOR USE of the above Permits was originally granted to the Radio Society of Great Britain for use by organised groups of radio amateurs involved in Emergency Radio Communications with User Services. (the number of User Services has since been increased). This concession was negotiated by the RSGB with what was then termed the Radio Regulatory Department of the Home Office.

Historically the administration of issuing and recording of permits has been performed by the RSGB Raynet Committee because operationally they were more conscious of the conditions under which the granting of a Permit would improve radio communications in a given situation. They also took due cognisance of the control conditions the concession required.

As from 30 June 1992 the RSGB Raynet Committee will no longer be a

part of the Society's committee structure, but the Society wishes to remain totally supportive of Emergency Radio Communications, and recognise the vital role Talk-Through Permits play in certain geographical locations.

As a result Council has decided that with effect from 1 July 1992, Permits will be issued by the Emergency Communications Officer (temporarily the Membership Liaison Committee Chairman, Clive Trotman, GW4YKL, QTHR) to all organised groups of radio amateurs who participate in Emergency Radio Communications under the auspices of a recognised User Service.

Signed for and on behalf of Council of the Radio Society of Great Britain.

**C N Trotman, GW4YKL, Council Member Zone E, Chairman Membership Liaison Committee, Temporary Emergency Communications Officer.**





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# CONTEST NEWS

All rules should be read in conjunction with the General Rules published in *Contest News* January 1992

## HF RESULTS

### AFFILIATED SOCIETIES' TEAM CONTESTS 1991

Back in 1975, HF Contests Committee member G3IAS hit on the idea of changing the Affiliated Societies Contest from a rather exclusive 160m event operated from just one station per competing society, to a team contest in which the scores of five separate entrants would contribute to the overall club score; the first such event was held in January 1976.

Those who have access to the May 1976 edition of *Radcom* can see for themselves that the first CW AFS under the new rules was enthusiastically welcomed, and 51 club entries were received. The 1992 event was entered by over 100 teams, made up of 350+ stations, quite a number of which were themselves multi-operator. During its comparatively short lifetime CW AFS has risen to match NFD in terms of popularity and support.

Sixteen years later, in response to those who feel that CW is not for them, the HFCC decided to introduce an equivalent phone contest. In January 1992 the first SSB AFS attracted 58 club entries, and likewise many expressions of satisfaction. This is a most gratifying level of support for a first event; just as in 1976 the allocated sub-band was filled with contest signals throughout and several operators who were 'persuaded' to represent their club for the first time found the going tough under crowded conditions. For next year the Committee will review the allocation of 3.600-3.720 but is mindful of the heavy usage of 80m by non-contest traffic at weekends.

In the CW contest, which was as closely fought as ever, Lichfield ARS 'A' team triumphed by over 550 points to win the Edgware Trophy. Verulam 'A' and Leicester Poly 'A' (a further 500 or so points behind them) picked up the consolation prizes. Congratulations to Aberdeen who once again led the Scottish contingent.

The individual competition is always desperately close - this year Peter Miles, G3KDB, managed 280 QSOs (that's one every 50 seconds!) to qualify for the Marconi Trophy. A special mention is due to Derek Thom, G3NKS, in second place... no errors at all were found in his log which contained 276 QSOs. If there were a prize for the best-placed team of mastschists it would undoubtedly be awarded to the Norfolk ARC's QRP Team - five watts per man, and G3YLA made 57 QSOs using a DC Flt.

Conditions, as usual, favoured the Midlands and South, especially for the first 90 minutes or so. Delaying the start in order to improve things for the North would almost certainly lead to serious problems later in the form of propagation into the Continent, which would in turn require restriction of the contest sub-band to conform with IARU requirements. This was not a great success when last implemented!

In the SSB event, Lichfield ARS showed that they are perhaps even stronger on phone than CW with a fine win by a margin of almost 600 points over the Mid-Beds 'Gladiators'. The Lichfield ARS 'B' group might well have gained third place as well; G3N3S clocked up 34 QSOs in the first 16 minutes and was well on the way to challenge G3NLY for the top spot when a power cut cruelly put paid to his chances. He was back after 40 minutes on battery power and made another fifty QSOs before calling it a day. Spare a thought also for G0HUZ who had to QRT after only three contacts because he kept tripping his neighbour's burglar alarm. Sadly there were no entries from north of the Border, and therefore the certificate for the leading Scottish team cannot be awarded.

From the point of view of logging in both contests one can only echo the 1976 report: "the standard of the logs ranged from excellent to awful"; sixteen

years later the computer brings its own range of new problems: transposed columns, landscape format (an adjudicator's nightmare), missing serial numbers, missing RS(T) sent column or 599 instead of 59 are just some of them. K1EA's 'CT' was used by a large number of stations. This program not only does not conform to the RSGB log format, but it also does not output details of the RS(T) sent. Almost all the 'CT' users took steps to remedy these deficiencies, in one case by writing in all the reports in longhand although more usually by exporting the file to a word processor or a dedicated format conversion program. A very small number of logs were not corrected. Those logs which had columns missing or which remained out of format were penalised 5% of their checked score. Disappointingly, only three groups took the opportunity to submit their log on magnetic disk.

It is also evident that some programs are not foolproof as far as duplicate checking is concerned. By no means all of the unmarked dupes appeared in the 'old technology' paper logs, which of course still make up the majority. Another common cause of lost points occurs after the contest, when the pressure should be off. Many incorrectly logged callsigns were obviously due to transcription errors, with confusion between H and M, C and G, or N and W. One entrant had perhaps enlisted the help of a member of the family to write up the log, with the result that a G3Qxx callsign appeared in his log. It is always worth checking the entry back against the original log, or against the dupe

sheet, before submitting it to the sharp eyes of the adjudicators. As the well-known witticism says: "The job's not finished until the paperwork is done."

The adjudicators for these contests were assisted by, in the SSB event, G3KKQ, G3MCK and G4DUS and in the CW event G2HLU, G3SQX, G3WRR and G4CZB. Since a share in AFS checking involves the commitment of a minimum of 30 to 40 hours of time (not to mention the eye-strain) a special vote of thanks goes to these gentlemen for their efforts which are, of course, voluntary and unpaid.

Figures are not available for the phone event, but for those who like silly statistics...

In the CW event 21,578 QSOs were made, at a rate of 1 QSO per minute for every 490Hz of bandwidth available. After allowing for the QRS Corral, one could expect to be able to hear 3.15 QSOs in progress at any time within a 1KHz bandwidth (just what is 0.15 of a QSO anyway?). Approximately 2,236,000 dots and 1,956,000 dashes were sent/received during QSOs (CO calls etc cannot even be considered). The energy consumed by transmitter PAs alone would have boiled slightly over half a ton of tap water. The pile of logs received measured 13' thick, weighed in total just over 23lb and, if the individual sheets had been laid out side-by-side, would have covered 1.59 square kilometres of ground.

Following lots of requests for publication of more details of equipment used, particularly by those stations outside the top handful, it is proposed in future, space permitting, to include a simple 4-

character code after each station's entry in contest results giving basic details of aerial and transmitter power (Txn G4BKl for the idea). CW AFS is the first experiment in this field. For this event, since no multi-element aerials were used, the character representing Number of Antenna Elements has been omitted. The codes are as follows:

#### FIRST CHARACTER - POWER

- 0: 0 - 1 W
- 1: 1.1 - 5 W
- 2: 6 - 20 W
- 3: 21 - 100 W
- 4: 101 - 400 W

#### SECOND CHARACTER - ANTENNA TYPE

- R: G5RV
- C: Other Centre-fed
- G: Ground Plane / Vertical
- Q: Quad or Loop
- W: Other Wire

#### THIRD CHARACTER - HEIGHT

The figure represents the Tens digit of

#### SSB AFS 1992 - INDIVIDUAL SCORES

SSB AFS 1992					
1 *	Lichfield ARS A	G3NLY	G3LNS	G3SJJ	7604
2 *	Mid-Beds CA 'Gladiators'	G4MBC	G4GIR	G5LP	7025
3 *	Leicester Poly ARS A	G4FPH	G4ARI	G3ORY	6285
4	Verulam ARC A	G4JKS/P	G3RTE	G4SUP	5878
5	Lichfield ARS B	G3VHB	G4CBQ	G0DAY	5235
6	Halifax & D ARS A	G3IGW	G2UG	G4MH	5104
7	Crawley ARC	G3SFO	G6RC	G3VFR	5071
8	Stafford-Upton-Avon & DRS	G0ZTSM	G0CCO	G0MLE	4800
9	South Manchester RC A	G3SIV	G3FNM	G0CBL	4788
10	Southgate ARC A	G3ZVW	G0IDA	G4SXT	4748
11	Sutton & Cheam RS A	G4ERW	G3VHK	G0AXA	4747
12	Grimsey ARS	G3TBK	G3JKB	G0IQJ	4527
13	Hereford ARS A	G4CNY	G4MET	G4SIZ	4174
14	Sutton & Cheam RS B	G4ONW	G3OLX	G0GZG	3657
15	Clifton ARS A	G3JUZ	G0GQT	G3GHN	3474
16	Flight Refuelling ARS A	G4WEY	G0NLM	G4FRH	3380
17	Bury St Edmunds ARS	G0KRL	G0NFE	G0MEV	3220
18	Scunthorpe ARC	G4DGB	G0NYL		2810
19	Axe Vale ARC	G3FFH	G4OYY	G0GHH	2790
20	RAFARS Waddington	G3IWC	G0KUC	G0NPB	2700
21	Plymouth RC A	G0IVZ	G4OFR	G0JNZ	2664
22	RAFARS York	G2AFY	G4FIC	G0JKW	2668
23	Marlborough RS	G4FIC	G0JKW	G3OJE	2637
24	Lichfield RS A	G3LRU	G0JUM	G0MTF	2450
25	RNARS Portsmouth	G3RZU	G0PWW		2361
26	Hornbeam & D ARC	G0ASZ	G4FBS	G4OFG	2328
27	Stockport RS	G4ECI	G0AMY	G0PWA	2318
28	Torbay ARS A	G3LUJ	G3HFG	G3BIT	2248
29	Chiltern DX Club	G4BUO	G0HSD		2234
30	Mid-Beds CA 'Lions'	G4BJM			2192
31	Halifax & D ARS B	G3NBP	G3JWN	G3ONQ/P	2144
32	RNARS London	G3YFE	G8B	G3OZY	2087
33	Southgate ARC B	G6ASA	G4JOL/P	G4MVF	2069
34	RC of Thanet A	G3OPJ	G0C8Y	G0C7O	2047
35	BT ARC (Reading) A	G4LNV	G4MJT	G0PUT	2044
36	RAFARS Costed	G4CES	G3VAD		1960
37	Addiscombe ARC	G4ALE	G3SBV		1778
38	Bromsgrove & D ARC	G3VGG	G4VJ	G3UFY	1567
39	South Manchester RC B	G3VW	G3HMZ		1517
40	Sunbury RCC	G8TB	G4DDY		1480
41	CIBA Geigy ARS Grimstey	G0GGO	G4EBK		1407
42	Clifton ARS B	G0PPO	G0HUZ		1397
43	Leicester Poly ARS B	G4DJK			1350
44	Gloucester ARS	G3MA			1301
45	Hanwell ARS	G0ADH			1290
46	Leicester RS B	G4SJK	G0AIZ	G0LMB	1280
47	Hanwell ARS	G4YJD			1274
48	Warwick School	G4WKS/P			1070
49	Southdown ARS	G4RUL			977
50	Flight Refuelling ARS A	G2BDV	G4POF		908
51	West Kent ARS	G0GCI			830
52	Torbay ARS B	G3YCH	G0MKF		680
53	RC of Thanet B	G4PTE	G4RNJ		551
54	RNARS Lowestoft	G8NT			540
55	Reading & D ARC	G9PUB			530
56	BT ARC (Reading) B	G4UFE	G4HLT		507
57	Hereford ARS B	G0PRB			340
58	Newbury & District	G3ZGC			330

\* Certificate of Merit

the antenna height in feet, thus:

- 0: 0 to 9 ft
- 3: 30 to 39 ft
- 9: 90 ft or more

Ultimately it is proposed to produce a more comprehensive key which would be standard for all RSGB events. Also, of course, success depends upon sufficient information being included on the cover sheet! Your comments are welcomed.

And what of the future? It seems certain that SSB AFS will become a permanent fixture in the HF contest calendar, although our 'introductory offer' of a certificate for each entrant making 50 or more QSOs is, like most such giveaways, unrepeatable. (Certificates were scheduled to be mailed in July to all those club organisers who included an SAE with their entry.) It was noticeable that many of those who competed do not figure in other RSGB contests, and that very nearly a third of the SSB entrants were G0s. The HFCC is very well aware of the present bias towards CW in the calendar - this is under review but, with the exception of the 21/28MHz contest, a worthwhile level of entry in phone events has proved impossible to sustain. It is hoped that SSB AFS, introduced sixteen years after its sister CW event, will grow and strengthen, and perhaps persuade some of you to try your luck in other RSGB HF contests. G4BUO/G3UFY

72	G0PWW	520
73	G0ASZ	514
74	G4LW	507
75	G4OFR	504
76	G4UOL/P	475
77	G8TB	460
78	G3NAS	457
79	G3GHN	437
80	G3HFG	434
81 =	G3LUJ	430
	G0GCI	430
	G0CGB	430
84	G4OYY	420
85	G0KUC	410
86	G0JKW	394
87	G4FRF	390
88	G0C8Y	374
89	G4ALE	371
90 =	G4FBS	770
	G0JNZ	740
92	G4MUT	747
93	G0NPB	730
94	G0PPO	700
95	G0HSD	690
96	G2BDV	678
97	G0PDZ	676
98 =	G4OFG	664
	G0CJE	664
100	G3OPJ	653
101	G0MEV	650
102	G4RUL	630
103	G0AMY	628
104	G8B	627
105 =	G4DDY	620
	G0C7O	620
107	G0PWA	610
108	G0JUM	600
109	G3HMT	587
110	G3BIT	584
111	G4EBK	577
112	G4SCH	575
113	G4SIZ	564
114	G8T	540
115	G0PUB	530
116	G0MTF	510
117	G3SSV	507
118 =	G3UFY	500
	G0GHH	500
120	G4SXT	480
121	G4VJ	477
122	G3YCH	470
123	G3JWN	461
124	G3OZY	450
125	G0AIZ	440
126	G0PUT	390
127	G3ONQ/P	377
128	G0LMB	368
129	G4PTE	350
130	G3WQK	347
131	G0PRB	340
132	G3ZGC	330
133	G4UFE	290
134	G4POF	230
135	G4HLT	227
136	G0MKF	210
137	G4RNJ	201
138	G4MVF	200
139	G0HUZ	30

\* Certificate of Merit

Checklogs acknowledged with thanks from G3ADV, G3COR, G3DWO, G3SNJ, G4EZA, G6CW, G0CCH and G4BLE.



**CONTEST NEWS**

**CW AFS 1992**

Posn	Call	Stations Contributing to Score	Score
1	Lichfield ARS 'A'	G3KDB G3NKC G3LNS G3SJJ G3VHB	12919
2	Verulam ARC 'A'	G4DJK G3VER G3RTE G2BAP G4JKS	12366
3	Leicester Poly 'A'	G3OAY G4BK G4AFI G3ORY G4BCA	11877
4	Addiscombe ARC	G3UJY G4ALE G3RZZ G3VYI G3SJJ	11456
5	Mtd-Beds CA	G4BJM G4GIR G4MBC G5LP G4LRL	11239
6	Leicester Poly 'B'	G3SDC G4EOP G4ZFP G4JGV G4DJK	10283
7	Grimby ARS	G3TBM G3RXP G3RSD G4EBK G3JKB	9639
8	Cheltenham ARA	G3HKS G3FXA G4PDD G4MEMP G4VXE	9511
9	Goldford & DRS 'A'	G3SVM G3JAF G3EFO G3YXK G3KZR	9203
10	Southgate ARC 'A'	G3GLL G3YAJ G3VEC G3ZVW G0IDA	9189
11	RNARS Colchester	G3KHZ G3TMA G3XYK G4KGG G4KRS	8457
12	Melton Mowbray ARS	G3PDH G4OCC G3JMB G3LDI G4DYC	8418
13	Norfolk ARC 'A'	G3LJK G3BZU G3JTG G3CHN G3TZL	7690
14	RNARS Portsmouth 'A'	G3ORR G3WSC G3JKF G3TNO G3YVR	7632
15	Crawley ARC	G3PSM G2AFV G3GUJ G3JGB G3ISL	7520
16	RAFARS York 'A'	G3KAF G3HQH G0JCI G4FAS G4BJU	7377
17	Stockport RS 'A'	G4IUZ G3SHY G3ASR G4HMD G0IGP	7167
18	Edgware & DRS 'A'	G3WYK G3POA G3TWG G3IOF G3LWV	6937
19	Maidenhead & DARC 'A'	G3SVM G0LZL G3PZF G3FNM G3VIV	6841
20	South Manchester RC 'A'	G0VZV G0JNZ G3ULN G4OFR G4BLI	6621
21	Plymouth RC	G4PIQ G3XDY G4MRS G4HUP	6271
22	Martlesham RS	G4BUD G3MXJ G0AFH	6198
23	Gravesend RS	G3WGV G3XTT G4AEP G4ELY G0PUBP	6184
24	Reading & DARC 'A'	G3HEJ G3XRK G3HJ G4SNO G3LQIM	6124
25	RAFARS Halton	G3BFP G6LX G3MCC G8TB	6124
26	Surrey RCC (Croydon)	G2HUL G3VMO G4RFR G3PFM G0NLM	5911
27	Flight Refuelling ARS	G3LJZ G3GHN G3BSN G0GOT G4TJEP	5741
28	Cilton ARS 'B'	G4SFO G4IP G4NVC G4OKL G4TNI	5541
29	RNARS Birmingham	G3OLX G4HSD G0PNT G0BXC G3VYV	5159
30	Sutton & Charn RS	G4ELZ G3LJH G3HFG G3MIR G3KZJ	5067
31	Torbay ARS 'A'	G3UJY G4SUP G3HJF G0IAL	5047
32	Verulam ARC 'B'	G3ZVY G3ZSU G3ORP	4922
33	Maidstone YMCA ARS	G4DGB G4ZMH G3KNU G4JRY G4NFX	4879
34	Scunthorpe ARC	G3XZL G4HWK W3JJI G3WVX G4PTN	4827
35	RNARS Liverpool	G3KXO G3MCK G4GSC G3EAO G3WPK	4817
36	Ethelton ARS 'A'	G3HKO G3AWR G4FCH G3KTT G3MXZ	4690
37	RNARS Middlesbrough	G0FDY G4ZYN G0LRE G0GVA	4675
38	Central Lancs ARC	G4CNY G4BKX G0PRB G4JSN	4671
39	Hereford ARS	G3HAL G3VW G3DIC G3FFH G0GHH	4610
40	Aze Vale ARC	G3LRS G3HYH G3TGF G0AIZ G0LZA	4472
41	Leicester RS 'A'	G3PIA G0ADD G4DQW G3NAQ	4420
42	Harwell ARS	G4MSID G4S0ZB G4M3VEY G4MJKF G0M0VY	4365
43	Aberdeen ARS 'A'	G3GC G4JBH G3CQR G0HJG G0JVG	4235
44	Yeovil ARC 'A'	G4YFR G3MA G3ZKN G0HBB	4152
45	Gloucester ARS	G4FRN G3YF G0BDC G8IB G3OZY	4014
46	RNARS London	G0MBQ G0PDD G4DFG G3COO G3VPO	3931
47	Hordean & DARC 'A'	G3AGF G3SJV G3ZFE G4SGR G3DDY	3904
48	Southdown ARS 'A'	G4SYC G3OMM G0AMY G0HAL G4ECI	3798
49	Stockport RS 'B'	G3KXG G3VTV G3AYS G3NCL G4CCH	3692
50	Chesham & DARS	G3EIZ G4BCY G0GON G0CDO G4YPC	3647
51	Stafford upon Avon & DRS	G3OXC G0DAS G3HNN G0W0Y	3490
52	Guilford & DRS 'B'	G1W4DB G4W5PL G4W4XK G0W0MY	3428
53	Thames Valley ARTS	G3WVG G3TXF G3S XW	3248
54	RNARS Swansea	G3LZK G3SWH	3210
55	Th 'A' CG	G3ZD G4USW G3KJK	3067
56	RNARS Bristol	G4MCM G4M0MB G4M4IF	2967
57	RNARS Barrow	G4SXT G0ASA G0FOF G3GUL	2930
58	RNARS Helensburgh	G3MRC G3VGG G4IVJ	2923
59	Southgate ARC 'B'	G4CZB G5MY	2890
60	Bromsgrove & DARC	G4KXK G3LDT	2751
61	Leicester Poly 'C'	G3UKV G3JMP	2707
62	RAFARS Seotland	G0PWW G3JFF G0FOO	2570
63	Telford & DARS	G0DDI G4KDL G8NT	2340
64	RNARS Portsmouth 'B'	G0JCY G3AOM G3VNG	2310
65	RNARS Lowestoft	G4M3YOR G4M4FDM	2190
66	RNARS Plymouth	G4DXX G3OVT G4ISO G0GAZ	2180
67	Parsley (YMCA) ARC	G4EOL G3YLA G3XYO G3HYJ G3DOV	2106
68	Stevanage & DARS	G2FIZ G3VFC	1897
69	Norfolk ARC ORP	G3TKT G3WFM G4YGH	1880
70	RAFARS Locking	G4S3B G4WPHB G4W0MY G4W4XF	1850
71	Chestnut & DARC	G3TMC G4M3HJ	1824
72	Meirion ARS	G3ZGC G4GZQ	1700
73	RNARS Rosyth	G3PWW G4IGY	1667
74	Newbury & DARC	G3NHF G0KUC G3JRY	1657
75	Horsea ARC	G8AV G4LJH	1520
76	RAFARS Waddington	G3JSR	1470
77	RNARS Nottingham	G3RZF G3VCT	1410
78	Havering & DARC	G4PIU G3MEA G4XJV	1370
79	Maidenhead & DARC 'B'	G0JNQ	1290
80	RAFARS Cleveland	G4C6Q	1210
81	Weston-super-Mare RS	G0DHZ G4BEQ	1104
82	Lichfield ARS 'B'	G0KKG G0JFZ G0FCL	1064
83	Hordean & DARC 'B'	G4ZJK G4M8KV	1040
84	Aberdeen ARS 'B'	G0MGB	1020
85	Morse Group of Bognor	G0HUZ G0PPO	837
86	Cilton ARS 'B'	G4ZY	757
87	RNARS Portland	G4XL	750
88	Edgware & DRS 'B'	G0B0X G4SCFS	733
89	RAFARS York 'B'	E6HD	597
90	RNARS Thurso	G0DOF G4KYQ	537
91	RNARS Dublin	G4PTE	460
92	Southdown ARS 'B'	G0ND	447
93	RAFARS Medway	G4MUT	370
94	South Manchester RC 'B'	G4OOS G0LMB	360
95	Reading & DARC 'B'	G3SNU	351
96	Leicester RS 'B'	G2ACB Q21FJB	247
97	Torbay ARS 'B'	G4EVI G3ICO G4JBL	140
98	RNARS Copanhang	G0PD	90
99	Yeovil ARC 'B'		
100	Ethelton ARS 'B'		

\* Edgware Trophy  
\* Certificate of Merit

**HF CONTESTS CALENDAR - 1992**

1/2 Aug	YO DX (CW/SSB)
8/8 Aug	WAE (CW)
5/6 Sep	SSB Field Day (Jun 92)
5/6 Sep	JARL AA SSB
6 Sep	LZ DX CW
7 Sep	QRS Cumulative (Jul 92)
12/13 Sep	WAE SSB
15 Sep	QRS Cumulative (Jul 92)

19/20 Sep	SAC CW
23 Sep	QRS Cumulative
26/27 Sep	SAC SSB
28/29 Sep	GO WW RTTY
1 Oct	QRS Cumulative
3/4 Oct	VK-ZL SSB
9 Oct	QRS Cumulative
10/11 Oct	VK-ZL CW
9 Oct	21/28MHz Telephony (Apr 92)
18 Oct	21MHz CW (Apr 92)
24/25 Oct	CDWW DX SSB

**CW AFS 1992 - INDIVIDUAL SCORES**

Posn	Call	Score	Equip-ment
1	G3KDB	2791	4C4
2	G3NKC	2700	4C3
3	G3OAY	2700	4C5
4	G4BJM	2687	4C5
5	G3NKC	2660	3C7
6	G3UJY	2644	4W3
7	G4PID	2644	4C6
8	G4DJK	2634	3C4
9	G3VER	2620	4C7
10	G3LNS	2617	4C5
11	G4GIR	2601	4C6
12	G3RTE	2600	4C
13	G3SJJ	2594	4C6
14	G4MBC	2570	4C6
15	G4BK	2498	4C8
16	G3RVL	2417	3R
17	G3PSM	2389	3C
18	G4BUO	2381	4C4
19	G3GLL	2368	4C2
20	G5LP	2351	3C
21	G3TBE	2344	3C5
22	G3FXA	2337	4C
23	G4LE	2334	4C4
24	G3WGV	2330	4C5
25	G4ARI	2314	4C4
26	G3RTE	2308	4C4
27	G2BAP	2271	3C
28	G4CNY	2270	3C
29	G3SVM	2260	3C3
30	G3ORY	2257	4C5
31	G3VHB	2257	4C4
32	G3PDH	2247	3C
33	G4JKS	2241	3C4
34	G3KHZ	2230	3C4
35	G3ROZ	2230	4C
36	G3SDC	2194	4C
37	G3SYM	2186	4C6
38	G3WYK	2170	3C
39	G4BCA	2170	4C
40	G3MXJ	2160	3C6
41	G4EOP	2158	3C
42	G3OXC	2136	3C
43	G3SJJ	2124	3C1
44	G3VYI	2124	4W3
45	G6LX	2124	4C6
46	G3WVG	2118	4C
47	G4PDD	2107	4C6
48	G3TMA	2097	3C7
49	G3IAF	2077	3C
50	G4ZFP	2061	4C5
51	G0VZV	2060	4C6
52	G3RXP	2044	3C4
53	G3UJY	2040	4C
54	G4JGV	2040	4C6
55	G3RFP	2020	4C3
56	G3HEJ	2000	3C5
57	G3LJK	1990	3C
58	G3YAJ	1990	3C
59	G3KZT	1970	4C
60	G3SFG	1951	3R
61	G3KAF	1950	3C4
62	G3XTT	1950	4C8
63	G4ODC	1950	3C3
64	G0FDX	1940	4C3
65	G3ZVY	1932	3C
66	G3XYC	1932	3C
67	G3RSD	1870	3C3
68	G3WSC	1867	3C8
69	G4KXK	1857	3C3
70	G3BZU	1840	4C3
71	G4DJK	1830	4C
72	G0EFO	1820	3C3
73	G4CZB	1800	4C
74	G3OLX	1791	3C
75	G3YEC	1784	3R
76	G4EBK	1780	4C3
77	G3LJZ	1770	3W
78	G4OGB	1747	3C5
79	G4IUZ	1720	3C
80	G3LZK	1700	3R
81	G3XDY	1697	3C8
82	G2HUL	1687	3C2
83	G3JKF	1680	4C4
84	G3YXX	1670	3C2
85	G3ZSU	1670	3R
86	G2AFV	1660	4R
87	G4ZYN	1660	4C
88	G0AFH	1657	3C3
89	G3SHY	1657	3C2
90	G0JCI	1650	3C
91	G3KXK	1650	3C3
92	G3RXP	1630	3W
93	G4YFR	1620	3R
94	G3HQH	1617	3W
95	G3JKB	1601	4C3
96	G3UKV	1590	4C4
97	G3LDI	1574	3C7
98	G4SFO	1540	3C
99	G3ASR	1520	3W
100	G3ZVW	1520	4C
101	G4MRS	1520	3C5
102	G3SWH	1510	3C
103	G4HMD	1500	3R
104	G3LZL	1497	3C
105	G3PIA	1490	3C
106	G3PFZ	1487	3W
107	G3JRS	1470	3W
108	G3LRS	1460	3C
109	G3JTG	1460	3C
110	G3JNB	1457	3C
111	G3LZL	1450	3R1
112	G3KZR	1450	3C
113	G8TB	820	3C
114	G3VIX	820	3W
115	G3QOC	1434	4W3
116	G3MRC	1430	3C3
117	G3ZGC	1410	3R4
118	G4ZIV	1400	3W

119	G4FRN	1400	3C
120	G4RFR	1390	3C
121	G3AGF	1380	3C
122	G4MEMP	1377	3C
123	G3ELZ	1370	3C
124	G3XZG	1370	3R
125	G4M3XM	1367	3C
126	G3LJU	1360	3W
127	G4HSD	1354	3C2
128	G4ELZ	1340	3C
129	G4BXS	1337	3C
130	G0IDA	1330	3C
131	G0JNZ	1330	3C3
132	G4KGG	1330	3C
133	G3GUJ	1327	3W
134	G3ORP	1320	3W4
135	G0BNI	1310	3C
136	G4SUP	1300	3C
137	G4ZMH	1294	3C
138	G3POA	1290	4W
139	G3GHN	1280	3C4
140	G4LZB	1280	3R
141	G3ULN	1270	3W
142	G4FAS	1260	3R
143	G4IP	1260	3R
144	G3MCK	1250	3C
145	G4M3YOR	1240	4C6
146	G4SIO	1240	3C
147	G3HJF	1237	4C
148	G0JON	1230	3W2
149	G3VRY	1230	3C
150	G3JGB	1227	3R
151	G3VGG	1224	3
152	G3CHN	1220	4W
153	G3ZD	1220	3C3
154	G4CBO	1210	3C4
155	G3MA	1201	3C
156	G3HAL	1200	3C
157	G3IOF	1190	3W3
158	G4DYC	1190	3R2
159	G3MXH	1181	3R3
160	G3TZL	1180	3W1
161	G4USW	1177	3W
162	G4HDB	1170	3W
163	G0ADD	1160	3R
164	G3MCK	1160	3C
165	G0PWW	1140	3C
166	G3M3U	1140	4W
167	G3BSN	1137	4C
168	G3HYH	1130	3C
169	G3MP	1117	4R
170	G3SJV	1117	3C
171	G3LWV	1110	3C
172	G4NVC	1097	4R
173	G4JBI	1091	4R
174	G3MY	1090	3W
175	G3VW	1089	3C
1			



**HF RULES**

**SECOND 1.8MHZ**

1. The General Rules for RSGB HF Contests (as published in January 1992 *RadCom*) will apply.

2. When: 2100GMT Saturday 21 November to 0100GMT Sunday 22 November 1992.

3. Sections: Single-operator entries only.

(a) British Isles.

(b) Overseas including EL.

British Isles entrants for the transmitting contest are invited to submit a log for the **BINGO TABLE** which will be run in conjunction with this event.

4. Frequency and Mode: 1820 - 1870kHz, CW only.

5. Exchange: RST plus Serial Number starting at 001. British Isles stations must also send their County Code.

6. Scoring: Overseas stations work only British Isles stations for points.

Section (a) Three points per QSO plus a bonus of five points for (i) the first QSO with each British Isles County worked and (ii) the first QSO with each County (outside the British Isles) worked.

Section (b) Three points per QSO plus a bonus of five points for the first QSO with each British Isles County worked.

7. Address and closing date for logs: RSGB HF Contests Committee, c/o S V Knowles, G3UJY, 77 Bensham Manor Road, Thornton Heath, Surrey, CR7 7AF, England. Send within fifteen days from end of contest.

8. Awards:

(a) The Victor Desmond Trophy will be awarded to the leading station in the British Isles. Certificates of Merit will be awarded to the second- and third-placed entrants.

The Maitland Trophy will be awarded to the Scottish entrant with the highest aggregate number of points in this contest combined with the First 1.8MHz Contest 1993.

(b) Certificates of Merit will be awarded to the leading three entrants in the Overseas section.

**RECEIVING CONTEST**

The General Rules for RSGB Receiving Contests will apply, as will the special rules for the Transmitting Section except as modified below.

Eligible entrants:

(a) British Isles - RSGB members only

(b) Overseas - all SWLs

Holders of transmitting licences for frequencies ONLY ABOVE 30MHz may enter the receiving section. Holders of UK Class B licences are particularly encouraged to enter.

Logs: Columns to be headed: time GMT; callsign of station heard; report/serial number/County Code sent by that station; callsign of station being worked; bonus; points claimed. NOTE - In the column headed 'station being worked' the same callsign may only appear once in every three contacts unless the station heard is a new bonus.

Awards: Certificates of merit will be awarded to the leading entrants in each section. Additional certificates may be awarded at the discretion of the HF Contests Committee dependant upon the number of entries.

**VHF CONTESTS CALENDAR**

25 Jul	144MHz LP/SWL (Apr 92)
26 Jul	432MHz LP/SWL (Apr 92)
23 Aug	432MHz Fixed/SWL (Apr 92)
1/6 Sep	144MHz CW Cumulative (Jun 92)
5/6 Sep	144MHz Trophy/SWL (Apr 92)
20 Sep	70MHz Trophy/SWL (Jun 92)
3/4 Oct	432MHz-24GHz (Jun 92)
3/4 Oct	2.3GHz and 1.3GHz Trophies (Jun 92)
3/4 Oct	SWL Contest and IARU (Jun 92)
1/16 Oct	144MHz CW Cumulative
6/21 Oct	1.3 & 2.3GHz Cumulative (Jun 92)
14/29 Oct	432MHz Cumulative (Jun 92)

**VHF RESULTS**

**1ST 1296MHZ FIXED, APRIL 1992**

The most polite and generous comments regarding conditions for this contest was that they were flat - however, a number of the entrants supplied more graphic descriptions of grim conditions. Let's just hope the troposphere is a little more helpful for the 2nd event during November. A word of congratulation should go to G3JYP for a good entry from a more remote part of the country - never so easy under these conditions. Congratulations and certificates go to the Sutton and Cheam Radio Society, the South Birmingham Radio Society, David Cox, G8OPR, and Derek Poulter, G3WHK, as the winners and runners-up in their respective sections.

G4PIQ.

**SINGLE OPERATOR SECTION**

Pos	Callsign	Points	QSOs	Loc	Pwr	Ant	Best DX	Km
1	G8OPR	3309	23	91FE	100	55Y	G3JYP	360
2	G3WHK	2331	25	91VJ	100	55Y	G3JYP	383
3	G3JYP	2038	7	84SN	32	2m	G3OLX	392
4	G3MEH	1354	19	91DS	100	1.05m	G8OHM	114
5	G0JBA	1225	11	0111	8	4 x 23Y	G8OHM	216
6	G8ZGB	863	11	92JN	50	27QLY	G3JYP	237
7	G6SP5	694	10	011S	20	2 x 23Y	G8OHM	195

**MULTI OPERATOR SECTION**

Pos	Callsign	Points	QSOs	Loc	Pwr	Ant	Best DX	Km
1	G3OLX	3231	36	91VH	80	55Y	G3JYP	392
2	G8OHM	2660	23	92AJ	120	4 x 23Y	G3JYP	243
3	G4DSP	2603	19	92WS	200	1.2m	PE1EWR	288
4	G4SSD	704	8	80FI	110	15/15	G4FCD	236

**432MHZ FIXED, AFS, SWL (FEB 92)**

Congratulations to G4PIQ who was the overall winner of the single operator section, and to Martelsham Radio Society the overall winners of AFS. From their scores and the DX worked they were certainly in the right place at the right time. The results were very close in certain parts of the tables which resulted in very stringent checking and many stations lost points for logging or copying errors. Some stations appeared to have fallen victim of their own databases during post contest checking, so remember that it pays to log what you hear and not necessarily what you expect to hear. Congratulations to BRS 52543 for winning the Listeners section and to G3OLX for winning the Multi Operator section.

Stations gaining certificates are marked \* in the tables. A certificate of merit was awarded to Richard Girling, G4FCD, who was the leading single operator running 25W or less to a single antenna. Many thanks to G4SVD and G0CLP/P for the checklogs. The format and timing of the contest is likely to be unchanged for next year.

G4OUT

**SINGLE OPERATOR FIXED STATION SECTION**

Pos	Callsign	Zn	Pts	QSO	Loc	Ant	dB(w)	Best DX	Km
1	G4PIQ	C*	2179	206	J001	4X17	25	DK2GB	740
2	G4DDK	C*	1000	101	J002	17	19	DL8YBJ	497
3	G3XDY	C	950	84	J002	21	23	DL4EAU/P	635
4	G1LSB	B*	613	78	J002	21	19	DG8EAJ	511
5	G8HVI	D*	541	88	I091	2X21	26	DK3FB	587
6	G4WKN	B	508	108	I092	4X21	20	G0GDP	429
7	G8FGB	C	483	93	I091	4X21	26	G4KUX	381
8	G1GHA	B	476	62	I092	21	20	DJ8DL	632
9	G8NTD	B	425	91	I092	2X21	22	GU3EJL	326
10	G4FCD	D*	399	74	I091	21	14	DK3FB	616
11	G6GAU	C	379	46	J002	21	20	DF3BU/P	468
12	G7AZP	D	352	48	I090	2X18	20	G8PNN	496
13	G4JLG	A*	309	54	I083	88	20	G6MXL	311
14	G1NKS	A	279	53	I083	21	20	G7AZP	299
15	G8GDK	A	239	49	I083	18	17	G6MXL	303
16	G6MXL	D	250	34	I090	21	20	G4NOK	335
17	G8AFP	A	203	47	I083	21	16	G6MXL	298
18	G8ZQB	B	179	51	I092	19	16	GD4XTT	279
19	G3ZDM	A	166	42	I083	21	21	G7AZP	297
20	G6EYI	B	165	30	I082	48	16	G4PIQ	278
21	G3FLJ	C	164	33	J001	19	13	G4NOK	281
22	G8JUV	C	159	34	I091	48	17	G4KUX	396
23	G0GJV	D	151	39	I091	19	26	G4JLG	255
24	G4NTY	A	125	30	I083	21	10	G4PIQ	295
25	G7APD	B	85	28	I092	21	10	G4KUX	254
26	G3JJZ	C	20	5	J001	19v	1	G3NNG	118
27	G0BRV	C	8	4	J001	19v	1	G3NNG	118

**MULTI OPERATOR SECTION**

Pos	Callsign	Points	QSOs	Loc	Pwr	Ant	Best DX	Km	
1	G3OLX	C*	1149	141	I091	30	24	DL4EAU/P	739
2	G0LPL	B*	1116	149	I092	2X21	26	DL4EAU/P	802
3	G4DSP	B	901	112	I092	88	26	DL4EAU/P	727
4	G4NPH	B	809	105	J002	8X18	20	PK5VI	575
5	G4KUX	A*	654	71	I094	21	26	FC1DDB	652
6	G3WHK	C	610	104	I091	24	20	DG8EAJ	516
7	G4NOK	A	531	77	I093	4X21	24	DJ8DL	659
8	G8LMW	B	472	90	I092	2X19	17	DJ8DL	597
9	G4OWM	B	406	78	I091	88	17	DF3BU/P	551
10	G8OHM	B	393	79	I092	21	20	DL2KB	565
11	G8KGC	B	266	66	I092	48	17	GD4XTT	245
12	G5LK	C	200	46	I091	21	14	G4KUX	393
13	G1WAC	B	154	41	I092	2X20	14	G4KUX	246
14	G1LVY	B	110	35	I092	19	10	G4DDK	174

**AFFILIATED SOCIETIES SECTION**

Pos	AFS	Ops	Total	Zn
1	Martelsham RS	*G4PIQ 2179, G4DDK 1000, G3XDY 950	4129	C
2	Spalding & Dist	*G4DSP 901, G4NPH 809, G1LSB 613	2323	B
3	Sutton & Cheam	G3OLX 1149, G3WHK 610, G4OWM 406	2165	C
4	Rugby TS "A"	G8LMW 472, G8NTD 425, G8ZQB 179	1076	B
5	S Manchester "A"	*G4JLG 309, G8AFP 203, G3ZDM 166	678	A
6	Poole Radio AS	*G7AZP 352, G6MXL 250	602	D
7	Reigate ATS	G5LK 200, G8JUV 159	359	C
8	Rugby TS "B"	G1LVY 110, G7APD 85	195	B
9	S Manchester "B"	G4NTY 125	125	A
10	Clifton ARS "A"	G3JJZ 10, G0BRV 8	18	C

**LISTENERS SECTION**

Pos	Call	Name	Score	QSO	Loc	Ant	Best DX	Km
1	BRS 52543	M Parry	137	23	I083	19	G4PIQ	350
2	BRS 31976	M G Toms	81	23	J001	19	DK3FB	480

**DIRECTION FINDING**

**RIPON AND DISTRICT QUALIFYING EVENT, SEPTEMBER 1991**

Harrogate was the venue for the last qualifying event of last year's series. The competitors could not believe their eyes at the start as a hot air balloon and bouncing castle had been laid on (actually another event for disabled children). Only one signal from Station 'B' was heard, but not strong enough to get a bearing on. One competitor was able to hear both. The rest were pleased to receive approximate bearings.

Station 'A' (G4SJM/P) was located 15 miles SSW of the start in a wood between Bradford and Pudset. Competitors had a good time in there, providing the opportunity for one of the Tx crew to tape record comments (shouts etc).

Station 'B' (G4IUF/P) was located 7 miles W of the start in the 'back allotment' near Blubberhouses. The run in of 1 mile caused some fun as the Tx was hidden at the extreme edge of the wood near a wall covered in brambles with at least 600 feet of antenna wire in the adjacent wood! This led to searches in the wood and various dummy sites were discovered and quickly discarded.

Everyone then retired to Knaresborough for refreshments. Unfortunately, the winners could not attend but Brian Bristow and Peter Lisle kept everyone informed of how they 'did it'.

Paul Tyler and Colin Metcalfe more than justified their qualifying for the final by taking 1st and 2nd places respectively. Thanks must go to the Tx crews Mike and Gez (Station 'A'), Mike and Jason (Station 'B') and to SMRC for the loan of the transmitter.

**RESULTS**

Pos	Name	Club	Time at TX 'A'	Time at TX 'B'
1	P Tyler	Mid Thames	15.01	15.58
2	C Metcalfe	S Manchester	15.03	-
3	B Bristow	Mid Thames	15.01	16.16
4	P Lisle	Mid Thames	15.01	16.16.5
5	B Pechey	Mid Thames	15.01	16.17
6	T Gage	Mid Thames	16.23	15.21
7	D Newman	Northampton	15.02	16.24
8	C Plummer	S Manchester	16.26	14.54
9	A Collett	Chelmsford	-	15.20
10	G Whenham	Coventry	-	15.21
11	B Gray	Mid Thames	-	15.48
12	C Wells	S Manchester	15.48	-
13	G Nicholls	Barbury	-	16.16

**SOUTH MANCHESTER QUAD NIGHT EVENT, FEBRUARY 1992**

The eleventh quadruple night ARDF took place on 29 February. Twelve teams took part, assembling at the start at 1920. Good signals were received from three transmitters, the fourth had 'technical difficulties' but was on by the next transmission.

Station A - G3FVA/P - was hidden on a disused railway, some 10km south west of the start. The operators had run the aerial along the railway and were amused by the antics of competitors following it. They appeared, only to disappear into the distance once more, repeating the operation once they found the end of the aerial!

Station B - G3UHF/P - was over 10km west of the start. A minor mishap prevented the first transmission being made, but the reserve Tx was pressed into service by 2000. Teams appeared to have some difficulty in locating the actual area the Tx was hidden in (adjacent to a railway), possibly due to the fact that on all but the latest map, the wood being used was not shown.

Station C - G3WFT/P - was slightly east of north, some 7km distant. The Tx was hidden in a bramble patch by a disused canal cut, in a country park. Although only a small aerial was used, some teams spent time marching around the same swampy part of the site.

Station D - G3ZDM/P - was also in a country park some 10km north of the start. Here the operators had used plenty of aerial wire. Some teams got in fairly quickly, but others spent 'hours' searching around. Brian Bristow was duly awarded the 'Quad' rose bowl.

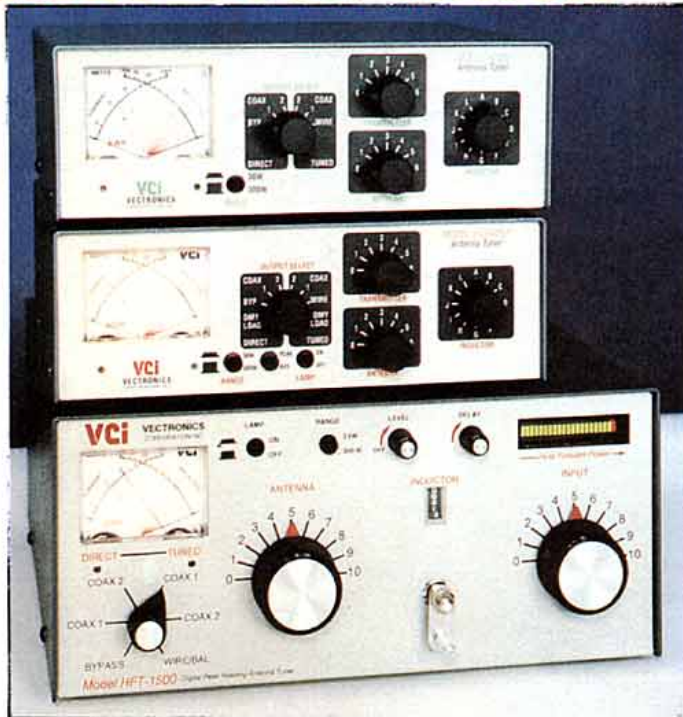
The South Manchester Radio Club wishes to thank all who took part, operated and especially Mary, Sue and other helpers for arranging the supper.

**RESULTS**

Pos	Name	Club	Time of arrival			
			Tx A	Tx B	Tx C	Tx D
1	B Bristow	Mid Thames	23.00	22.12	21.28	21.0
2	T Gage	Mid Thames	21.20	20.26	-	23.22
3	G Blomeley	S Manchester	21.14	22.15	-	23.26
4	D Yorke	S Manchester	-	23.55	21.31	22.25
5	C Plummer	S Manchester	20.51	22.26	-	23.57
6	G Whenham	Coventry	23.57	-	23.00	21.46
7	C Wells	Mid Thames	23.02	-	-	21.48
8	A Collett	Chelmsford	-	-	23.11	21.48
9	I Mackie	S Manchester	-	-	-	21.47
10	A Simmonds	Mid Thames	-	-	-	21.46+
11	G Foster	Mid Thames	-	-	-	21.49
12	J Hall	Ripon	23.07	-	-	-



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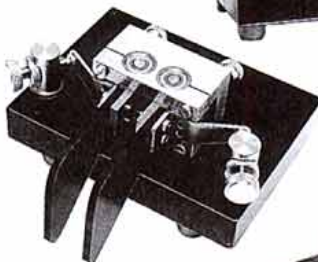
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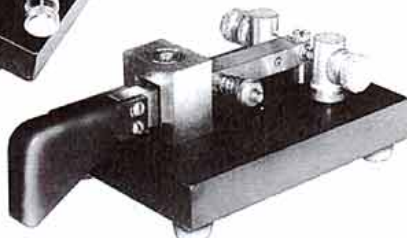
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credit card payment, cheque or postal order made payable to the Radio Society of Great Britain. Please note that because this is a subsidised service to members, no correspondence can be entered into. Licensed members are asked to use their call sign and QTH, provided their address in the current edition of the RSGB Amateur Callbook is correct. RS members will have to provide their name and address or telephone number. Please include your town and phone number in the free boxes provided to assist readers.

**Warning:** Members are advised to ensure that the equipment they intend to purchase is not subject to a current hire purchase agreement. The 'purchase' of goods legally owned by a finance company could result in the 'purchaser' losing both the goods and the cash paid.

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**BBC-B** Computer Series 7, Co-Pro Adaptor with 512K board and memory expansion to give 614K free Ram for DOS+ 2.1 Applications, new twin cumana disc drives, Merlin high resolution amber monitor, mouse, plinth, textbooks, manuals, BBC-B and DOS+ software including RTTY program and interface: £370. Excellent condition. Buyer collects. (Cheltenham) 0242 527651.

**DX** location one of the best in Wakefield, 2 bedroom semi bungalow, central heating, UPVC windows, open fields at rear complete with 60' tower and neighbours who don't mind antenna farms: £57,950. G4RCG QTHR, anytime (Wakefield) 0924 362144.

**FT290R II** with Nicads charger and Technical supplement, as new, little used: £369. Tokyo HX240 Transverter 10-80m: £195. MFJ901B Versatuner: £45. 30W linear MML144/30LS: £40. Drake TV-3300-LP, low pass filter, new, unused: £20. Altai SA7A PSU: £15. Boxes, full instructions, G4RSR (Poole) 0202 687248.

**ICOM** top of the range 970E 2M/70cm multi-mode with UX-R96 RX 50/900MHz receiver, original packing, manuals: £1650 oiro. G7GMD. 0273 440600.

**NOTEBOOK** PC, Libre 386SX, 40Mb HD, 4Mb RAM 31.5 floppy with Discin inkjet printer, PSU's MSD055 software, manuals, boxed as new, still under guarantee: £1000. Smith Corona XD4600 memory electronic typewriter, excellent condition, many useful features including spelling check, bold type: £95. Standard G500 dual band handheld: £250. Trio TH41E 70cm handheld: £125. Both GWO, manuals nicads, chargers boxed. G4OHB. (Halesowen) 0562 710801.

**SAILOR** model 86D Marine HF/SSB TX/RX plus spkr, GWO, well kept marine history, available complete with manuals/circuit diagram. Offers please phone evenings after 1900. Rob G1INJ. (NW London) 081 458 0998.

**SPECTRUM+** 128K, interface, twin microdrives Alphacom printer, spare rolls of paper, 40 cartridges, software including TNC, TASWORD, SSTV, CW, RTTY, Assembler, locator, all leads, power packs, instruction books: £135. Carriage extra at cost. BBC-B with colour monitor: £50 collected. Realistic VHF/UHF PRO-2009 scanner, with manual and boxed: £75, carriage extra at cost. 16K expandable RAM for 48k Spectrum: £20 p.p. (Ormskirk) 0704 892088.

**TOSHIBA** T1000 LE laptop, battery plus mains adaptor, 20MB hard disk plus 3.5 floppy drive plus leather case, haggie: £500. G3DYY. (Nr Huntingdon) 0487 841558.

**TRIO** TS-120s with DFS-230 digital VFO, boxed, VGC: £380ono. Prefer buyer collects. GOKRL QTHR (Bury St Edmunds) 0359 70527 after 6pm.

**ICOM** IC-AT500 auto antenna tuner 500w, large, 4350ono Trio 9130 2m multimode £320ono. MFJ artificial ground model MFJ-931: £65. Tuner and MFJ as new. G0BGY Jim (New Malden) 081 949 5549

**TRIO** TS830S, immaculate: £675. Trio TS430S, immaculate: £725. Yaesu FL2100Z linear: £475. KW107 ATU: £100. TET Iribander HB33SP: £150. Jaybeam LW16/2M: £45. Tonna 432/21: £25. Microwave modules, 100W, 144MHz linear: £85. Daiwa DK210 keyer: £35. Trio VFO240: £65. Kenwood speaker SP230: £25. Kenwood speaker, SP430: £25. BARTG ST 5C: £55. MM 432/50 linear: £55. MM 432/28 transverter: £75. G3VOW. (Newbury) 0635 43048.

**TS930S** complete with auto ATU fitted with international radio matched filter pairs, for both SSB (2.1kHz) and CW (400Hz) which provides outstanding selectivity. Also fitted with slow tuning modification board, providing 3 auto tuning rates from 2.5kHz per revolution. Transceiver has been fully re-aligned - genuine reason for selling. Offers invited Phone G4UDU. (Steyning) 0903 879526.

**VALVE** collection, rare, old, vintage, unusual, large, industrial, various. Over 200. For sale as a lot: £400, or offers invited for part. Book collection over 1,000 electrical, electronic, mechanical, many old, unusual, rare. From £1 - £100 each. Sorry no lists. Prospective purchasers must arrange to view in Birmingham. 4 tea-chest size boxes full of mainly new components (phone for details): £100. (Birmingham) 021 472 3688.

**YAESU** FRG8800 RX fitted FRV8800 VHF converter plus FR77700 ATU, boxed, manuals, excellent. £400. Microreared CW/RTTY decoder ERA, boxed, manual: £80 Diamond D-130 25-1300MHz antenna £30. QTH problem forces sale: £500 secures all above. Can deliver 100 miles QTH. (Portsmouth) 0705 386617.

**2 MTR** and 70cm handhelds with base PSU, mobile charger, spkr/tnic, manuals etc. FT208, FT708, excellent condition: £220 ono. (Coventry) 0203 450476.

**23CM** module for Kenwood TS790E, offers or swap. Also handpacked portable TNC with nicads wanted. KW2000E mut be mint. Dave (Romford) 0708 374043.

**24 CM** ATU complete station comprising solent IW TX with PLL: £75. EHC complete FM receiver: £150. Severnside 18 ELE YAGI: £5. Also Hills 30ft telomast in three ten ft sections complete with all fittings except guys: £50. Buyer collects. (NW London) 081 428 7039.

**2MFM** hard disks, 20Mb: £25. Second 20Mb: £35. Prefer buyer collects. G3JXR QTHRS. (Bletchley) 0908 642398.

**600ft** ASL semi-det picturesque rural cottage, 3 bedrooms, 2 receptions, 60ft HD tower, 6 mile Bromley Kent: £102,950. (Bromley) 0959 575992.

**60FT** telescopic tilt tower, heavy duty: £250. HRO for restoration, 10 coils, power pack: £25. Collect. Ron GW3HJQ. (Swansea) 0792 390122.

**ALTRON** AQ6-20/3E, 3EL Minibeam, 20,15,10,6 mtr bands, ideal small QTH, neighbour friendly, CW spare hardware, instructions, prefer buyer inspects/collects. Can deliver N.Surrey area: £100 ono. MFJ-962C Versatuner, 1.5 KW, PWR/SWR metering, Multiway Antenna switch coax, balanced, single wire feeds, 6 months old, boxed, manual: £175. Jaybeam 4m 4EL YAGI: £15 ono. Steve G4ASL QTHR. (Coulsdon) 081 668 3386.

**AMERITRON** AL80AX linear amplifier, as new condition, 2 months old: £825. FT726R with 6 metres and CW filter: £690. Phone Dave Hounslow (Q81) 570 9595.

**AMSTRAD** PC1512 30Mb HD twin floppy's colour, ability and Smart software, original

boxes: £350. Akai 4000D tape Deck, as new: £60. (Benfleet) 0268 772 896.

**ATLAS** 210X solid state transceiver 80-40-15-20 (80 watts out). (10m 50 watts out, mint condition, manual: £250. G1LCl QTHR. (Maidenhead) 0628 22352.

**ATV** 24cm 5 watts transmitter, commercial built, 6 channels, grey scale, pre-amp, 2 video inputs, microphone input, full repeater inputs, deviation, FM, perfect. Also 24cm Wood & Douglas receiver, pre-amp built in, matching black boxes, perfect: £425 both or separate: £225 each. 70cm 400 watts ATV amp, fully built with power supplies 4x250B valve plus spares: £200. All near best offer. (Stoke on Trent) 0270 872031.

**AVO** valve characteristic meter with manual, working: £30. QV02-6 (several), new: £10 each. YL1080 (2), used: £10. Geoff G4GEB QTHR. (Liverpool) 051 794 2000 ext 5034.

**BBC Model 'B'** with ROM expansion board, 40 Track Disc Drive. 'View' WP: £75. MMT144/28 2m Transverter: £50. (Cambridge) 0223 424714.

**BBC-B** 40 & 80T disc drives, sideways Rom/ Ram WP spreadsheet database, advanced books, lots more discs and tapes: £200. G4KJU QTHR. (Bedford) 0234 345137.

**BENCHTOP** linear amplifier 1.5-30MHz, marl by AEL, 25W drive, 500W output: £275. Dymar 883 handhelds FM TCVR on 169MHz with spare nicads: £50 pair. Military HF linear amp IMW input, 100W output, CW, manual: £75. All items carriage extra. (Horsham) 0403 864222.

**BNOS** LPM144-25-160 2mtr linear, boxed VGC: £190. BNOS LPM 432.10.50 70CM linear, boxed, VGC: £190. FT690R MKI DC lead, microphone, boxed, VGC: £230. Commodore 64, diskdrive, cassette, books: £150. Buyer collects or carriage extra. GM4UBJ QTHR. (Motherwell) 0698 63842.

**CD45** Rotator: £50. Heathkit autorange capacitance meter: £50. PYE LB base station: £10. Various camcorder batteries fit Sony + charger. SX400 scanner: £150. 20A variac: £20. HP Broadband sampling voltmeter: £50 'Waltz' SP300 SWR & Power meter: £45. Nick Philpot, 52 Barbridge Road, Cheltenham, Glos. GL51 0BX. (Cheltenham) 0242 233218.

**COMPUTER** Opus 386SX 40M hard drive, 3.5/5.25 floppy, SVGA monitor 1MB on VGA card 4M RAM with software on hard disk, all little use: £750. (Leigh-on-Sea) 0702 711181.

**CUSHCRAFT** AV3 vertical 10,15,20M, good condition, boxed with radials included, bargain: £40. G3UFG QTHR (Solihull) 0564 777802.

**DUE** TO illness, complete 2 meter base station, Trio 9000 all mode transceiver, 144MHz 100W linear amplifier, EP900 DC power supply 30A adjustable with two meters for volts and amps HF and VHF up to 200W unused Jaybeam Parabeam 14/2M, three base speakers all connecting leads and instructions, own boxes and in very good condition: £550 ono. (Nottingham) 0602 204083.

**DX33** 3EL Yagi 14/21/28 SDB Gain 25DB F/B: £75. Kenpro KR400RC Rotator: £75. or: £135 the pair, buyer collects. G3JLB QTHR. (Gravesend) 0474 534694.

**EDDYSTONE** 940 HF RX & speaker plinth, near mint condition: £130. FRG-7 HF RX, excellent condition, fitted FM board: £80. Comax CD670 communications decoder, RTTY CW, ARQ etc. large LCD display and TV & printer ports. Mint: £100. All above with manuals. Please phone for details G4DTC QTHR. (Caterham) 0883 343838.

**FL2100B** HF Linear 400W PEP output in good condition, re-advertised due to time wasters: £400. G0FQC QTHR. (Milton Keynes) 0908 667250.

**FRDX** 400 receiver 2M+8M, board fitted: £80. Skywood receiver: £40. Receive ATU: £30. IC240 2M FM transceiver, boxed, never used in anger, dedicated packet maybe?: £80. Buyer inspects and collects. G0LBY QTHR. (Bletchley) 0924 442567.

**FT-ONE** HF transceiver: £800. FT726R 2m 7cm SAT YM-48 Tone, mike: £700. FT4700RH 2m 70cm Dual band mobile 50W

2 4W 70 with YSK4700: £325. FRG9600 receiver 60-950MHz: £300. Icom IC-AT500 auto ATU: £300. All in VGC and with manuals, most with box's. G0KEY QTHR. Phone Steve. (Walton on Thames) 0932 242536.

**FT102 HF** transceiver with CW filter: £550. FTV107 transverter (2M module): £150. Icom 3200 2M/70cm mobile: £300. All boxed, hardly used. Microwave Modules 144/1005 2M linear: £100. 2x20ft sections Versatower, winch (for DIY mast): £75. GOASG QTHR. (N Yorks) 0845 524945.

**FT107M**, FTV-107R, boxed, service manual: £450. Trio rec 9R-51DS: £60. Icom 10-50 29M: £20. 100W 10M linear: £60. Kenpro squeeze key: £50. G0RTI Steve. (Leamington Spa) 0926 339584.

**FT209R** 2M hand/hold, soft charger, spk/mic, PA3 car adaptor, charger, wall case, manual, box. All excellent condition: £195. G4MWP QTHR. (Coventry) 0203 462035.

**FT221** with Mutek front end. VHF comms mod, still the best 2M rig. G8DLL. (Hayling Island) 0705 465535.

**FT290R**, excellent condition, case mobile mount, hardly used: £175 plus postage. G4HOR not QTHR. (Solihull) 021 745 2680.

**FT726R** Multimode Sat, 2m 70cm: £600. Sagant ZA-14, never used, cost £63.95 sale: £40. (Rotherham) 0709 850517.

**FT767GX** latest spec integral PSU/ATU, general cover RX. MH1B mic, handbook, box, receipt, new February 92. Hardly used in pristine condition: £1100. Plug-in modules 2m: £150. 70cm: £200 or complete for: £1400. Ring G0EOL QTHR (Cheshire) 0606 554857.

**FT901 DM** good condition: £650. Sony 200ID: £100. Commodore 128D discs: £200. transverter, 30w, 12v 28 144: £125. IBM Compat at: £475. All must be sold. Offers. Also tape recorder: £75. Green screen monitor: £50. Morse keys: £10. 12v 20a PSU: £15. 12v 5A PSU: £10. CBM64 Teletext Modem: £10. (Sevenoaks) 451267.

**HEATHKIT** DX-1000 160-10m 140W CW/AM TX (GWO): £150. Free gift RAI RX (not wkg) xtal calibrator, Q-multiplier, matching speaker. GM4RRU QTHR. (Carlisle) 0555 70409.

**HEATHKIT** SB200 linear: £225. BC221: £15. CW filters 350Hz: 250Hz for Yaesu FT101B-E: £25ea. G4ITB QTHR. (Leicester) 0533 766405.

**HYGAIN** TH3 MK3: £150. HAM II rotator plus controller: £80. Equip yourself to work real DX. (London) 071 727 2246.

**IC-3210E** dual band mobile 5/25 watts 2M/70cm. Excellent condition. Boxes, manuals Plus MR2000 SWR/PWR meter and 2M/70cm mobile AE and mountings: £350. (going HF). Mick G0GUG. (Derby) 0332 881703.

**IC701** HF RIG, IC701 PSU, SM2 desk mic, ICRM3 remote control, immac: £350. Echostar manual satellite receiver, 1.8m Dish, LNB, polariser, cable: £350. 70MHz video bandwidth filter: £50. Belcom LA106 2m 100W valve linear, spare tube: £50. G4JBH QTHR. (Yeovil) 0935 23873.

**ICOM** 260E multimode: £230. TH25E INC case and mike: £160. Both boxed with manuals. G0MPD. Prefer buyer collects. (Wolverhampton) 0902 847226.

**ICOM** 271E Transceiver, excellent condition, original box, manual. Also matching desk mike ICSM6: £395. (Tiverton) 0884 252259.

**ICOM** 735 general coverage transceiver, very good condition: £650. (Farnham) 0252 713851.

**ICOM** 751A TX RX with sep PSU, spkr, new 1991, excellent RX: £850. 1012D WARC bands with mains filter, works well, both with manuals mikes: £400. Having clear out going back to basics. G3JJU. (Fleet) 0252 615831 evenings.

**ICOM** IC25E transceiver 2m FM, boxed as new, many extras: £150. Steve. (London) 081 441 2013.

**ICOM** W2E dual band, incl battery, speaker mike and case, 3 months old: £300. Surplus to needs GW4AMZ (Abergele) 0745 833847.

**JAYBEAM** 23cm 15/15 slot fed antenna, VGC: £50ono. buyer collects. contact G1ZGZ QTHR.



**JAYBEAM** beam antenna rotating. Complete as new: £50 ono. 0285 750603.

**KENWOOD** TS530 SP, Good condition, CW filter, hand mic, desk mic. Prefer buyer inspects, test and collect: £475 ono. G0JZY QTHR. (Portsmouth) 0275 846343.

**KENWOOD** TS830S fitted with YK-88C and YG-45JC, 500Hz CW filters, MC359 hand mic, matching VFO-120. Operating and service manuals, excellent condition: £625. G3PVA QTHR. (Morden) 081 646 3738.

**KENWOOD** TS850AT 3 CW filters, auto ATU immaculate, manual, box. Yours for £1295 (Watford) Mobile 0836 313030 and I will return call or 0923 247099.

**KENWOOD** TS930S Fitted ATU, CW filters; excellent condition, boxed: £950ono. (Bexhill) 04243 6249.

**KENWOOD** TS950 SD, mint condition, little used, complete with ATU: £2200. G4JQI QTHR. (Blackburn) 0254 823366.

**LANDMARKS** in receiver design: Racal RA17, outstanding condition, with handbook and manual and spare valves. 15 years in CH room, but little used, hence: £275. Barlow Wadley XCR 30 rx. Portable in lovely boxed condition with handbook and manual. 500Hz to 30MHz, permeability ATU, SSB product detector, AM/FM detector: £90. 2' alloy scaffolding (used) 75p/ft. Used TV aerials from 50p. Reconditioned Hi-Fi aerials from £5 (£3H) to get plus multiple reflector. Aluminium VHF elements 10p to 50p. (Ilkley) 0943 600737.

**MAGUM** 2 meter transverter, Yaesu wired: £80. TAU SPC trans matcher: £90. Datong Clipper: £20. AR 88D, mint: £85. Frank G4IYP QTHR. (Chorley) 0257 275876.

**MARCONI** Communication receiver, RG42C, good working condition. Eleven valves turret band change with some spare valves: £60. G3HJE. Collect only. (Hull) 0482 653630.

**MINIBEAM** Altron AQ203 Element YAGI, ideal town use: £75 ono. Sun co-linear two metre antenna, new boxed: £25. Buyer collects. (Leominster) 0568 614470.

**MONITORING** station has for disposal the following equipment: Racal receivers RA17L: £250. RA1217 transistor digital: £400. Pye RX FM 3ch Marine AM air: £25 each. Pye RT AM10PVE 2MHz: £15. Carphone M400: £15. CTVR 6ch, HF handholds: £25 pair. ITT3000 VDU/telex machine, Tandata TD100 pretest keyboard, plugs into phoneline, TV: £50. Racal Modem, Raytheon VDU/keyboard, offers WHY? Call Bryan. (Graenock) 083 110 2436 or 0475 83700.

**NATIONAL** NC400 receiver, c/w handbook, needs renovation, buyer collects: £20. QTHR G3PEM. (Chelmsford) 0245 261645.

**NATIONAL PANASONIC** DRB600 Comms Receiver, 1.6-30MHz, digital USB/LSB, mains battery, FM/MW/SW NB: £150. Technicon Sig Gen 50 kHz 100MHz: £25. 0487 726168.

**NEVADA** TM1000 ATU, 2Kw, good condition: £60. G3ZOF evenings. (Downham Market) 0366 384660.

**NRD** 515 HF general coverage receiver with optional 600Hz CW filter, excellent condition, service, boxed. Rare opportunity, collectors rig. Dave G1SYZ. (Plymouth) 0752 344685.

**ONO** FT101/E Mark 2 as new condition with CW filter handbook and 2 sets of new spare valves: £350 + carriage. R2000 receiver as new condition, ono, 2 hours use: £350 + carriage genuine reason for selling QTHR G2FXD (Suffolk) 0449 767717.

**PK232** Mark I multi-mode data terminal unit: £195. Daiwa SW-110 SWR/Power meter, 1.8-30MHz, 200 Watts: £39. Cambridge antenna noise bridge: £15. All VGC. G4GTR QTHR. (Bakewell) 0629 640475.

**QRO** transformer 2910V at 0.8A: £80. Bridge rectifier set for above: £10. 4CX1000 valves: £55 each. Base and chimney: £45. 30 foot, three section base mount marine whip antenna: £50. (Ashford, Middx) 0784 258992.

**QUARTZ** lock model 282A radio test set 240V or 12V: £900. (March, Cambs) 0354 741168.

**R&N** Transverter, 2 mtrs in, 6 mtrs out, boxed as new with 6 mtr HB9CV if required: £120. Buyer collects. G7GID QTHR. (Tunbridge Wells) 0892 549305.

**R+N** electronics 2m-6m transverter, 25w, 6 months old, as new: £150. G7ERF QTHR. (Warrington) 0925 725402.

**RACAL** RA17L HF receiver, 1-30MHz, VGC with service manual: £150. Buyer collects. Steve G0RQJ. (Essex) 0702 296285.

**ROBOT** 1200C SSTV unit plus G3OOD Eprom/oscillator unit (mint) and microvitec 1435 analogue monitor: £900. TS940 HF transceiver (internal ATU) and SP.940 extension speaker (new unused): £1395. IF-10 and IF-232C computer interfaces: £89. Kantronics KAM latest VSO Eprom: £180. Palomar noise bridge: £48. Daiwa DK-210 Electronic Keyer (new): £48. Daiwa CS-401 4 way antenna switch (new): £30. Paul G4XHF. (Crawley) 0293 515201.

**SILENT** key G30CG. Kenpro KR500 elevation

rotator, unused: £30. Codar AT5+PSU and handbook needs attention: £10. Hammarlund HX fitly, 160-10m 40W SSB needs 120v 250W AC supply, spare valves, handbook, untested: £10. BC306A ATU: £5. 2 off BC221, one with PSU, no book, one with book: £10 each. G3ZHE QTHR. (Warrington) 0925 723385.

**SILENT** key sale: Icom 751A, few hours use £1000. Trio speaker, SP5DS: £10. Dactron PSU, 13.8v, 3A: £15. Multimeter M-102BZ: £9. SWR25 80-2M: £5. Deecom 3-Way ANT Switch: £10. Dummy load 75ohms, 100W: £5. 20ft thick alloy pole: £15. G-Whip 160-10M, complete: £40 ono. G3KAF QTHR. (Manchester) 061 439 4952.

**SIX** metre aerials 8EL Create, brand new: £150. 5EL Tonna (two): £20ea Era Microreader: £100. G3NOH QTHR. (Ealing) 081 997 4756.

**STANDARD** C8800 144MHz TX/RX with PU microphone, antenna, 20m COAX Cable, instruction manual: £950ono. (Enfield) 081 383 5167.

**STRUMECH** P60 Tiltover tower complete with Top bearing Rotator 48 element multi beam 70cm 4 element Quad 2MT: £500 complete. (Coventry) 0203 470145.

**SWAN** Astro 150 HF transceiver 10-80M SSB/CW full break in, digital synthesiser 12-14V DC, 20A required. Excellent transceiver mobile/base 12'x10'x4", operation and service manuals: £350 collected. G4DKL QTHR. (Taunton) 0823 336897.

**TAIT** T196 ex-pmr UHF low (ideal 70cm) radio: £30. (March, Cambs) (0354) 741168 6-8pm.

**TELEQUIPMENT** Scope D52, GWO: £75. Daiwa LA2035 Low/144MHz: £20. MMT14/28 XVTR, New: £100. VHF KENPRO KT2000: £90 ono. VHF C110 standard, no duplex: £50. (Milton Keynes) 0908 313379.

**TEN FOOT** tower sections. Bolt together with built in ladder. Seven available. Buyer collects, no reasonable offer refused. (Hereford) 0423 850244.

**TETHB33SP** full power HF beam, 9 ele 2 powered balun: £120. Osker SWR/Power meter 3.5-150MHz chart, boxed: £25. Shure 444: £17. Diamond 2M PL259 7/8+ gutter mount: £25. 5/8: £15. Eddystone manuals 770R, 730: £7 each. Admiralty handbook WT1931: £15. HF linear 2+813 int PSU, well made: £120. G2AQJ. (Salisbury) 325929.

**TEXSCAN** Spectrum Analyser solid state 0-3GHz: £1200. (Nr Aylesbury) 0844 238172.

**TRIO** TR751 2 meter multimode plus PSU, plus 9E X-Yagi. Also Cushcraft R7 multi band vertical, no planning permission. (Livingston) 0506 414338 after 5pm.

**TRIO** TS440S with automatic ATU, SSB filter, MC435 mike: £545. Trio TE 721E dual band mobile: £255. Trio TH75E dual band hand held: £170. All at realistic prices so no offers. Alan G4WFS. (Tyneside) 091 415 3687.

**TRIO** TS500 HF transceiver complete with VFO 5, external VFO and PS500 PSU, ideal first rig: £100 plus carriage. Brian G4FJA. (Stafford) 0785 780327.

**TRIO** TS830S with pair of 500Hz CW filters, MC 50 microphone and VFO 120. Very reliable Rig in good condition: £650 ono Yaesu FT726R with 2MTR, 70CM, 6MTR and Satellite Modules virtually unused because no interest in VHF: £800. PK232MBX data controller in good condition: £200. Epson FX80 emulation cartridge for Deskjet 500: £25. Amstrad DMP 2000 printer: £75. Call Peter Hicks G4DVP (Weston-Super-Mare) 0934 516605.

**TRIO** TS830S superb rig, handbook, boxed, mic, spares, one owner from new: £595. 70MHz 60W PA 'PYE' A200, handbook: £45. 23cm PA 100w+ plus PSU 3CX100 A5 Brass cavity: £600. NEC 645/35, 432MHz PRE-AMP: £15. Datong HF speech clipper: £25. 4CX250B 6M PA: £70. Eimal 3CX100A5: £35. JVC 10GHz Gunn Diode modules, new: £20. AVO 7 multimeter: £10. 4CX250B's, new: £30ea. G4MAW. (Brixham) 0803 856698.

**TS-950S**, mint condition, manual, excellent transceiver: £1950 bargain! Reason for selling. 'SEM' wavemeter: £25. Letters only. 71 Lichfield Avenue, Evesham, WR11 5EB.

**TS130V** CW filter, excellent condition, manual: £325 ono. Dewsbury star masterkey: £25. Kenwood MC60 mike: £45. KW204 transmitter: £50. Breaking FT107M various bits, Trio valved SW RX 9R59DS, GWO: £45. Kent straight key: £20. Gap Challenger DX VI, excellent condition: £110. ERA BP34 audio filter: £45. Navy key telescope: £20. Tidying shack. Phone Alan G0KMC. (Aylesbury) 0296 658037 eves and weekends.

**TS140S**, good condition in box: £560. HC200 ATU, boxed: £95. 40 amp stabilised 13.8v full power supply: £140. C.M. Howes 80 metre TX, RX and VFO plus digital frequency counter, all working pcb's but no cases - offers? Altron 3 element minibeam 20 15 and 10 metres with instructions and spares: £140. (Bristol) 0454 201728.

**TS4400S**, built in ATU, hand mike, pwr lead, also bands 12/25A PSU both boxed with

manuals: £850. G0EWR QTHR. (Sheffield) 0742 884889.

**TS830S**, VGC, boxed with spare 6146B's: £675. Icom ICR1 hand held scanner, O.I-1300MHz: £280ono. John G4TLS. (Horsham) 0403 83051.

**TS830S**, boxed, unmarked: £580. Leader SWR/Wattmeter LMP885: £45. Altron 3 el HF Minibeam AQ6-20/3E: £100. AR40 Rotator coupled to great circle map: £70. 13 el ZL special (new): £35. WELZ dummy load CT.150: £38. 'Magnum' bench magnifier: £35. Many more goodies, ask for list. (High Wycombe) 0494 439611.

**TS940S** internal ATU and VS1 voice, pristine condition: £1125. Unused TS180S digital frequency control module: £10. Microdot RTTY/CW terminal system includes internal 5' display and external H/B PSU and tuning aid: £135. Set of seven unused G3TS0 80M SSB transceiver PCBs: £15. McCoy Electronics silver sentinel SSB Xtal filter 6dB bandwidth 2.7MHz and matching upper and lower sidebands Xtals: £15. (Liskeard) 0579 343749.

**UNIDEN** 2830, hardly used: £200. G4WYF. (Blackpool) 0253 56811 evenings.

**VERSATOWER** P.20 tilt over CW groundpost winch and cable. Fitted rotor mounting AK121 in header unit. CDR rotor TR44, control unit (series 3) Hygain TH3JR beam. Buyer disassembles: £230 ono. (Keighley) 0535 634256.

**YAESU** 757GX MK1, Good condition, little used, with matching FP757HD power supply: £525. May split, demo available. Chris G0HRX evenings/weekends. (Birmingham) 021 784 6413.

**YAESU** FL2100 linear, never used: £350. Henry Radio 2m linear 2002A, unused, boxed: £850. YAESU B/W monitor: £20. (Nr Norwich) 0953 788376.

**YAESU** FRG7700 receiver, FRT7700 ATU, manual, clean and working condition, original packing: £245. G4PZD QTHR. (Morecambe) 0524 414030.

**YAESU** FT-23 144MHz handheld: £185. Atari ST-1040 with monochrome monitor: £240. Trevor G7LZR. (New Milton) 0425 611835.

**YAESU** FT-727R dual band hand held transceiver with speaker mic: £235 ono. AOR AR-1000 hand held wideband scanner, 1000 memories: £175 ono. Both items in mint condition, boxed with chargers, batteries, manuals, little use. (West Midlands) 0562 883271.

**YAESU** FT470, 6 months old, condition as new, boxed, complete: £240. (Stafford) 0785 211225.

**YAESU** FT726R complete with HF/144/432 modules, ideal satellite radio comes with MH18B hand mike and manuals MM100 432MHz amp included. Looking for about: £800. Best offer accepted. Please view and collect. Mike G3PGA. (Barnstaple) 0271 860930.

**YAESU** FT767GX: £850. PC286, 20MB hard disk, 1.2MB 5.25" 1/d ega: £350. Data general walkabout SX laptop computer 386, VGA, 640K, 40MB H/Disk, 1.44MB F/Disk: £750. MFJ 407B Delux Keyer: £25. Morse keys, Kent straight key: £18. Bencher Lambic chrome: £20. Vibrolux fob presentation model: £60. G0HZG QTHR. (Leicester) 0455 824238.

**YAESU** FTV-901R transverter, mint condition, 70cm 2mtrs 6mtrs, manual, buyer collects: £300. Frank G1XUZ. (Norwich) 0692 580910.

**ZYCOM** UT 5000 lowband mobile, OK for 4 metres (CTCSS): £135. Clearstone 351 OK 2m FM: £50. (March, Cambs) 0354 741168 6-8pm.

## WANTED

**ALTRON** or Versatower telescopic, tiltover lattice 40ft + mast, must be complete and in good condition. H.D. rotator. VHF linear amplifier, Henry or Heatherlite, must be in mint condition. Cash and collection for the best deal. Contact John G0MFOV QTHR or Denise. (Annan) 0461 203797.

**CIRCUIT**, whatever to repair P147 CEL Electronics Digital Frame store synchroniser and time base corrector. G4FDS QTHR. (Poole) 0202 743405.

**NTED** MCR1 WWII receiver, tel 0959 540165 (day) 0959 563023 (evening).

**1082** RX, preferably in good order with the twelve plug in coils. (Ashton U Lyne) 061 330 2467.

**BOOKS** published by Osborne/McGraw Hill. 1. An Introduction to Microcomputers Volume 3 - Some Real Support Devices, Kane and Osborne. 2. Z80 Assembly Language Subroutines by Levanthal and Saville. 3. Osborne

16-Bit Microprocessor Handbook by Osborne and Kane. 4. 8080A/8085 Assembly Language Programming by Lance Levanthal. Urgently required. Please contact Brian R590365 (Dorchester) 030 05 504.

**COLLINS** TC512 panel latching device, handles, tuning control, crank, handle. TX antenna loadings control knob or poor receiver for spares. Eddystone 5640 power trans choke voltage select panel, small control knob, steel case or poor unit for spares. SX28 tuning lock device S-Meter working or not, output transformer. Dave Blanchard, 141 Dunes Road, Greatstone, Newnomet, Kent TN28 8SP, tel 0679 62775.

**DRAKE** RX, SSRI for collection, cash waiting. Peter G8CKM. (Shropshire) 0939 234605.

**DRAKE** T-4XC AC4 good working condition and with manual. Graham. (Grimsby) (9-5) 0472 3560988 (evenings) 0472 356093.

**EDDYSTONE** EA12 888A KW77. Must be in good condition, or WHY. G3PJK. (Manchester) 061-854 6160.

**GREEN** painted Elstone MP/T output transformer and LFC. Also, RS intervalve transformer. Bernard Litherland, G4IMT QTHR. (Chippenham) 0225 891254.

**HY-GAIN** 204BA/205BA, 155BA, 105BA Cushcraft A3WS Western PM2000 Wattmeter Drake W4/WH7 Wattmeter. Drake MN2700/MN2000 ATU. Chris G3VBL QTHR. (Preston) 0772 612289.

**ICOM** IC290E. Trio TR 751E, TR9130. 2 metre multimode transceivers, must be mint. Unmod, mic, manuals, boxes etc. GW4RCP QTHR.

**ICOM** R7000 RX, basic unit in good condition required. G3MPN QTHR. (Norfolk) 0953 603382.

**KENWOOD** BS8 panoramic display module for SM220 monitor scope. Mr Smithers, 9 Pennine Close, Foresters park, Melksham, Wiltshire SN12 7RX.

**KW2000A** or B non worker for rebuild project. PSU non worker. KW1000 wanted EctRX KW separates. Clive QTHR. G0FBO. (Brownhills) 0543 370663.

**LOW** power HF transceiver TS120V or similar required, reasonable price paid. John G3RMA. (Paignton) 0803 556425.

**MANUAL** circuit Marine x mtr SAIT ER400, good price for original or excellent photocopy. Also manual CCT/etc to use AVO CT/160 valve tester. G3ICB QTHR. (Thatcham) 0635 864345.

**PYE** low band FM Westminster or Olympic dish mount Dymar Lynx. Also manuals or copies for above and Nilton Sabre. Anything similar considered GW3JUMD. (0222) 761813

**SAFARI** Transceiver, AC Massie G3HZX, 3 Lavin Road, Tweedmouth, Berwick-upon-Tweed, TD15 2EA. (Berwick-upon-Tweed) 0829 306824.

**T1154** any condition considered for conversion to QRP RIG also interested in R1082 T1083. (Nantwich) 0270 68471.

**VALVES**: 6B7, 5Y, 78, X65/X66 or 6K8G, ceramic locatoc valve holders. Circuit diagrams, Eddystone 880/2. Rotel receiver amplifier RX152 MK2. G3OWY. (Chester) 0244 381051.

**WANTED** Heath SB101 mainly for spares but will consider fully operational one. G3GYU QTHR. Phone Day 070 682 3191 Evening 070 682 6128.

**WANTED**. Aerial tuning unit KW107 supermatch or something similar. Please telephone 0773 582963 (Brighton area) not QTHR G4KVV (Peacehaven) 0273 581107.

**WANTED**: Trio/Kenwood DM 601 grid dip meter. Might consider Heathkit FET DIP meter. Steve G4VRR. (Ashford, Middx) 0784 256482.

**WANTED** Stone tape, hand perforator/punch with hammers if possible, external appearance not important if workable. Edward G4FP QTHR. (Bromsgrove) 0527 575039.

**XLR** Round 3-pin panel mount sockets, urgently sought for restoration project, must be in good condition. Brian G8GQS QTHR. (W London) 081 998 4739.

**YAESU** FT708 70cm hand held transceiver, must be in good condition and good working order, call Vic G0FEI after 6pm. (G1 Yarmouth) 0493 780579.

## EXCHANGE

**HAVE** rare WWII US Army J36 Lionel 'Bugkey' swap vibroplex 'presentation' or deluxe 'original'. good working order please, WHY? G3JFC Kent 0474 872743

**INVERTER** 12/24v input 110/240 output. 500W, ideal for /P operating. Exchange for pair of 144MHz, 17LEL Tonnas or PSU capable of powering pair of 4CX250B valved linear. Two 5ele, 6mtr beams also considered



## MEMBERS' ADVERTISEMENTS

WHY? GIFYC QTHR. (Gloucester) 0452 501337.

**M40FM** transceiver 40 channel 4 Watt, Modified Amateur Band, 10FM. Exchange for small oscilloscope, would accept one needing attention. (Newcastle upon Tyne) 091 488 5210.

**PK232MEX**, PC software, leads, bought March '92, exchange for DJ580E with small cash adjustment or might sell. G3WCE QTHR. (Norwich) 0603 53331 No calls during office hours please.

**WANTED:** Kenwood TS770/TS780/TS670,

cash/part exchange Kenwood 9500 70cm all mode. Swap Altron 30' mast for Tennast 25' lightweight mast. (Norwich) 0603 745512.

**YAESU** FT211RH 2M Mobile 5/45W, Mobile mount, mike, manual, extended receive coverage 140-164MHz, boxed, VGC. swap FT-290R plus linear 80-10M mobile linear, 150W plus, variable output, preamp, VGC swap for 2m linear 50-100W. WHY. Also wanted 6m linear. WHY, would like Tokyo HL86V 6M linear. Also 6ele, 6 meter beam wanted. Ian G7HX1 (Stalham) 0692 580201.

## A "Phonetic" Poem

A. is for ALPHA,	it's really all Greek,
B. is for BRAVO,	"three cheers" so to speak,
C. is for CHARLIE,	a Drake with a smile,
D. is for DELTA,	the mouth of the Nile,
E. is for ECHO,	a Sonar type ping,
F. is for FOXTROT,	a dancing type thing,
G. is for GOLF,	played with Ball and with Club,
H. is for HOTEL,	a posh sort of club,
I. is for INDIA,	far, far away,
J. is for JULIET,	in Shakespeare's play,
K. is for KILO,	a thousand to you,
L. is for LIMA,	and that's in Peru,
M. is for MIKE,	makes your voice "loud and clear",
N. is for NOVEMBER,	quite late in the year,
O. is for OSCAR,	a Wilde sort of chap,
P. is for PAPA,	a backward ApAp,
Q. is for QUEBEC,	far over the sea,
R. is for ROMEO,	'neath balcony,
S. is for SIERRA,	a mountain in Spain,
T. is for TANGO,	and dancing again,
U. is for UNIFORM,	white, black or blue,
V. is for VICTOR,	the man who beat you,
W. is for WHISKEY,	which TT's deride,
X. is for X-RAY,	to see your inside,
Y. is for YANKEE,	a New England man,
Z. is for ZULU,	he's black (or dark tan!).

The author is unknown, but thanks to the Hastings Electronics and Radio Club journal *Vital Spark* for providing this gem.

## RSGB SPORADIC E HOTLINE 0426 952211

(Local rate call in the UK)

## An RSGB Propagation Service

See page 4 June '91 Radcom

## NEW BOOKS FROM THE RSGB

### The Morse Code for Radio Amateurs

by George Benbow, G3HB

Members' price  
**£2.98**

plus £1 p&p

### Practical Antennas for Novices

by John Heys, G3BDQ

Members' price  
**£3.82**

plus £1 p&p

See Label Carrier for Full Details

## HELP LINES

### RADIO PEN-PALS

Two amateur radio enthusiasts from the Ekaterenburg region of Ural-Russia would like to correspond with amateurs in the UK. Dmitry Panshin, (RV9CKF), is 16 years old, and John Bykov is 15. They have varied interests besides amateur radio, including sport, music and stamp collecting. Dmitry's address is Flat-12 Home-5 Block-9, Kachkanar, Ekaterenburg, Ural-Russia 624356. John's address is Flat-16, with other details the same.

Radio Astronomy is a subject of interest to Leslie Baker, G8JIC, and he would be interested in corresponding with a member having similar interests. He is particularly keen to monitor and interpret Solar and Jovian radio emissions. Please reply to 38 Fabian Rd, Fulham, London SW6 7TZ Tel 071 385 1267.

### FDK HANDBOOK

Dave Bolderstone, G6XWO, is after a handbook or manual for an FDK Multi U-11 UHF radio. He would like to either borrow or buy this item or photocopy, and all expenses will be refunded. Write to Dave at 7 Teal Close, Snettisham, Kings Lynn, Norfolk PE31 7RE

### R1155 PARTS

Two VR102 (DF) valves and a DF loop antenna (all Ex-R1155 Rx) are required by Syd Roberts, G3AQX. If you can help, then his address is Cottage Farm, Slack Lane, Wessington, Derbyshire DE5 6BY Tel 0773 832943.

### ANTENNA BOOKS REQUIRED

A cry for help from the Northampton Radio Club. During a recent move, a 75 year collection of antenna books disappeared. Perhaps you have some old antenna books you would like to donate. If so, then Paul Young, G0HWC, would appreciate a call. His address is 21 Brockhall Road, Flore, Northampton NN7 4NG Tel 0327 41267

### SOLAR CELLS

Oxford University Caving Club is attempting to locate a source of Solar Cells capable of supplying about 14V 1A for a forthcoming expedition. Please write to Sean Houlihan, G7BIX, if you can help. He is at Balliol College, Oxford OX1 3BJ Tel 0865 277769.

### SCREW-ON LABELS

In order to complete restoration of an R1155 receiver, Mr P Quested requires a set of screw-on labels. Also, a cabinet is required for a Canadian 52 receiver. He can be reached on 0795 876277.

### CIRCUIT DIAGRAMS/ HANDBOOKS

Thanks to all those who replied to Mr Scadden's request for help with regard to the Nascom microcomputer. However he still requires a circuit of the Nascom 1 and it's buffer board. Reply QTHR or Tel Somerton (0458) 73967

Bill McGill, G0DXB, is seeking information and/or books on the Heathkit Mohican receiver. All costs will be reimbursed. Bill is QTHR or Tel 0709 814010

Advance model OS12 oscilloscope or Avo Valve Tester 160. Does anyone have a service manual or circuit for either of these items? If so, please write to Mr W Gibson, GMOKMG at 180 Castlemilk Road, Glasgow GL4 4NS

Many members seem to require service manuals for oscilloscopes and Michael Lee, G4TSR, is no exception. In this case it is a Telegroup D52 scope, and he also requires a couple of MC3356 ICs. Contact him at PO Box 218, Peterborough PE4 5EW.

Racal Astrolite aviation headset plus WR721 in-line amplifier and power supply. Reg Smith, G3XXJ, is seeking a circuit diagram for this equipment and will reimburse all expenses. He is QTHR, or Tel 0507 442613.

Circuit and handbook required for a Swan 500CX-SS.16B special SSB Tx/Rx. Photocopies would be ideal and all expenses paid. G3JKX/V85KX QTHR.

### RADIO SHACK TRS-80

Ken Willan, G7IKM, wonders if any members are using or have used a Radio Shack TRS-80 computer system in conjunction with amateur radio equipment (eg packet, weatherstat, etc.) If anyone can help then costs will be reimbursed. Reply to: 31 St. Oswalds Lane, Netherton 10, Mersydale L30 5QD Tel 051 525 8914

### OMEGA TCVR

Omega transceiver users may like to help Ken Randall, GD3RFH, with a problem concerning loud key clicks on the sidetone. He suggests that there may be a user group which can help, or possibly someone who has solved the problem. Write to: Harmony House, 30 Derby Rd, Peel, Isle of Man.

### MORSE MEMORY?

Victor D Morse, G8IK, would like to hear from anyone who knew, or can remember the call sign of Henry Beardsmore who was active (mainly on CW) during the mid 1930s. He had a wireless and cycle shop in Newport (Gwent). Victor's address is 42 Kingscote Road, Dorridge Knowle, West Midlands, B93 8RA.

### RADCOMS IN NIGERIA

Nigerian members may be interested in an offer of four years of Radio Communication and other radio/electronic magazines. These must be collected from an office some distance from Lagos however. Write to Mr M Reid or Mr J Nixon, Biwater International (Nigeria) Ltd, PO Box 1342, Yakubu Lame Rd, Minna GRA, Niger State, Nigeria.

### GERMANIUM TRANSISTORS

Mr G Perrett, ZS1ZI (G3PYA), is looking for some PNP Germanium transistors type 2SB212 or equivalent 2SB206, for his FT101 S.N. 126039. All expenses reimbursed. Also he is seeking a Collins 30L1 linear amplifier, and if anyone has one for disposal, he would appreciate correspondence. His address is PO Box 4020, George. 6539, Rep S Africa.

Helplines is designed to help put people in touch with each other. If you have a problem, it's more likely there's someone out there who has the solution; if you are looking for an old colleague or amateur friend, there could be a reader who has some news of their whereabouts; if you have solved a particular problem, write and tell the rest of us. 'Helplines' is there to help you and to give you the opportunity of helping others. Write to us marking your envelope 'Helplines' and we'll do what we can to get the message out.



# practical Wireless

## M · O · R · S · E - W · E · E · K · E · N · D

Worried about the Morse test? Are you all 'keyed up' about Morse? Does the prospect of getting an 'A' licence 'bug' you? Do you want to put that final 'polish' on your Morse? And do you then want to have the opportunity to take your test, while you're enjoying a 'short break' weekend holiday?

If so, why don't you put your name down for the *Practical Wireless Morse Weekend*? For around the £160 mark, we're planning to provide meals and accommodation in a good quality, comfortable Hotel. The weekend will start on the Friday evening, and finish after lunch on the Sunday. You will have the opportunity to have some Morse tuition, before you take the Morse test itself. You'll also have the chance to see and try all the latest aids for c.w. working in amateur radio, meet the experts, other 'key' enthusiasts and have fun at the same time.

### OTHER ATTRACTIONS

Originally planned for the late spring, we're now

looking at a weekend in September. There will be other attractions for friends and family members not joining in with the amateur radio events. Don't forget that we're very close to the delights of the New Forest, the Hampshire and Dorset sea-side resorts and some delightful 'Stately Home' attractions. With that in mind, we plan to organise some coach trips so that the weekend will have something for everyone.

### EXCELLENT COMMUNICATIONS

Communications to this part of the UK are excellent. We've got superb train services from the north and Scotland and even abroad if need be! If you're interested, please send a fully refundable deposit of £25 per person to:

**PW Morse Weekend, Enefco House, The Quay, Poole, Dorset BH15 1PP. Tel: (0202) 678558.**

Alternatively, if you want to hear more about the Morse Weekend, why not call Rob Mannion G3XFD to talk about it? (Between 3 and 4pm please!)

## S.E.M.

UNIT R, UNION MILLS,  
ISLE OF MAN  
Telephone: (0624) 851277

**S.E.M. Q.R.M. ELIMINATOR MKII.** This device can phase out completely local interference of any kind. Connects in your aerial feeder and covers 100 KHz to 60 MHz, you can transmit through it. £98.50 incl. Ex-stock.

**HI Q RECEIVER AERIAL MATCHING UNIT.** Provides a high selectivity impedance match for wire or co-ax aeriels to your receiver £66.50 incl. Ex-stock.

**S.E.M. TRANZMATCH MKIII.** The only Aerial Matcher with UNBALANCED and TRUE BALANCED OUTPUTS. 1kW 1.8-30 MHz, £165.00 Built-in EZITUNE (see below), £55. Built in Dummy Load, £10.90.

**EZITUNE.** Allows you to TUNE UP on receive instead of transmit. FANTASTIC CONVENIENCE. Stops QRM. Boxed unit, £59.50 P.C.B. and fitting instructions to fit in any ATU, £55.00.

**FREQUENCY CONVERTERS.** V.H.F. to H.F. gives you 118 to 146 MHz on your H.F. receiver. Tune Rx, 2-30 MHz, £77 ex stock.

H.F. to V.H.F. gives you 100 kHz to 60 MHz on your V.H.F. scanner, £66.50 ex stock. Plug in aerial lead of any receiver. Tuning from 100 MHz up.

**2 or 6-METRE TRANSMATCH.** 1kW, will match anything, G2DYM or G5RV? on VHF. £55.00 ex stock.

**DUMMY LOAD.** 100W THROUGH/LOAD switch, £38.00 ex stock.

**VERY WIDE BAND PRE-AMPLIFIERS.** 3-500 MHz. Excellent performance. 1.5 dB Noise figure. Bomb proof overload figures. £45.00 or straight through when OFF. £55.00 ex stock.

**R.F. NOISE BRIDGE.** 1-170 MHz. Very useful for aerial work measures resonant freq and impedance. £59.50 ex stock.

**IAMBIC MORSE KEYS.** 8-50 w.p.m. auto squeeze keyer. Ex stock. Ours is the easiest to use. £59.50. First class twin paddle key, £35.00 ex stock.

**TWO-METRE LINEAR/PRE-AMP.** Sentinel 40: 14x power gain, e.g. 3W — 40W (ideal FT290 and Handhelds), £125.00. Sentinel 60: 6x power, e.g. 10 W in, 60 W out, £135.00; 10 W in, 100 W out, £165.

**H.F. ABSORPTION WAVEMETER.** 1.5-30 MHz, £55.00 ex stock.

**MULTIFILTER.** The most versatile audio filter. BANDPASS Hi Pass, Lo Pass and two notches. £95.00 ex stock.

**HIGH PASS FILTER/BRAID BREAKER.** Cures T.V.I. £8.95 ex stock.

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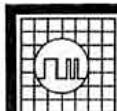
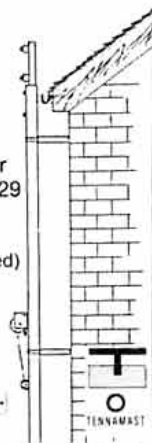
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## SUREDATA

AMSTRAD REPAIRS AND SECOND USER SALES

### REFLECTIONS ON A SUMMER'S DAY

I am writing this copy with the temperature in the office at 30°C and my mind is more on blue swimming pools and cold beers than computers. However this weather seems to have been good for business as a number of my customers' machines decided to stop working and gave us the opportunity to demonstrate how quickly we could carry out repairs and get them back in business without breaking the bank. So if you have a problem give me a call and I will be pleased to give you a diagnosis and estimate over the phone.

It is an aspect of the Computer world that almost every week prices seem to drop, which means that we can offer systems from as little £175 including vat. Phone or write to see what we've got.

Have a nice holiday.

73s John G3TLU

## SUREDATA

Tel/Fax: 081-902 5218  
Second User HOT LINE  
0831 616519 (after hours)

DEPT RC, UNIT 5, STANLEY HOUSE,  
STANLEY AVENUE,  
WEMBLEY, MIDDX HA0 4JB  
(Opposite Dorothy Avenue)



## CLUB NEWS

**DEADLINE** - Items for inclusion in the October 1992 issue must be sent to HQ marked "Club News - DIARY", to be received by 19 August latest. If news is received by the published deadline, it should appear in the listing. It is your responsibility to ensure that items are sent DIRECT to HQ in good time. 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.

**NOTE:** This is primarily a service for clubs affiliated to the RSGB, to whom priority will be given.

## AVON

BRISTOL ARC - 13.27. construction. Details 0272 721744.  
RSGB CITY OF BRISTOL GROUP - 24, video evening; 30, picnic - Almondsbury Scout Camp. Details 0275 855123.  
SOUTH BRISTOL ARC - 12, talk 'DX Broadcast TV'; 19, bring your Morse keys; 26, Bristol Rally planning. Details 0275 832222 on a Wednesday evening.  
WESTON-SUPER-MARE RC - 3, talk; 17, social and construction; Sep 7, talk 'Electronic Warfare' by Peter Chadwick. G3RZP. Details 0934 415700.

## BEDFORDSHIRE

DUNSTABLE DOWNS RC - 14, DF Hunt; 28, barbecue. Details 0582 451057.

## BERKSHIRE

BRACKNELL ARC - 12, bring & show evening - Coopers Hill. Details from G4AUC.  
BURNHAM BEECHES RC - 3, DF Hunt. Details 0628 25720.  
MAIDENHEAD & DARC - 6, barbecue at Max's G7DXC QTH. Details 0628 25952.  
NEWBURY & DARS - 26, talk 'Kite Flying' by Pat Painting. G3OUC. Details 0635 63310.  
READING & DARC - 13, talk 'Standing Wave Ratios' by Peter Chadwick. G3RZP; 27, talk 'History of GB2SM' by Geoff Voller. G3JUL. Details 0734 722489.

## BUCKINGHAMSHIRE

AYLESBURY VALE RS - 5, Summer Social at The Crooked Bilet, Kingswood, Sep 2. RSGB video evening. Details 044 282 6651

## CAMBRIDGESHIRE

CAMBRIDGE & DARC - 7, talk 'Global Positioning Systems' by Alan Jones. GBWJL; 14, talk 'Rechargeable Power Sources' by Simon. G6RWT; 21, video night - tapes from RSGB library. Details 0763 243570.

## CHESHIRE

CHESTER & DARS - 'NEW VENUE' Upton Recreation Centre, Cheshire County Sports & Social Club, Plas Newton Lane, Chester CH2 1PR. Details 051-355 2833.  
STOCKPORT RS - 'NEW SECRETARY' Mr J France. G3KAF, Cotonham Cottage, 34 Ladythorn Road, Bramhall, Stockport, Cheshire SK7 2ER, tel: 061 439 4952 - 12.26, TBA; Sep 9, talk 'Instrument Landing Systems' by G3LX.

## CLWYD

RHYL & DARC - 3, Fox Hunt No 2 - 144MHz DF contest (fox GW4HDR); 28, Annual Dinner. Details 0745 338276.  
WREXHAM ARS - 4, quiz; 18, field evening; Sep 1, talk 'Magnetic Loops' by John. GW3RBM. Details: 0978 845858.

## DERBYSHIRE

BUXTON RA - 11, talk 'Test Equipment'; 25, talk 'Nicad Battery Charging'; Sep 8, talk by G4YZO of Badger Boards. Details 0298 25506.  
DERBY & DARS - 5, Rally preparations at Littleover Community School; 12, illustrated talk 'The Work of the Royal National Lifeboat Institution' by Richard Dobson; 19, illustrated talk 'EMC' by Bob Peace of the RSGB EMC Committee; 26, talk 'How Chips are Made' by Chris Muriel. G3ZDM; Sep 2, junk sale; 9, illustrated talk 'Lightning Protection' by Furse & Co, lightning protection specialists. Details 0773 852475.  
SOUTH NORMANTON & ALFRETON DARC - 10, talk 'Computer Virus - Plague of the 90's' by Tim. G7GFV; 24, equipment and junk sale; Sep 7, open night - all welcome.

## DEVON

TORBAY ARS - 21, talk/slides 'Steam Nostalgia'. Details 0603 526762.

## ESSEX

BRAINTREE & DARS - 'NEW SECRETARY' Mr E Sherer. RS93500, 21 Maysent Avenue, Brintree, Essex CM7 5TZ.  
CHELMSFORD ARS - 4, shack test equipment. EG Noise Bridge. Details 0245 260831.

## FIFE

DUNFERMLINE RS - 27, test equipment even-

ning - MOT your HF equipment. Details 031 331 4340 (evenings).

## GREATER LONDON

ACTON, BRENTFORD & CHISWICK ARC - 18, open discussion on radio. Details 071-938 2561.  
BROMLEY & DARS - operation evening and BBQ. Details 081-462 2689.  
CRYSTAL PALACE & DARC - 15, day out in the country - Chalk Pits Museum. Details 081-699 6940.  
EDGWARE & DRS - 27, SSB FD briefing and Morse training. Details 081-953 2164.  
KINGSTON & DARS - 19, technical discussion. Details 081-398 1128.  
SILVERTHORN RC - 14, 2m DF contest - meet at Friday Hill House at 7pm; 21, 28, informal at Royal Oak Public House, Kings Head Hill, Chingford. Details 081-529 4489 (between 5.30pm and 6.30pm weekdays).  
SOUTHGATE ARC - 13, talk 'WAB Hunting' by Keith Draycott. G8UKT; 27, club DF equipment check; 31, Bank Holiday DF Hunt and barbecue in White Webbs Park, Enfield. Sep 10, talk and show 'Model Aircraft' by R A Davies. G0MEO. Details 081-360 2453.  
SURREY RCC - 3, talk 'Cycling in the Himalayas' by Dave. G0OBL; Sep 7, talk 'Packet Radio' by Peter. G3ZPB. Details 081 660 7517.

## GREATER MANCHESTER

ECCLES & DARS - 4, talk 'Radio Scouting' by G7ELA; Sep 1, talk and demonstration 'Avoiding IMD in Linear Amplifiers' by G6MEI. Details 061-773 7899.  
SOUTH MANCHESTER RC - 7, demonstration 'Signals on the Air'; 14, talk 'Sewers and Surface Water' by G0LNA; 21, Summer DF and barbecue; 28, TBA. Details 061-969 1964.

## GWYNEDD

DRAGON ARC - 17, construction - show your latest project or, if not, your latest acquisition; Sep 7, vintage radio. Details 0248 600963.

## HAMPSHIRE

BASINGSTOKE ARC - 3, HF Field Day planning and junk sale. Details 0256 25517.  
HORNDEAN & DARC - 6, talk 'Packet Radio' by speaker from Siskin Electronics; Sep 3, talk 'Surplus Two-way Radio Conversions' by Chris Lorek. Details 0705 472846.  
THREE COUNTIES ARC - 12, video night on a radio-related subject; 26, junk sale. Details 0420 83091.

## HEREFORD &amp; WORCESTER

BROMSGROVE ARS - 25, antenna construction; Sep 8, PME earthing. Details 0527 54607.  
BROMSGROVE & DARC - 14, Club BBQ - Waseley Hills Country Park; Sep 11, slide show and talk by G4AAL - Waseley Hills Country Park. Details 0562 710010.  
HEREFORD ARS - 7, computer evening; 8/9, 25th anniversary SEP at Eastnor Castle Air Display; 21, talk 'ORP Operating and Contesting' by Errol. G4MET. Details 0432 355297.

## HERTFORDSHIRE

CHESHUNT & DARC - 5, talk 'Beginners Teach-in - Part 1' by G3WFM; 20, talk 'Beginners Teach-in - Part 2' by G3WFM. Details 0992 464795.  
HODDESDON RC - 6, social evening; 20, talk and video on Friedrichshafen by Roy. G4UNL. Details 081-804 5643.

## HUMBERSIDE

GRIMSBY ARS - 6, evening visit to Grimsby Telegraph Offices; 20, talk 'The Workings of the RSGB' by G3DOT. Details 0472 825899.

## KENT

DARENTH VALLEY RS - 12, construction; 26, video from RSGB Library (TBA). Details 0689 876733.  
MAIDSTONE YMCA ARS - 7, barbecue; 25, dummy Morse test. Details 0622 670996.  
RADIO CLUB OF THANET - 'NEW NAME' 'NEW DATES'. Now known as Hoverspeed Social Club, High Street, Manston Village. Club meets 2nd and 4th Wednesday each month.

## LANCASHIRE

BURY RS - 11, Foxhunt. Details 0204 883212.  
FYLDE ARS - 13, DF Foxhunt; Sep 10, RSGB video screening. VU7 Laccadive DXpedition and construction of the 'ONER'. Details from R J Bourne. G7CUL.  
PRESTON ARS - 6, outing evening - HMS Inskip - radio station; 20, illustrated talk 'A Preston Kaleidoscope' by Mrs Crossley; Sep 3, talk 'Test Equipment' by Mr Grimes, Darwen. Details 0772 686708.

## LEICESTERSHIRE

CHARNWOOD ARCC - 30, 'BEER CAN VERTICAL' Barbecue. Outdoor station and BBQ, constructing 20m vertical ant from beer cans! Site near Markfield, Leics; local amateurs welcome. Details: 0509-232927.  
LEICESTER RS - 17, talk TBA. Details Leicester 762241.  
LOUGHBOROUGH & DARC - 4, 2m DF Hunt, 8pm start; 11, small test equipment, 18, barbecue at Mike's, G7LIL QTH, Coalville; 25, 160m DF Hunt, 8pm start. Details 0509 218259.

## LINCOLNSHIRE

SPALDING ARS - 7, DF Hunt - Fisherman's Arms, Podoehle, 7.15 for 7.30 start. 50p entry per car. Register at start. Prizes. Open to all; Sep 11, talk 'Vintage Radio' by G7HCR. Details 0778 425367.

## MERSEYSIDE

LIVERPOOL & DARS - 4, talk 'History of LA-DARS Post-War' by G4CVZ; 11, discussion SSB Field Day; 18, talk 'Gravitation' by G0MSO; 25, surplus sale. Details from Gordon. G4VYR.

## NORFOLK

ARC OF FAKENHAM - 4, members' evening and final arrangements for GB2FSW. Details 0485 528633.  
NORFOLK ARC - 2, club outing to Woburn Rally; 5, HF SSB NFD/Town & Country Show briefing; 12, 'real' radio evening; 19, talk 'Sea, Salt and Satellites' by Pat Gowen. G3IOR; 26, talk 'Science for All' by Arnold Tomalin. G3PTB; Sep 2, Town & Country Show final briefing; 9, talk 'Flying Radio Controlled Models' by Geoff Agness. G4ODC. Details 0603 747992.

## NOTTINGHAMSHIRE

ARC OF NOTTINGHAM - 6, forum; 13, talk 'Balun Construction' by Stewart. G3WOW; 20, Foxhunt 4; 27, talk 'Repeater Construction and Logic' by Barry. G0LCU; Sep 3, forum; 10, talk 'Foreign Language OSOs' by Walter. G0OMO (postponed from 9 July meeting). Details 0602 232604.  
MANSFIELD ARS - 6, Foxhunt followed by barbecue. Details from G0NZA. 0623 755288.  
SOUTH NOTTS ARC - 7, open forum; 14, talk 'Designing and Constructing Repeaters' by Barry. G0LCU; 28, talk 'Weather Stations and Propagation' by Roy. G4NPT; Sep 4, open forum. Details 0602 841940.

## OXFORDSHIRE

OXFORD & DARS - 27, video night. Details from G0RFS. QTHR.

## SHROPSHIRE

SALOP ARS - 13, at home with G1YJA/G1YJB; 27, 4th Foxhunt - The Oak Hotel, Shelton at 7.30pm. Details 0939 232090.  
TELFORD & DARS - 12, DF Hunt 2/70cm; 19, SSB FD preparation; 26, visit TBA; Sep 2, Rally preparation. Details 0746 761203.

## SOUTH GLAMORGAN

CARDIFF RSGBG - 10, 'Twenty radio questions' with John Wallis. GW4JKQ. Details 0446 773212.

## SOUTH YORKSHIRE

BARNSLAY & DARC - 10, second open talk on the 1992 Rally; 17, talk (provisional); 30, talk 'Moonbounce' by Conrad. G6ZTU; Sep 14, junk sale. Details from G4LUE. QTHR.

## SUFFOLK

FELIXSTOWE & DARS - 10, social visit - Newbourne Fox, Newbourne; 24, DF Hunt and barbecue; Sep 7, talk 'Police Dog Training' by PC Ken Backhouse. G4RHR. Details 0473 642595 (daytime).  
IPSWICH RC - 26, SSB NFD contest planning; Sep 9, talk 'Computer Aided Design' by G0OZS. Details 0473 742072.

## WEST MIDLANDS

MIDLAND ARS - 18, junk sale. Details 021 628 7632 (eves).  
WOLVERHAMPTON ARS - 'CHANGE OF ADDRESS' Secretary's new address is: Mrs M Bentley, 9 Tinkers Castle Road, Seisdon, Wolverhampton WV5 7HF - 11, talk 'Birmingham International Airport'; 25, final plans for Town and Country Fayre. Details 0922 475057.

## WEST YORKSHIRE

DENBY DALE ARS - 26, Foxhunt organised by Eric. G0DBU - starts 7.30pm. Details 0484 532371.  
HALIFAX & DARS - 18, talk 'Old and New Equipment' by J Fish. G4MH; Sep 15, AGM. Details Halifax 202306.  
KEIGHLEY ARS - 13, ideas for Club events 1993; 27, talk 'Sounds on the Air' by G4ZVD; Sep 10, visit to Royal Mail, Bradford - 6.30pm. Details from Kathy. tel: 0274 496222.  
NORTHERN HEIGHTS AR&ES - 5, DF Foxhunt; 19, slides and video 'Rescue Romania'. Details 0274 673116.  
WAKEFIELD & DARS - 11, Foxhunt preparations; 18, 2m DF Foxhunt; Sep 1, 144MHz CW Cumulative Contest. Details 0924 240577.

## RALLIES AND EVENTS

This is a list of all rallies, hamfests, 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 call-sign and telephone numbers direct to HQ and marked 'Rally News - DIARY'.

## 30 JULY-2 AUG

AMSAT-UK Colloquium - University of Surrey. Details from G3AAJ, tel: 081 989 6741.

## 2 AUGUST

RSGB NATIONAL MOBILE RALLY - Woburn Abbey. Details from N Miller. G3MNV, QTHR, 0277 225563.

## 9 AUGUST

DERBY & DARS Mobile Rally - Littleover Community School, Rykneld Road, Littleover, Derby. National Grid Ref SK319336. Usual attractions; monster junk sale - Martin Shardlow, G3SZJ, QTHR tel: 0332 556875.  
FLIGHT REFUELLING Hamfest 92 - Flight Refuelling Sports & Social Club Grounds, Merley, Wimborne, Dorset. Opens 10am. Trade stands; bring & buy; radio and electronics car boot sale; craft fair; field displays. Parking for disabled visitors available in the grounds. Overnight camping on the Saturday night available. Details from John Fall, GOAPI, 0202 691649.

## 16 AUGUST

SOUTHEND & DARS Rally and Radio Car Boot Sale - Rocheway Centre, Rochford, Nr Southend-on-Sea, Essex. Starts 10am. Bring & buy bar, ample parking. Tables inside £10, car boot pitch £5. Details from G0DFE, 0702 202216.

## 23 AUGUST

WEST MANCHESTER RC 'Red Rose' Rally - Bolton Sports & Exhibition Centre. Doors open 11am (10.30am for disabled visitors). Admission £1, children free. Usual trade stands; societies, bring & buy etc. All at pavement level, with facilities for disabled visitors. Refreshments and bar. Details from Dave. G1HOQ, 0204 24 104 (evenings).

## 30 AUGUST

COLERAINE & DARG Radio Rally and Bring & Buy - The Golf Links Hotel, Portrush. From 12 to 5.50pm. Traders welcome free of charge. Food & refreshments available. Admission £1. Talk-in on S22. For B&B ring 0265 44723 (Tourist Office). Details G14MFM QTHR, 02665 58230.  
GALASHIELS & DARS Open Day - Focus Centre, Livingstone Place, Galashiels. Doors open 11am - 4.30pm. Usual activities; bring & buy; traders; club stalls etc; refreshments. Details from John G Campbell. G0AOMB, 9 Brunton Park, Bowden, Melrose TD6 0SZ. 0835 22866.  
TORBAY ARS Mobile Rally - STC Social Club, Brixham Rd, Paignton. Details from G3HTX, QTHR, 0803 526762.  
WHITE ROSE ARS Open Day - Mootown RUFC, Moss Valley, King Lane LS17 7NT. To celebrate its Silver Jubilee. Barbecue, family fun. Listen for special callign G80WRR from 16 August. Details from Mrs Betty Cappelluto, 7 Rycroft Place, Leeds LS13 4PF; 0532-555488.

## 31 AUGUST

HUNTINGDON ARS Annual Rally and Junk Sale - The Medway Centre, Conyngear Road, Huntingdon. Doors open 10am, rally closes 4pm. Trade stands; bring & buy; components; junk; refreshment bar. Car Boot pitches available. Talk-in on S22 and GB3OV (433.125). Details from David Leach. G7DIU, 0480 431333.

## 6 SEPTEMBER

BRISTOL Radio Rally - Brunel's Great Train Shed, Bristol Old Station, Temple Mead, 5 minutes from M32. Opens 10.30am. Admission £1, concessionaries 50p, free for young persons under 14 accompanied by adult. Traders; club stands; computer supplies; bring & buy, ATV demonstration, Packet Radio demonstration. Refreshments. Talk-in on S22. Details from G4WQB, QTHR, 0275 839855.  
MILTON KEYNES & DARS Car Boot Rally - Cranfield Airfield (South Side), Cranfield, Bedfordshire MK43 0AL. Off J13 or J14 of M1. Talk-in on S22 GBMKC. Details from Ray, G1LRU 0908 660798.  
PRESTON ARS Mobile Rally - University of Lancaster. Opens 11am (10.30 for disabled visitors); Trade stands; Club/Repeater groups; bring & buy. Free prize draw. Free parking on campus. Details from G Earnshaw, 0772 718175.  
VANGE ARS Rally - The Laidon Community Centre, Laidon High Road/Aston Road, Laidon, Basildon, Essex. (Short walk from Laidon Station (BR) on the Fenchurch/Shoeburyness line. Doors open from 10.30am to 4.30pm. Admission 75p. Traders, bring & buy, refreshments, free raffle. Talk-in on S22. Approach roads will be signposted. Details from G4NVT, 0268 543025 or Dons Thompson, 0268 552606.

## 12 SEPTEMBER

BALLYMENA Amateur Radio Rally - Ballee High School. Opens 12 noon. Usual trade stands; RSGB booklet; QSL Bureau; bring & buy stand; refreshments; free car parking. Details G14HCN QTHR, 0266 659769.  
RSGB SCOTTISH NATIONAL ARC Convention - File Institute of Physical and Recreational Education, Viewfield Industrial Estate, Glenrothes, Fife. Opens 11am (10.30am early entry) - 5pm. Details from John Hartwick. G4M4LA, 0506 410677 (day) 0592 742763 (eves/wkends).

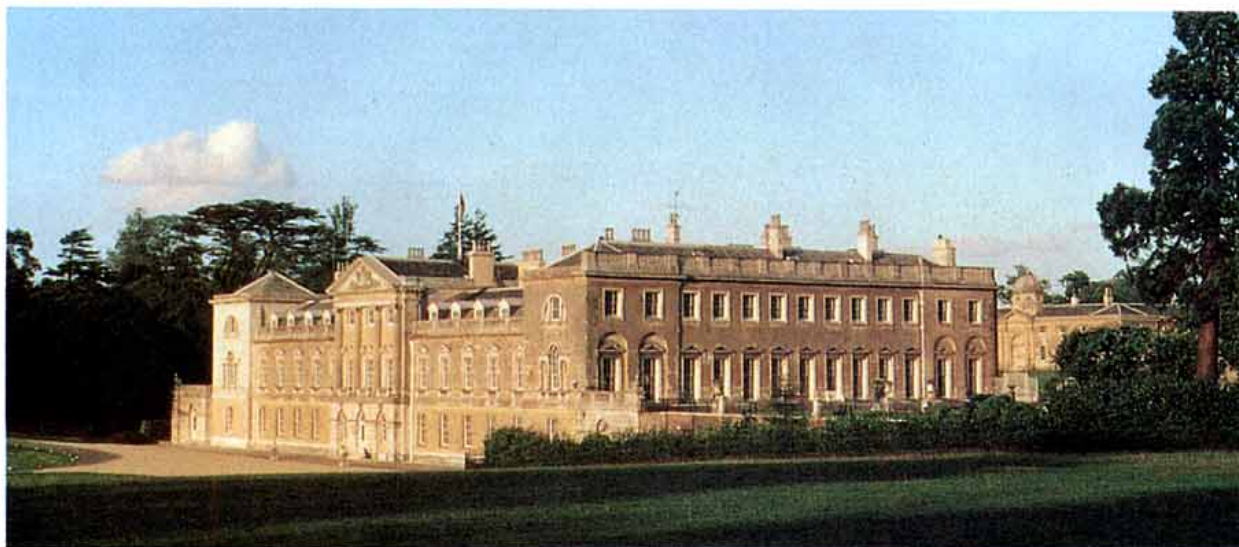




# RSGB National Mobile Rally

**SUNDAY 2 AUGUST 1992 OPEN 10AM**

**WOBURN ABBEY, BEDFORDSHIRE**



- ★ **LARGE TRADE EXHIBITION (20,000 SQ.FT)**
- ★ **RSGB BOOKSTALL AND ENQUIRIES**
- ★ **MEMBERS' MART**
- ★ **ALL UNDER COVER**

(COACH PARK SITE AVAILABLE)

Members' Mart this year will be charged at £3 per table which will enable members to sell direct. Tables will be offered on a first-come first-served basis from 9.30am. NO TRADING OUTSIDE THE MARQUEE PERMITTED.

The RSGB makes no charge for entrance to the rally but all visitors must pay for entrance to Woburn Park, in which the rally takes place, at £5.00 per vehicle, including passengers.

Limited overnight caravan stay at £3.75 per night. Booking forms available from Norman Miller, G3MNV.

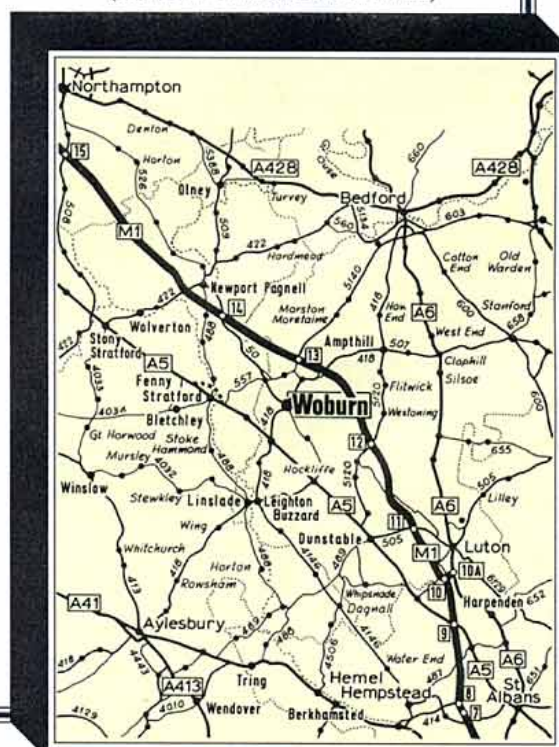
All the normal Woburn attractions will be available at small extra charges. Various bars and cafes are available nearby.

## HOW TO GET TO THE WOBURN RALLY

Via the M1 - leave the M1 from north or south at junction 13, not 12 as signposted, and there follow signposts through Husborne Crawley to Woburn Abbey.

Avoid routes signposted to "The Wild Animal Kingdom" or "Game Reserve". The rally takes place in Woburn Park, and correct routes are signposted to "Woburn Park" or "The Abbey". Also watch for RSGB signs.

**All enquiries regarding this event should be made to Norman Miller, G3MNV, 180 Warley Hill, Brentwood, Essex, CM14 5HF, tel: 0277 225563.**





**WIGHT WIRELESS Rally** - National Wireless Museum, Arreton Manor, Newport, Isle of Wight. 11am to 5pm. Details from G3KPO, OTHR, 0983 67665.

**13 SEPTEMBER**

**BARTG Rally** - Sandown Park Exhibition Centre, Esher, Surrey. Well signposted, 10 min drive from jct 10 of M25. Over 250 tables including top companies; special interest groups. Free parking. On-site catering; licensed bar. Details from Peter Nicol, GBVXY, tel: 021 453 2676.

**LINCOLN SWC Hamfest** - Lincolnshire Showground and Exhibition Centre, 4 miles north of Lincoln on A15 Lincoln/Scunthorpe Road. Open 10.30am. All usual trade stands; large bring & buy stand. Refreshments inside and outside; real ale bar. Lots of attractions for the whole family. Admission £1 by lucky programme. Free parking; caravans welcome by arrangements. Talk-in by West Lincs Raynet Group on 2m. Details from Sue Middleton, 0522 531788 or OTH GBVGF.

**TELFORD Amateur Radio Rally** - The Telford Exhibition Centre, Telford, Shropshire. Opens 10.30am. Admission £1. Details G7BWO OTHR, 0952 770922.

**20 SEPTEMBER**

**CENTRE OF ENGLAND Autumn Radio Computer & Electronics Rally** - National Motorcycle Museum, Bickenhill, near NEC, Jct 6 M42. Opens 10.30am (10am for disabled visitors). Admission £1 (reduction for RAIBC members). Over 60 traders; free parking; bar & restaurant facilities. Concessionary rates for those wishing to visit the museum. Talk-in on S22. Details F Martin, G4UMF, 0952 598173.

**EAST OF ENGLAND Radio Rally** (Peterborough R&ES) - ICI Building, East of England Showground, Peterborough. Opens 10.30am (10am for disabled visitors - toilet facilities available). Admission £1. Traders Main Hall with bar and catering. Traders Marquee with Bring & Buy, separate outside area with flea market plus radio and electronic car boot. Details Mike Bowthorpe, G0CVZ, tel: 0733 222588.

**26/27 SEPTEMBER**

**RSGB HF AND IOTA CONVENTION** - ICL Beaumont Conference Centre, Old Windsor, Berks. Everything for the HF amateur; DX dinner; Young Amateur of the Year; lectures; Contest Forum; software demos; DX Cluster; HF trophies; raffle. General enquiries and contact for all overseas visitors - Roger Balister, G3KMA, La Quinta, Mimbidge, Chobham, Woking, Surrey GU24 8AR, tel: 0276 858224. Tickets for the DX Dinner £18 from Bob Whelan, 38 Green End, Comberton, Cambridge CB3 7DY, tel: 0223 263137.

**27 SEPTEMBER**

**34TH HARLOW AR Rally** - Harlow Town Sports Centre, off Fifth Avenue, Harlow. Easy access off M11 jct 7 A414. Signposted. Opens 10.30am. Admission £1; children/concessionaries 50p. Traders; Special Interest Groups in a room solely for their use. Free car park; on-site parking with full facilities for disabled visitors. Talk-in on 2m S22 and 70cm SU22 by G6UT. Catering and licensed lounge bar facilities. Details 0279 432306 (day) 0279 722569 (eve).

**NORTH WAKEFIELD RC Radio Rally** - Outwood Grange School, Outwood, Wakefield. Details from John, G4RCG, 0924 362144.

**4 OCTOBER**

**GREAT LUMLEY Radio Rally** - The Community Centre, Great Lumley, Nr Chester-le-Street, Co Durham. Opens 11am (10.30am for disabled visitors). Trade stands; refreshments; bring & buy. Entrance fee: £1 includes a programme; children under 14 accompanied by an adult free. Details from Barry, G1JDP, 091 388 5936.

**WINCANTON Radio and Electronics Rally** - Wincanton Racecourse, Somerset. 10am to 4pm. Under cover. Trade stands; car boot sale; refreshments; free parking. Talk-in on S22. Details from Norman, G4YXX, 8 Fair View, North Brewham, Bruton, Somerset BA10 0JT or tel: 074985 432.

**9-11 OCTOBER**

**WACRAL CONFERENCE** - High Leigh Conference Centre, Hoddesdon, Herts. Details from G4EZX, OTHR, 0474 533686.

**11 OCTOBER**

**ARMAGH & DUNGANNON & DARC Rally** - Gosford House Hotel, Markethill, Co Armagh. Details GIBRE, 0762 870423.

**HORNSEA ARC Rally (ELHOEK)** - Floral Hall, Hornsea. Opens 11am (10.30am for disabled visitors). Trade stands; tombola; raffle; bring & buy. Ample car parking. Details from G4IGY, 0964 533331.

**SOUTH DEVON RC Computercations 92** Computer & Radio Rally - Hillhead Camp Site, Dartmouth Road, Brixham. Opens 10am. Trade stands; car boot sale (weather permitting); bring & buy; raffle; refreshments. Talk-in on S22 G7FDC & G4SSD; SES GB4CPU. Unlimited free parking; overnight camping. Details from T Trezise, G6ZRM, 0803 522216.

**23/24 OCTOBER**

**LEICESTER ARS Show** - Granby Halls, Leices-

ter. All usual facilities. Details from Frank Elliott, G4PDZ, 0533 871086.

**31 OCT/1 NOV**

**6TH NORTH WALES Radio & Electronics Show** - Aberconwy conference & Exhibition Centre, Llandudno. Entrance fee: £1 adults, 50p children under 14. Details from GW7EXH, 0745 591704.

**8 NOVEMBER**

**BARNSELEY & DARC 2nd AR Rally**. Details from Ernie, G4LUE, 0226 716339 (6pm-7pm please).

**MARS/STOCKLAND Mobile Radio Rally**. Details from Norman, G8BHE, 021 422 9787.

**15 NOVEMBER**

**BRIDGEND & DARC Rally**. Details from GW3RVG, 0656 860434.

**22 NOVEMBER**

**BISHOP AUCKLAND RAC Radio & Computer Rally** - The Spennymoor Leisure Centre, Spennymoor, Co Durham. Details from Mike, G0PRQ, 0388 766264.

**WEST MANCHESTER RC Winter Rally** - Bolton Sports & Exhibition Centre, Silverwell St, Bolton. Details from Dave, G1IOO 0204 24104.

**7 FEBRUARY 1993**

**SOUTH ESSEX ARS Radio Rally** - Paddocks Long Road, Canvey Island. Details from Ken Hendry, G0BBN, 0268 755350.

**14 FEBRUARY 1993**

**CAMBRIDGE & DARC Radio and Computer Rally**. Details from G6UGI, 0763 243570.

**21 MARCH 1993**

**NORBRECK Amateur Radio, Electronics & Computing Exhibition**. Details from Peter Denton, G6CGF, tel: 051 630 5790.

**29 MARCH 1993**

**PONTEFRACCT & DARS 13th Annual Components Fair & Spring Rally**. Details from Colin Wilkinson, 0977 677066.

**9 MAY 1993**

**MARS/DRAVTON Mobile Rally**. Details from Peter, G6DRN, 021-443 1189. Traders bookings Norman G8BHE, 021-422 9787 (eves).

**15/16 MAY 1993**

**RSGB National Convention - NEC Birmingham**. Details from Norman Miller, G3MNV, 0277 225563.

**22 AUGUST 1993**

**WEST MANCHESTER RC Summer Rally**. Details from G1IOO, 0204 24104 (evenings).

**GB CALLS**

The list below shows all special event stations licensed for operation during the month of August. It was taken from the HQ computer on 30 June. These call signs are valid for use from the date given but the period of operation may vary from 1-28 days.

**1 AUGUST**

- GB0RAF Royal Air Force
- GB0SIX UK 6M Group
- GB25HV 25 Years Hampshire Venture
- GB2IFC International Friendship Camp
- GB2MSA Mast Scanner Appeal
- GB4LBD Les Baccres DX
- GB4RRM Rutland Railway Museum
- GB4SR Steam Rally

**4 AUGUST**

- GB4TS Thames Scouts
- GB8TSG Thames Scouts & Guides

**5 AUGUST**

- GB2FOY Focus on Youth

**6 AUGUST**

- GB2YFT Yeovil Festival Transport

**7 AUGUST**

- GB6SIX UK Six Meter Group

**8 AUGUST**

- GB2CDZ Coastal Defence Z
- GB2IRC Ipswich Radio Club
- GB5YS YS QRA Square

**9 AUGUST**

- GB17USA B17 USA

**10 AUGUST**

- GB2WV Wenvoe

**12 AUGUST**

- GB2BBO Bar B Q

**13 AUGUST**

- GB8TS Tall Ships Race

**14 AUGUST**

- GB0AAF American Air Force
- GB2AFE American Forces Essex

**15 AUGUST**

- GB0LSF Lions Sight First

- GB0WRR White Rose Radio
- GB2TS Tollerton Show
- GB4SMI St Mary's Island

**16 AUGUST**

- GB0LCS Lairg Crofter Show
- GB2XS Xray Sierra Square

**17 AUGUST**

- GB2FSW Fakenham Splash Week

**21 AUGUST**

- GB100BMC Bowes Museum Centenary
- GB1BMC Bowes Museum Centenary
- GB4CBS Classic Bike Show
- GB5YL Young Lady
- GB6SIX UK Six Meter Group
- GB6SM Summerlee Museum

**22 AUGUST**

- GB2DOG Guide Dogs for the blind
- GB2WSF Wingate & Station Town

**24 AUGUST**

- GB4TCF Town and Country Festival

**27 AUGUST**

- GB2LAR Launde Abbey Retreat
- GB2RCC Radio Caravan Club
- GB2RFS Rockingham Forest Scouts

**29 AUGUST**

- GB2SOF Stretton On Fosse

**30 AUGUST**

- GB2MCG Millford Coast Guard

**RAE and Morse Courses**

**BRADFORD** - Bradford & Ilkley Community College is running courses for the **RAE** and **Morse**. Enrolment is 8/9/10 September, 9.30-4pm and 6-8pm. Late enrolments will be accepted. For further details please telephone 0274 753371 or 753377.

**BRIGHTON** - Brighton College of Technology will start an **RAE** course on 14 September. Two evening classes available - Mondays 6 - 8.30pm covers the theory necessary for the **RAE**, and Wednesdays 6 - 8.30pm will cover **Morse** and practical projects. Enrolment fees cover all notes and paperwork costs. Details: Tel 0273 667788 (ext 605/730).

**BURNHAM, BUCKS.** **RAE** and **Morse** Classes will start in September at Burnham Adult Education Centre. Details from Roy Smith, G0IWU, tel: 0628 667136.

**GREATER MANCHESTER - RAE** Course starts 28 September 7-9pm at the Reddish Vale Evening Centre, Reddish Vale Road, Stockport, Cheshire. Twenty five Monday-night sessions lead to the May 1993 exam. Also a **Morse** course of twenty-five Thursday evenings (7-9pm) from 1 October, for all levels up to 20WPM. Enrolment for both courses is 14/15/17 September 7-8pm at the centre. Details from Dave Wood (course tutor) Tel: 061 430 6246 (evenings).

**HEMEL HEMPSTEAD** - West Herts College (Dacorum Campus) is running an **RAE** Course, from 24 September (enrolment: 8 September, 2 - 3.30 and 6.30-8.00pm) also a **Morse** course commencing on 24 September (enrolment as before). Tel: 0442 63771 College or 0442 66337 (tutor).

**HUDDERSFIELD** - Almondbury High School, Huddersfield (Adult Education). **Morse** classes commencing Monday 21 September for 25 weeks. Enrol at the Centre week beginning 7 September. For further details please contact G4GNA (Course Tutor), tel: 0484 643870.

**HUNTINGDONSHIRE** College is running an **RAE** starting on the 16 September 7-9pm at Huntingdon College, Huntingdon, subject to sufficient numbers enrolling. Early enrolment is advised on 7/8 September. Details from B Street (tutor), G3MSU, tel: 0480 52346 ext 159.

**LLANELLI** - Llanelli ARS will start an **RAE** course in September. For details please contact GWORHE tel: 0554 777467.

**SOUTHEND & District Radio Society** has a **Morse** course starting on Monday 7 September at 8-10pm, at the Rocheway Centre, Rocheway, Rochford, Essex. Those that wish to join should contact Steve, G4UOL, tel: 0702 334014.

**THE WIRRAL** - Wirral ARC is running an **RAE** Course, in September 1992. Prospective candidates should contact Norman, G3CSG, (Course Director) on 051 677 6368.

**WESTMINSTER** - The City of Westminster College (formerly Paddington College) will start an **RAE** evening course in early September for the May 1993 examination. Both Class A and Class B licences (a **Morse** course will run concurrently). Additionally, an **'Advanced Morse'** course is hoped to be conducted, taking candidates up to 22/25WPM with insight to professional/marine procedures etc. Prospective candidates should contact the college Science & Technology Dept - Ann James, tel: 071 723 8826.

**WHITE ROSE AMATEUR RADIO SOCIETY** is running a **Novice** Course, commencing in September, details from Bill G7DHM 0532 693524.

**WOLVERHAMPTON** - **RAE** classes on Mondays 7.15 - 9.15pm at Ounsdale High School, Ounsdale Road, Wombourne, starting on 21 September. Enrolment 14/15 September at Wombourne Community Centre, Church Street. Details from Bob, G3NOW, on 0902 331985.



# CONTEST NEWS

continued from page 65

## VHF RESULTS

### MAY 1992 144MHZ CONTEST

Where did I go wrong? I planned for poor conditions, gales, thunder, plague and pestilence, but all got was SUN, good TROPO, high ACTIVITY. This has got to stop! People will start enjoying contests again if I'm not careful! Only one station complained that conditions were 'Poor', either he was down a coal mine or he forgot to plug in the antenna! Various stations lost multipliers, East Germany is now part of Germany, Isle of Scilly is part of Cornwall, Humber-side North and South are but one county (isn't it really East Yorkshire, that should stir things up). Lack of a checklog cost one station his multipliers (see Rule 14 para. d, General Rules). The worst loss of points was caused by stations failing to note on their log sheet (at the time of the complaint) that a complaint had actually been made, (whether the complaint was justifiable or not is not the issue).

Stations lost 10% of total points for this. This did not cause any serious changes to positions in the table, but so easily could have done so. One of the culprits was a VHFCC member, who says we do not adjudicate fairly. All in all a very good contest with some fabulous DX to be worked on a bit of wet string. Commiserations to GM4ZUK/P who very nearly switched off the Northern Lights! Congratulations to all section winners and runners-up. Frank, PE1EWR, wins the Foreign section again, also takes the certificate for the Single Operator Fixed station highest placed in contest, running less than 25W to a single antenna!

Bryn Llewellyn, G4DEZ

### OPEN SECTION

Pos	Call	Total	Mult	QSO	QRA	Ant	Pwr	Best DX	Km
1	G4AP/P	2550152	98	1237	IQ94	198	400	OK1GGF	1292
2	G4ERG/P	2191050	90	1121	IQ94	76	350	OK1FGA/P	1278
3	G4LNC/P	1763748	84	1095	IQ90	4X19	400	OK2KFM	1404
4	GW1VDF/P	1586958	72	1027	IQ81	2X19	300	OK2KFM	1534
5	G4ZAP/P	1343376	76	983	IQ94	172	400	YU1PPX	1862
6	GM4SO/P	1177856	86	609	IQ74	16	300	OK1UBR	1408
7	G4DSP/P	1065671	83	866	J003	11.4	400	SP6TLQ	1109
8	G8DS/P	1016466	66	735	IQ80	16	200	OK2KFM	1484
9	G4VIX/P	879981	79	742	J002	2X15	400	OK2UFU/P	1050
10	G4JNS	868210	71	913	IN88	14	100	OK2KFM	1512
11	G4SSD	842456	62	579	IQ80	2X12	140	OK1DTU/P	1709
12	G4CRA/P	713805	69	714	J001	2X14	400	OK1OST/P	1017
13	G6CTU/P	693067	79	643	IQ91	2X17	380	SP3RF	1070
14	G3MDG/P	679520	60	544	IQ91	13	400	OK1KRW	1255
15	G6ARC/P	655501	77	379	IQ62	19	400	OK1UWU/P	1111
16	G8WD/P	588324	66	588	J001	13	300	SP3RFB	1053
17	G4SR3/P	488126	62	505	IQ81	17	80	---	---
18	G6QM	261892	52	385	IQ94	4Q	12	OK1UBR	1135
19	G2GLR	217689	71	213	IQ94	17	150	F1UO	1050
20	G6XRS	94215	55	161	IQ92	16	160	OK1MOP	---

### SINGLE OPERATOR PORTABLE

1	GM4ZUK/P	2124468	79	873	IQ86	19	400	DL6RAI	1364
2	G7WGX/P	636174	64	504	IQ91	13	25	OE5EYN	1280
3	G6HLL/P	94176	54	129	IQ83	13	10	OK1UBR	1169
4	GW4MGR/P	9115	1	371	IQ83	13	150	---	---

### SINGLE OPERATOR FIXED

1	G8FBG	357825	75	351	IQ91	2X16	400	SP3RFB	1113
2	GW0PZT	301549	59	245	IQ72	2X9	100	DL2NBU	1137
3	GM4CXM	203346	79	175	IQ75	---	---	---	---
4	G8APB	113856	64	225	IQ83	16	150	FD1RAZ	868
5	G7AZP	89120	54	122	IQ90	9	100	OZ1FKZ	987
6	G8ZQB	64515	55	128	IQ92	10	100	DL4NOL	764
7	G0RRC	44940	35	132	J002	14	100	DL2NBU	738
8	G7KAO	37975	49	95	J001	10XY	160	DG8LG	669

### SINGLE OPERATOR FIXED 6HR SECTION

1	G6HKM	108192	46	217	J001	15	160	DF0CI	676
2	G8FBG	70346	34	112	IQ91	2X16	400	SP3RFB	1113
3	GW6ZUQ	32500	50	101	IQ81	9	180	PA3CEG	670
4	G4ZRE	32130	51	100	IQ83	8XY	100	DL0UD	710
5	G0RRC	22134	31	65	J002	14	100	DL2NBU	738
6	G0GCI	13584	24	57	IQ91	13	80	DL0WAE	567
7	G7AZP	9920	31	39	IQ90	9	100	GM4CXM	596

### FOREIGN SECTION

1	PE1EWR	54929	49	85	J011	10	10	---	---
2	OZ1IZB	8653	17	15	J055	9	10	GU2NS	1085

### SWL SECTION

1	BR552543	8764	28	29	IQ83	12	---	FC1PPQ/P	881
2	HS27662	8432	31	38	IQ83	DISC	---	DF2VJ	787
3	BR537798	310	5	8	---	---	---	DJ8LV	---

G4DEZ

## 70MHZ FIXED CONTEST, MARCH 1992

Conditions and activity for this event were most spectacular, and G3BPM appeared to get a fair mix of all ailments, complaining of deep QSB, hail, rain, gale force winds, thunder and lightning. Special mention should be made of G0AEV who had an eventual introduction to VHF contesting. An antenna fault caused him to have to lower his tower during the event; however, while doing this, he lost control of the winch, caught a finger in the winch gearing, and ended up with a hospital visit and seven stitches in his finger. You may think that would be the end of the event for Stephen for that day - however, this man is dedicated - he fixed the antenna (one handed) and used the remaining two-and-a-half hours to achieve 2nd place using a very modest station. Congratulations and certificates go to him, G3BPM, Reading BT Amateur Radio Club (G4LNV, operated by Roger Stansfield, G3UAX) and the Spalding and District ARS (G1DSP) who were the winners and runners-up in their respective sections. G4PIQ

### SINGLE OPERATOR SECTION

Pos	Call	Points	QSOs	Loc	Pwr	Ant	Best DX	Km
1	G3BPM	174	26	80GW	60	4Y	E4MTR/P	345
2	G0AEV	136	24	81WL	10	5Y	G4CAY	354
3	G0JBA	126	20	011L	100	5Y	G4SSD	316
4	G3TCU	124	24	91CE	50	6Y	E4MTR/P	438
5	GMAFF	96	6	81VA	30	7Y	G4SEU	502
6	G1KHX	79	16	81M	60	3Y	E60P	290
7	G4DUT	70	19	82AT	10	3Y	E160P	280

### MULTI OPERATOR SECTION

Pos	Call	Points	QSOs	Loc	Pwr	Ant	Best DX	Km
1	G4LNV	268	49	91MK	150	2 x 5Y	E4MTR/P	403
2	G1DSP	203	29	92WS	160	4Y	GMAFF	490
3	G4SSD	196	24	80FI	25	6Y	G8ESB	462
4	G8APB	146	28	83WD	20	5Y	G4SSD	325
5	G0GZ	138	26	91UH	20	5Y	E4MTR/P	451

## 50MHZ TROPHY, APRIL 1992

The contest was better supported this year than in previous years. The comments from the participants ranged from "opening to ZS was entertaining" to "poor conditions overall".

The standard of logging was generally good. However, it was obvious that some stations do not understand rule 14(d) concerning the requirement to include a separate multiplier check list with the entry. Thank you to the stations that did comply with this rule. Also thank you to the stations that supplied both a counties/countries check list and a call sign check list.

Congratulations to the section winners and runners-up, you will receive a certificate as usual. Subject to ratification, the Telford Trophy will be awarded to the Three Legs VHF Contest Group (GD7HEJ/P) as the highest scoring entrant.

Adjudicator: G0FCT

### SINGLE OPERATOR SECTION

Pos	Call	Score	QSO	Loc	Best DX	Km
1	G4KUX	46206	113	94BO	ZS6XJ	9411
2	G3UAX/P	42887	167	91GI	ZS6XJ	9076
3	G3HBR	14040	92	91OQ	ZS6PT	9097
4	G6HKM	13398	85	01FT	GD7HEJ/P	425
5	G0NLY	12672	66	93QN	G4SSD	408
6	G6FOZ	12620	87	91JR	ON4KST	496
7	G66AU	7000	47	02MB	GD7HEJ/P	439
8	G6HVQ	5724	40	81UT	ZS6XJ	9153
9	2E0AAX	5062	56	91CB	ON4KST	419
10	G1NRM	4169	64	91UO	GD7HEJ/P	---
11	G0OOC	4050	63	91TA	ON4KST	335
12	G1THG	3966	31	81WA	GD7HEJ/P	389
13	G0LCS	3911	55	91WP	Y51DL3ECK	8490
14	G3PJD	2306	43	91SL	GD7HEJ/P	407
15	G3SHY	598	16	91TQ	GW6RDP/P	209

### MULTI OPERATOR SECTION

Pos	Call	Score	QSO	Loc	Best DX	Km
1	GD7HEJ/P	104775	200	74SF	ZS6S	9660
2	GW0RDP	96216	238	82JJ	ZS6XJ	9239
3	G4SSD	45992	121	86FI	G4KUX	486
4	G0DSP/P	39974	114	03CE	GM3WQJ	578
5	GW1VDF/P	30555	138	81KW	ZS6WB	9075
6	G1AYM/P	30000	138	81XW	ZS6XJ	9157
7	G7ETZ/P	27765	130	81UP	ZS6XJ	9412
8	G4CAR	23250	119	92BS	ZS6WB	9165
9	G1DSP	12886	59	92WS	ON4KST	390
10	G6XRS	2438	40	82KP	GD7HEJ/P	---

### OVERSEAS SECTION

Pos	Call	Score	QSO	Loc	Best DX	Km
1	PE1EWR	1109	10	11SL	G4KUX	501

Disqualified: BR525429 (General rule 3)

Check logs: G3BPM, G3KNU and GW6VZV

claimed with any station, regardless of mode. Score 3 pts for each completed contact, with the following bonuses: ... 5 pts for the first ordinary member worked from each new club; 25 pts for each new Affiliated Society Club Station worked; 50 pts for working the RSGB HQ Station.

**7. Definitions:** Members of more than one club may claim membership of whichever one they prefer, but must use the same one throughout. Club names should be kept brief. All Club Calls must belong to bona-fide Affiliated Societies as listed in the Amateur Radio Call Book.

**8. Address and Date for Entries:** as per General Rules.

**9. Awards:** Certificates of Merit will be

awarded to the leading Radio Society/Club station, the leading individual club member, and the individual non-club member giving away the most points.

### RECEIVING CONTEST

Rules as for the transmitting contest except as modified below:

SWLs may log only stations participating in the transmitting section. Log column 'Other Data' to show name of Club (or 'No Club'), or name of Club + 'Club Station' as appropriate. Any particular station may appear only once in the 'station heard' column, regardless of mode.

A Certificate of Merit will be awarded to the leading entrant.

## HF RESULTS

### HF CONTEST CHAMPIONSHIP 1991

Congratulations to J D Cree, G3TBK, who wins the HF Contests Championship for the second year running. The certificate for runner-up is awarded to Dave Lawley, G4BUO. G3OZF

Posn	Call	Score	Entered
1	G3TBK	10000	7
2	G4BUO	8514	6
3	G4BWP	7575	6
4	G3GLL	6467	7
5	G3JJG	6037	8
6	G3FBX	5824	3
7	GM3YOR	5633	6
8	G6MY	5285	8
9	G0VZ	5126	6
10	G3NKS	4824	7
11	G3VEH	4664	2
12	G5LP	4624	5
13	G3VYI	4464	7
14	G3OLU	4300	6
15	G3OKC	4243	5
16	G3MAS	4209	2
17	G1KQB	4024	3
18	G2GT	3872	4
19	G3WGV	3812	4
20	G3BPM	3778	7
21	G0LZL	3701	8
22	G3NLY	3693	2
23	G4ARI	3620	4
24	G0RNZ	3431	5
25	G3HKO	3369	7
26	GM5SD	3302	5
27	G3OZF	3300	2
28	G3NAA	3160	2
29	G4OGB	3149	5
30	G3VHB	3136	2
31	G2HLU	3105	4
32	G4CZB	3039	5
33	G0IDE	2836	6
34	G3GMS	2774	6
35	G4ODV	2673	3
36	G4RFB	2657	3
37	G4IDM	2564	4
38	GM3CX	2321	2
39	G3RSD	2307	4
40	G3MPB	2265	3
41	G3KHZ	2150	3
42	G3SWH	2051	2
43	G3NKC	1982	4
44	GW3JJ	1907	3
45	G3AWR	1862	5
46	G3RXP	1842	3
47	G3JSR	1776	4
48	G3YMC	1766	4
49	G3GMM	1737	6
50	GM3UM	1724	6
51	GM3CFS	1608	4
52	G2AFV	1675	4
53	G4ZME	1666	5
54	GM3YEH	1640	3
55	G3IGU	1635	3
56	G3SQX	1582	2
57	G3OLB	1540	2
58	G4ERK	1520	4
59	G3DPX	1476	3
60	G3JJZ	1464	2
61	G3JYP	1443	2
62	G3UFY	1386	2
63	G3W3WVN	1382	2
64	G4ERW	1378	2
65	G4BLI	1373	2
66	G4PKP	1271	2
67	G3ULN	1240	2
68	G3LJK	1236	3
69	G3ZGC	1214	5
70			



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# The Last Word

## THE OTHER SIDE OF RALLIES

The Editor's invitation to comment on G4HIY's letter 'Radio-less Rallies' (*The Last Word*, July) provides me with a golden opportunity to give readers a view from the other side of the coin, ie what the dealer goes through to 'do a rally'.

First, let us study the costs involved for a typical dealer such as myself. The tables usually cost about £30 each so let us assume I book 2 (which incidentally usually have to be prepaid months ahead of the event).

Next I have to rip my shop apart and load the stock into a hired van (approximately £80 plus VAT). I then give up my Saturday afternoon and evening to drive from one end of the country to the other (using about £25 worth of fuel in the process). Then it's a night in the local Travel Lodge (another £30) and off to the rally in the morning (note, this is my precious Sunday morning I'm giving up here folks!). If I am really lucky the organisers will have laid teams of people (the local Scout pack perhaps) to help me unload. Alas I can only think of two occasions when this actually happened, otherwise I attempt to give myself a hernia by unloading the stock often navigating through an assault course similar to the one used by an Army training unit.

If luck is on my side the organisers might have laid on a bacon butty for me but usually I just have to hope my Little Chef breakfast (another £5) will keep me going all day. I will man my stand trying to compete with a continuous PA system churning out ridiculous messages all day long. The PA system, by the way, is normally manned by someone who fancies himself as a commercial broadcaster and thinks the only setting for the volume control is maximum. In these situations the PA system usually wins the battle so I stand there like a prune wondering what to do next!

While at the rally I have to hope that there has not been another similar event in the area within 3 months so that people will actually come and support it. My company is luckier than most as it specialises and has no competition but the average dealer has half-a-dozen just like himself spread around the hall, and is bombarded by statements such as "Well, XYZ round the corner said he could do it for £xxx for cash, can you do better than that?"

At about 5pm I look and feel like the walking dead, but it's time to load up again (usually without help from the organisers) and travel another 200-300 miles down the motorway. This time I catch half of London going back home on the M1 (oh, and another £25 on fuel and perhaps a cold pasty, a Mars bar and can of Coke to consume whilst driving to save time stopping at the Services). I arrive back at the shop around 10pm for unloading to avoid a third day's van hire. By about midnight I am in zombie mode, get home, crash out for a few hours ready to start all another week's work.

To summarise, I've forked out about £230 so I need to have taken about £1500 to cover my costs. I need to have taken considerably more if I actually wanted to make a profit and perhaps even pay myself for all this hard work (I wonder how much some of your readers would earn for 30 hours overtime that included a Sunday?)

There are positive plus points to rallies for dealers of course. We get the chance to introduce ourselves to customers to let them know we are not a bunch of mail order crooks, discuss their problems, log feedback for new products and quite often receive a handshake or thank you for services rendered in the past (the ultimate 'buzz' for me!).

The problem as I see it is that there are just too many rallies these days. The dealers cannot afford to spread themselves even further all over the UK every weekend to chase the same number of customers as last year (in fact these days it appears to be a lower number of customers). Clubs need to take a tip from the big boys and organise themselves into much larger groups on a County-wide basis with perhaps a maximum of 2 events per year but hiring more prestigious locations backed up with decent advertising. Groups such as Leicester and the Society's own VHF Convention organisers have demonstrated this is a successful formula guaranteeing maximum support from dealers and visitors alike. It's interesting to note that as we dealers predicted last year several smaller rallies have already been cancelled this year.

I am sad to say that unless some of the clubs lock on to the above pointers, smaller rallies will just become venues for the unloading of catalogue return kettles and Walkmans with dodgy tape decks!

Phil Bridges G6DLJ  
Siskin Electronics

## BLACK BOX NUMBERS

Having recently received my Class A licence, I began scouring the Members' Ads pages looking for a modestly priced HF rig.

When I looked through the advertisements, I was met by a barrage of model numbers. Not being the sort of person who owns all of the catalogues ever printed by all the major black box companies, I have to guess from the prices what the rig is. The first question I have to ask on the 'phone to these people is: "What is it?" If it is not the type of rig I want, I have wasted my time, the advertiser's time, and money on a 'phone call.

I feel that the Members' Ads should at least supply a few words of description of what the rig is, eg "IC725 100W HF 9 band, GWO £475" would be perfectly sufficient.

A carefully worded ad is much more friendly to prospective purchasers, and will save the nuisance of people phoning when they don't need to.

Paul Robertson G0RQN

[Useful sources of information are: The Buyers Guide to Amateur Radio by Angus McKenzie, G3OSS, (now out of print) and the Equipment Costing Guide available from Technology Partners Publishing, PO Box 6, South Shore, Blackpool, FY4 4YG. - Ed]

## THANKS TO ALL FROM CHESHIRE

On 17 June the Mid-Cheshire Amateur Radio Society held one of its series of demonstration days for schools, at Hartford High School, Northwich. During the day about 80 children visited the demonstration for periods of 40 minutes in groups of around ten. Several returned after school for a further session - in spite of the usual rural area problem of having to catch buses home.

All concerned thoroughly enjoyed the day and the pupils have written thanking us and asking when we can go again. The club would like to pass on those thanks to all those amateurs from all over the world who responded to our CQ calls and were so helpful and considerate and did so much to arouse the children's interest.

I finished the day fairly hoarse but feeling that all the people we had heard on the air - with, unfortunately, the single almost inevitable exception of someone determined to jam a 2m repeater - had been superb ambassadors for the hobby. Thank you all very much.

Jack Loader G6HXU

## HF HIGH FLYER

Just a line to say how much I am enjoying the series HF DX *The Inside Story*. It's great stuff, but I have one question concerning the picture on the front of July *RadCom* showing G3VOF's tower and KT34XA: Where did he get his DX bird from?

Keep up the good work.

Harry Pain G3ATH

Please note that the views expressed in *The Last Word* are not necessarily those of the RSGB. We reserve the right to edit letters for publication. All letters are acknowledged and may be passed to the relevant department or committee.

## RA ON THE RIGHT TRACK

From time to time we see letters in the amateur radio magazines complaining about the lack of action by the Radiocommunications Agency in a variety of situations. I feel that it is important also to report instances where the RA has acted for the good of radio amateurs.

In early January this year one of our members, Robert, G4PYR, came across some transmissions on 145.065MHz which he was sure were not amateur in origin. The transmissions were between various people who did not use callsigns and just called each other by name. From the content of the messages it appeared that they were cleaners in a large building. Robert reported his findings to the local RIS who suggested that he may be hearing an image of a PMR user's signal due to deficiencies in his receiver.

After further monitoring with different equipment, and getting confirmation from other local stations that they could also hear the transmissions, he again contacted the local RIS on 10 January and explained what he had done to try to ensure that the signals were genuine and the approximate area from which the signals appeared to originate. This time he was told that the RIS would look into the matter when one of their officers was next in the area.

On the 15th, Robert was contacted by the RIS to say that they had traced the signals and taken action to stop any further transmissions. He continued to monitor and confirmed that the signals had now ceased.

On 5 June club members were present at Peterborough Magistrates Court when a commercial cleaning company based in Coventry pleaded guilty to a charge of 'using apparatus for wireless telegraphy except under and in accordance with a licence in that behalf, contrary to Section 1(1) of the Wireless Telegraphy Act 1949'. The Magistrates heard that the company did not know that a licence was required and had not been advised of this when they purchased the radios they had been using from a company in Coventry in 1990. The outcome was a fine of £300 and forfeiture of four 2m hand-portable transceivers plus costs of £100 awarded to the RIS.

It just shows what can happen if we are prepared to collect enough evidence to convince the RA to act in protecting the amateur bands from intruders. I hope this will encourage others to report intruders to the RA, and to take the time and effort required to make sure that they have enough evidence to convince the agency that there is a genuine problem before reporting it.

Nigel Jupp G1ARV

[See page 26 for more on how to get the RIS working for you - Ed]

## HELPING HANDS

More often than not, all that one reads in letters to amateur magazines is criticism, both constructive and negative, more the latter it often seems to me.

So I would like to take this opportunity to thank two firms for both their professionalism and the friendly and helpful manner in which they deal with people, on the telephone, at rallies and by letter.

The first is ICOM (UK) Ltd who have given me excellent help and advice by mail, phone and in person at rallies over the years I have been an amateur. They are *never* slow in responding to calls for aid and advice and they *always* back it up with sound and professional support via the phone, if and when you need it.

The second firm is DEECOM, who are always bright and breezy on the phone and at all the rallies, which they attend without fail, no matter where it is. When you need, say, a variable capacitor and they don't have one in stock, they'll gladly make it up for you and the price is right. Their goods are well made and again they are quick to respond to telephone calls or letters.

J D Bolton G4XPP

## WEEKEND WARC

From time to time, we are told that the WARC bands are much under-used. I would like to suggest that at weekends, these bands be allocated solely to the use of the contest fraternity. With all signals at '599' they would be free to chop each other up to their hearts' content, leaving the other bands free to those of us who would like to have an ordinary QSO or ragchew.

Please do not give me the old chestnut that I should join them. If I wish to play Bingo, I can do so at my local pub.

J P Reeve G4LSI



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Independent squelch and mixing balance, for simultaneous listening or transmitting.
- ✓ **Independent TX/RX Frequencies:**  
Odd splits ok on any memory channel.
- ✓ **Programmable Sub-band Limits:**  
For band scanning.
- ✓ **Selectable Scan Skip:**  
For busy channels.
- ✓ **Backlit DTMF Microphone.**
- ✓ **One-Touch Instant Recall:**  
Recall of CALL channels for each band.
- ✓ **Priority Monitoring.**
- ✓ **Dual External Speaker Jacks:**  
One for each band.
- ✓ **Built-In Antenna Duplexers:**  
Standard feature.
- ✓ **Reversed Masked Full Frequency LCD.**
- ✓ **8 Level Automatic Display/Key Lighting Dimmer.**
- ✓ **Accessories Options:**  
FTS-22 (CTCSS Dual Decode Unit), FRC-4 (Pager Unit), DVS-3 (Voice Memory and Pager Unit), YSK-1L (6m Separation Kit Cable), SP-7 (External Speaker).

*Performance without compromise*