Build an Active Door-Loop Receiving Antenna

0501
www.rsgb.org

RadCom

This Month's Special Offers See Page 49

£3.95 Vol 77 No 5 ♦ May 2001 The Radio Society of Great Britain Members' Magazine

Whatever Happened to Cycle 23?

The D68C Comoros DXpedition

VISA
HOCKLEY SHOP
MON-SAT: 9am-5.30pm
TEL:01702 206835
01702 204965
FAX:01702 205843
22 MAIN RD, HOCKLEY, ESSEX, SS5 4QS

FIRST IN RADIO

WATERS &

Web Catalogue

THE ONLY TWO

HOCKLEY ESSEX

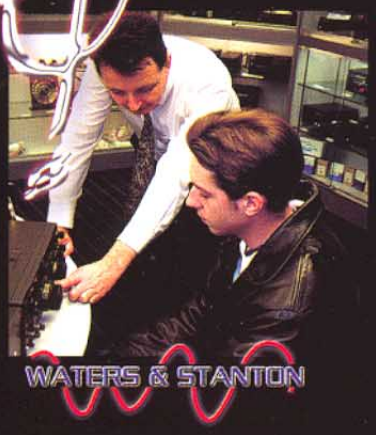
THE SOUTH

YAESU Choice of the World's top DX'ers

Buy it from Yaesu's Top Dealer

160m - 70cms 5W Portable

Yaesu FT-817



NEW Matching Auto ATU

The Z-11 is a QRP auto ATU that will handle coax and some long wires. Very low current drain (zero once tuned) and 100mW sensitivity make this a natural partner for the FT-817. Available mid May.
£199.95

Waters & Stanton PLC Open Day 13th May!

YAESU FT-1000MP Mk-V 200W HF All Mode Transceiver

£2899 Plus £7.50 Carr.

The New Industry Standard ..... Would a Serious DXer accept anything else ?

In choosing the FT-1000MP Mk V, you will be proud to own a rig with an impressive specification, reputation and lineage. Its outstanding performance and attention to detail, makes this the premier HF transciever for the 21st Century. This radio is a class leader.

19.4% APR: Deposit £299 and 36 months at £90.27.

YAESU FT-1000MP AC

160 - 10m All Mode

£1799 Plus £7.50 Carr.

19.4% APR Available

SAVE

If you are looking for the rig with every feature including dual receive - then look no further!

It has stood the test of time and used by the worlds top DXers and DXepeditions. Its excellent receiver combined with its superior transmitted signal makes this a natural choice for the HF enthusiasts.

19.4% APR: Deposit £199 and 36 months at £57.77.

ICOM IC-746

160m - 2m All-mode

£1395 Plus £7.50 Carr.

Your chance to purchase one of the most popular "all-band, all-mode" transceivers at a very competitive price. The IC-746 offers 100 Watts output on all bands and has a receiver performance to match. Limited stock at this price.

19.4% APR: Deposit £145 and 36 months at £45.13.

ICOM IC-756PRO 1.8 - 52MHz 100W

£1895 Plus £7.50 Carr.

Free desk/mic

You've read the rave reviews, and you have seen our recommendation on the web site. This radio with its amazing receiver and digital filtering, also includes auto ATU and real-time spectrum scope. A great DX rig.

19.4% APR: Deposit £229 and 36 months at £71.13.

YAESU FT- 920AF

HF 160m-6m-100w

SAVE

£1099 Plus £7.50 Carr.

Includes full DSP and internal ATU. High tech receiver with dual tuning controls. Uses many of the FT1000 MP features but at a more attractive price. Full break-in on CW and includes a data port for TNC.

19.4% APR: Deposit £129 and 36 months at £35.02.

YAESU FT-847

160m - 70cm All Mode

SAVE

SCOOP!

£1199 Plus £7.50 Carr.

The FT-847 has firmly established itself as a true all-band, all-mode transceiver. Loved by the VHF & UHF operators, and superb for satellite operation, it also offers great HF performance. We have sold more than any other dealer, which says a lot about our reputation and our price. Phone for free leaflet today. And remember, our stock is genuine UK, not modified overseas models!!

19.4% APR: Deposit £129 and 36 months at £38.63.

KENWOOD TS-570DG

160 - 10m All Mode

£849 Plus £7.50 Carr.

19.4% APR Available

Probably the most underestimated transceiver on the market. Don't be fooled by the low price, the TS-570 has one of the best receivers around. One of the best buys if you want top HF performance on a budget.

19.4% APR: Deposit £89 and 36 months at £27.43.

VISA

WATERS & STANTON PLC
OPEN DAY 13th MAY !

ICOM

IC-706IIG 160 - 70cm All Mode

£1099 Plus £7.50 Carr.

SCOOP!

Still a firm favorite with mobile operators and those who want a compact all-mode, all-band station. Phone for latest leaflet.

VR-5000 All Mode All Band Receiver

£799 Plus £7.50 Carr.

Yaesu's latest exciting communications receiver with "DC to light" coverage. Large backlit display with excellent real-time spectrum scope and user screens. 0.1-2600MHz, CW/LSB/USB/AM/AM-N/WAM/FM-N/WFM, 2000 memories

KENWOOD

TM-D700E 2m / 70cm Data Mobile

£449 Plus £7.50 Carr.

SAVE

Just arriving, this new model has built-in TNC, port for GPS, Data connector for SSTV, RTTY etc., CTCSS/DCS, Switchable TX/RX deviation, Dual receive, Wide receive option, Detachable head unit, 50 Watts on 2m, 35 Watts on 70cm, 200 memories, Alpha tag memo capability and a lot more. And who has the best price? - look no further!

WMM-3 Data Modes

£69.95 Plus £6.00 Carr.

If you want to receive data, then connect the audio output of your receiver to the WMM-3 and the output of the modem to your PC serial socket. A CD-ROM is provided with lots of software, this will get you started.

£269 Plus £6.00 Carr.

YAESU

VX-5R

* 6m / 2m / 70cm Handheld
* 5W Output on 13.8V DC
* CTCSS Encode / Decode
* 25 / 12.5kHz Steps
* Auto Repeater Shift
* AM Airband Receive
* Lithium Cells & Charger

£169 Plus £6.00 Carr.

* 2m / 70cm Handheld
* 5W Output on 13.8V DC
* CTCSS Encode / 1750Hz tone
* 25 / 12.5kHz Steps
* 30 Memory Channels
* AM Airband Receive
* Ni-cad Cells & Charger

IC-910 VHF/UHF Transceiver - Coming Soon

£1299 Plus £7.50 Carr.

IC-910 VHF/UHF Transceiver - Coming Soon
The new IC-910 from Icom will shortly be available. 100W on 2m and 75W on 70cms, plus the option of 1.2GHz. Well placed to take advantage of satellite operation, you can simultaneously operate 2 bands at once.

Phone For Details

Optional 23cms + £400

YAESU

FT-11R 2-Metre Handheld

SCOOP!

Another find in a warehouse! Brand new, boxed with AC chargers and ni-cad packs. 75 Alphanumeric memories, AM airband rx mod possible. Last selling price £249! Very limited stocks.

£119 Plus £6.00 Carr.

ICOM

IC-2800H In Full Colour!

* 2m & 70cm Mobile
* Colour TV Screen
* Full CTCSS and 1750Hz Tone
* 50W 2m 35W 70cm

£419 Plus £7.50 Carr.

Includes FREE Remote head cable.

KENWOOD

TH-D7E

£259 Plus £6.00 Carr.

* 2m & 70cm Handheld
* 6W Output on 13.8V DC
* CTCSS & 1750Hz Tone
* Built-in Packet Modem
* 200 Alphanumeric Memories
* DTMF Keypad & AM Airband
* Ni-cads & AC charger

YAESU

FT-90R Can you believe the size? 2m/70cm Dual Band

SAVE

£309 Plus £7.50 Carr.

The tiny dimensions of the FT-90R from Yaesu, are hard to believe. Yet it produces 50W on 2m and 35W on 70cm. Auto repeater shift on UK channels and switched 12.5 / 25kHz deviation, make this a number one choice.

ADI AR-147

AM Airband Receive

£199 Plus £6.00 Carr.

* 2m 50 Watt Mobile Airband Receive
* Full CTCSS Encode / Decode
* 81 Memories 25 / 12.5kHz Steps
* Keypad microphone & Mounting Kit

FT-2600 VHF FM Mobile Transceiver

* 134 - 174MHz Rx * 144 - 148MHz Tx
* 60W Power output, 4 power levels 60/25/10/5W
* Channel steps 5/10/12.5/15/20/25/50kHz
* CTCSS/DCS tone
* Built-in CTCSS/DCS encode/decode
* 175 memories with 8 character alpha numeric display
* Direct keypad frequency entry via optional MH36B6J DTMF mic
* Smart Search™ automatic memory loading
* Tx Time-out timer (TOT)
* Automatic Power off battery saver (APO)
* Automatic repeater shift (ARS)
* Supply 13.8V DC, 10A (60W) Tx, 400mA Rx (squelched
* Size 160 x 40 x 160mm * Weight 1.3kg

The FT-2600M is one of the toughest mobile VHF transceivers from Yaesu. Built to Mil-Spec, it provides 60W of power along with a "bullet-proof" receiver front end. Designe with packet in mind, has a dual 1200/9600bps port with microphone muting. The FT-2600M has and narrow Tx devi ation and 12.5/25kHz spacing. Interactive Menu system allows you to "set and forget" many operating configurations Options: ADMS-2E Windows PC program software, MH-36B6J direct access microphone.

£139 Plus £7.50 Carr.

ICOM

IC-207H

£279 Plus £7.50 Carr.

* 2m / 70cm
* 50W / 35W
* 180 Memories and 7 Tuning Steps
* Detachable Head Unit / Clear Display
* Microphone, Mounting Bracket etc.

KENWOOD

TM-G707E

£289 Plus £7.50 Carr.

* 2m and 70cm
* 50W and 35W
* Full CTCSS
* 180 Alphanumeric Memories
* Detachable Head with Amber Display

YAESU

FT-8100R

£36 Plus £7.50 C

* 2m and 70cm
* 50W and 35W
* Wideband RX AM & FM 208 Memories
* 7 Tuning Steps DTMF Remote Front panel
* Very compact, supplied with all hardware.

KENWOOD

TM-V7E

£359 Plus £7.50 Carr.

* 2m / 70cm Mobile
* 50W 2m, 35W 70cm
* Clear LCD Readout
* CTCSS & DTMF
* 8 Frequency Steps & 280 Memories
* Includes Microphone & Mounting Bracket

Order Details on inside Front Cover

ALL THESE ITEMS IN STOCK AT OUR MATLOCK SHOP AS WELL !!

CARRIAGE CHARGES
A= £2 C= £7.50
B= £6 D= 8.50

WATERS & STANTON

MasterCard

MORSE TUITION & TESTS

Waters & Stanton are now holding Morse classes at their Hockley premises every Saturday morning at 11am.

Sessions are expected to last between 30 minutes to an hour. All equipment will be provided.

Morse tests will be available on the first Saturday of every month at noon.

There is no charge for attending the Morse instruction sessions but anybody wishing to attend will need to book in advance.

For more information or to book a session or test please contact Mark Francis.

SGC-230 Smart Tuner

£359.95 Plus £7.50 Carr.

Covers 1.6 - 30MHz and handles 3 - 200W. Designed for end fed wires, just connect to 12V and feed with RF via coax. Can be mounted outside or at top of mast.

Microset Amplifiers

All FM/SSB with GaAsFET pre-amps and RF switched. 13.8V DC powered.

R-25	2m 1-4W in / 30W max out	£84.95 B
RV-45	2m 3-15W in / 45W max out	£95.95 B
R-50	2m 1-7W in / 50W max out	£89.95 B
SR-100	2m 4-25W in / 100W out	£169.95 B
SR-200	2m 10-50w in / 200W max out	£299.95 B
VUR-30	2m/70cms 1-5W in / 20/30W out	£199.95 B
RU-20	70cms 3-15W in / 20W max out	£119.95 B
RU-45	70cms 3-15W in / 45W max out	£165.95 B
RU-432-95	70cms 6-12W in / 95W max out	£499.95 C

WCN-3 Adaptor. For all transceivers using SMA connector. Converts to BNC £3.95 A

Speaker Mics.

Including Yaesu and Icom 4-way jack.

QS-112-Y Yaesu £16.95
QS-112-K Kenwood £16.95
QS-112-Y4 4-way £16.95
Phone if in doubt about suitable model.

QS-112

£16.95 Plus £2.00 Carr.

Hands-Free Mobile Mics.

£42.95 Plus £2.20 Carr.

Comes complete with PTT switch box for mounting on gear lever. Head/shoulder band makes for easy wear. Models for almost every transceiver. Phone for confirmation of model number to suit your rig.

Cushcraft Ham Radio Antennas

MA5B Mini-Beam

£299 Plus £7.50 Carr.

2 El. on:	20m, 15m 10m	
Gain:	3.6dB, 4.8dB, 5.3dB	
F/B	10dB, 12dB, 22dB	
Dipole:	17m and 12m (0dB)	
Power	1.2kW (2:1VSWR)	
Boom:	2.2m	
Element	5.2m	
Radious	2.7m	

A3-S	10-15-20m 8dB 2kW 3 el. 4.27m boom	£389.95 D
A-743	10/7MHz kit	£129.95 C
A4-S	10-15-20m 9dB 2kW 4 el. 5.84m boom	£469.95 D
X7	10-15-20m 13dB 2kW 7 el 5.48m boom	£549.95 D
X9	10-15-20m 14dB 2kW 9 el 8.5m boom	£799.95 D
R-6000	6 - 20m vert.	£299.95 D
R8	6-40m vert 8.7m	£399.95 D
TEN-3	10m 3 el.	£159.95 D
D4	10-40m 10.92m 2kW rotary dipole	£259.95 D
D3	10 - 20m 7.86m 2kW rotary dipole	£189.95 D
XM240	40m 2 el	£569.95 D
XM520	5el 20m	£629.95 D
XM515	5 el 15m	£359.95 D

Phone for catalogue.

MFJ-269 Analyser

160m - 70cm On-site Antenna Analyser.

£299.95 Plus £6.00 Carr.

MFJ-259B 1.8 - 170MHz £229.95

Imagine being able to plug into your antenna or feed line and make meaningful adjustments on site. Or be creative and turn hours into minutes and ideas into antennas! Read what RadCom says and make your own mind up. One of the best investments you will ever make!

KH-WS1

"World Space digital receiver"

NEW IN STOCK

KH-ANT external antenna kit in stock £49.95

£99.95 Plus £6.00 Carr.

This radio has its own mini satellite dish and receives digital WorldSpace broadcast signals via the AfriStar satellite. As well as all the normal VHF FM programmes, you can switch to satellite broadcast signals from CNN, BBC, Bloomberg (multi language), World Radio networks 1 & 2, and lots more. High quality mono via the internal speaker and stereo via the headphone socket. Runs from AC, 4 x D cells (not supplied), or external 6V.

NEW MFJ-Cub QRPers

The MFJ Cub single band transceivers are small enough to sit in the palm of the hand. They provide up to 2 Watts CW output (variable to mWs), have full break-in and on-air sidetone. Available ready built or as a half kit. The kit version has all the surface mounted components installed. You only need to add the larger items, knobs and case.

Kit £89.95 Built £139.95
Models available for 80m, 40m, 30m, 20m and 15m.
Includes cabinet and controls.
Postage £6.00

Heil Audio

Appointed by Heil as UK Distributor

Proset-4	H'phone/boom mic	£129.95
Proset-5	H'phone/boom mic	£129.95
Micro-4	Lightweight ver.	£99.95
Micro-5	Lightweight ver.	£99.95
AD-1	Cables Y. K. or I	£14.95
HM-10-4	Stick mic	£69.95
HM-10-5	Stick mic	£69.96
CC-1	Cables Y. K. or I.	£25.95
HC-4	Spare insert	£32.95
HC-5	Spare insertt	£32.95

You can convert your mic to Heil by simply pur chasing HC-4 or HC-5 insert.

Avair AV-600

£59.95 Plus £6.00 Carr.

1.8 - 525MHz VSWR Meter 5/20/200W scales. Dual sensors, PEP reading. More accurate than built-in meters.

Carolina Windoms

CW-80 Special

Just 66ft long yet covers 80m - 10m. It will out perform a G5RV and give lower angle of radiation because of the 10ft vertical section which is forced to radiate. It will handle 1.5kW

£89.95 Plus £7.50 Carr.

Other Models (all with low angle radiator stub)

CW-160	160 - 10m 171ft long	£109.95
CWS-160	160 - 10m 133ft long	£99.95
CW-80	80 - 10m 133ft long	£84.95
CW-40	40 - 10m 66ft long	£79.95
CW-20	20 - 10m 34ft long	£77.95

Plus £7.50 Carr.

80-40-20m Mini Dipole

The "80 plus 2" Mini - Dipole was designed by our Director, Peter Waters, G3OJV. Just 52ft long, it uses linear loading - no tuned traps. It can be directly fed without ATU and also operates at 2.5:1 VSWR on 15m. Amazingly efficient, it handles 400 Watts and is balun fed. Erect it as an inverted V and it takes up less than 40ft of space. If you have a small garden, don't miss out on the LF bands anymore. £79.95 Carr. £6.00

The Toughest Japanese Rotators

These are tough rotators that weigh almost twice as much as similar priced units and have great turning capacity. Made by Create of Japn, they will handle 4 element HF yagis with ease. Our own Create model has been on our roof for 12 years turning a 4-element HF beam. We wouldn't use anything else!

RC5-1 Standard control box, OK for 4-el Yagis - needs 7-core cable £349.95C

RC5-3 Control box features pre-set or manual control. Otherwise the same as RC5-1 above £449.95 C

MC-2 Lower mast clamps £49.95 B

Power Supplies

SEC-1223
13.8V PSU
23 Amps - 3.2lbs!
Back In Stock

£99.95 Plus £6.00 Carr.

Beware of cheap noisy supplies that have poor filtering & construction!

Lighter than an IC-706 and about the same size! The SEC-1223 switch mode power supply delivers 23 Amps at 13.8V Thermo fan cooled, it measures just 57 x 177 x 190mm. Will power all 100W rigs and can be changed for 115V AC

LINEAR AMP UK Amplifiers

British made Amplifiers with a Pedigree

Full Range Stocked

Challenger	HF 2 x 3CX800 AT 1.5kW out	£2095 D
Explorer	HF 2 x 3-500ZG 1.3kW out	£1595 C
Hunter	HF 1 x 3-500ZG 750W out	£1195 C
Hunter	6m 1 x 3-500ZG 800W out	£895 C
Ranger	HF 4 x 811A 800W out	£895 C
Discovery	2m 1 3CX800 400 - 1KW out	£1395 C

WATSON

UK's top selling power supplies.

£89.95 Plus £7.50 Carr.

Watson power supplies guarantee the very best performance and value for money. Tried and tested, they have been submitted for independent laboratory testing for safety and electrical performance.

W-3A	3 Amp fixed supply.	£22.95 B
W-5A	5 Amp fixed supply	£29.95 B
W-10AM	10 Amp variable supply	£59.95 C
W-25AM	25 Amp variable supply	£89.95 C
W-30AM	30 Amp variable supply	£119.95 C

NEW W-40SM 40 Amp Switch Mode

£149.95 Plus £6.00 Carr.

Digital display, 3 - 15V rated at 40 Amps continuous. Fully protected and very low noise. Ideal for a wide variety of ham applications. Light weight of 3.5kg and measuring 220 x 110 x 300mm Fixed 13.8V switch.

Compact 10 Amp Switch Mode PSU

£49.95 Plus £6.00 Carr.

The W-10SM is small enough to fit in a brief case. Measuring just 230 x 100 x 65mm, it's ideal for 50 Watt mobile's etc. Over voltage and current protection.

AMAZING YAESU DEALS

VL-1000
We have two pieces ONLY
at a very, very special price.
Full 2 year warranty. *Call for details.*

NEW FT-1000MP MkV
- HF
- Base - 234V
- 200W
- All mode
- DSP

RRP £2899
WE PAY YOUR £100 DEPOSIT!
48 * £85.17
with 2 year warranty

FREE FT-50R
Twin Band Handie
(RRP £269)

FT-1000 MP/AC

RRP £2595
ML&S £1799
FREE FINANCE!
£179 DEPOSIT!
12 * £135

YAESU FT-817
- HF/6/2/70
- Transportable - Batteries
- 5W
- Wide Band RX
- All mode

RRP £799
ZERO DEPOSIT!
36 * £29.69

NOW IN STOCK!
Full range of accessories & HF Whips available

Offered with nicads, charger, antenna & microphone

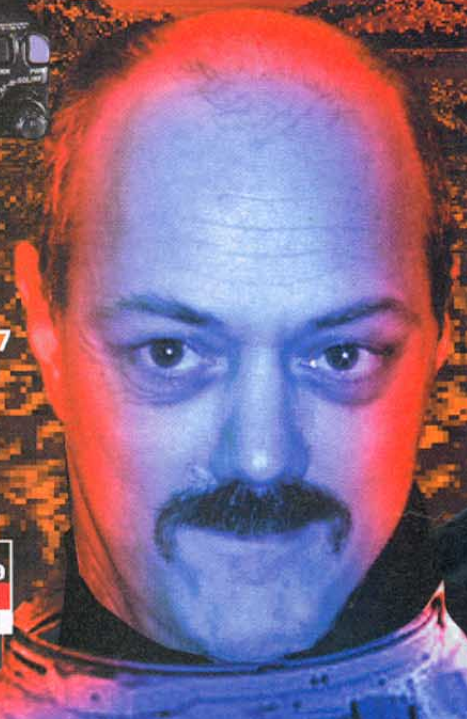
YAESU FT-100
- HF/6/2/70
- Mobile – 13.8V
- 100W HF/6 50/40 2/70
- All mode
- Remote Head

RRP £1299
ML&S £849
FREE FINANCE!
£99 DEPOSIT!
12 * £62.50

YAESU FT-847
- HF/6/4/2/70
- Base/mobile – 13.8V
- 100W
- All mode
- DSP

RRP £1699
ML&S £1199
ZERO DEPOSIT!
36 * £44.56

Two Year Warranty & microphone, leads & manual



ML&S martin lynch & sons
Suppliers of Communications Equipment

tel: 0208 566 1120
fax: 0208 566 1207
website: www.hamradio.co.uk
email: sales@hamradio.co.uk

128, 140-142 NORTHFIELD AVENUE • EALING • LONDON W13 9SB

Contents

Front Cover:
The Five Star DXers Association D68C DXpedition from the Comoros set a number of new operating records and created a lot of excitement on the HF bands in February. See page 14.

RadCom
Radio Communication

Publications Manager
Mike Dennison, G3XDV

Editor
Steve Telenius-Lowe, G4JVG

Technical Editor
George Brown, M5ACN

Technical Illustrator
Cover Design
Bob Ryan, 2E1EKS

Advertising Design
Annie McVicar

Secretarial
Pauline Reid

All contributions and correspondence concerning the content of *RadCom* should be posted to:

The Editor
Radio Communication
Lambda House, Cranborne Road
Potters Bar, Herts EN6 3JE

Tel: 0870 904 7373
Fax: 0870 904 7374

ADVERTISING
All display and classified advertising enquiries (excepting Members' Ads) should be directed to:

Janice Forde
Advertising Sales, RSGB
Lambda House, Cranborne Road
Potters Bar, Herts EN6 3JE

Tel: 0870 904 7377
(advertising ONLY)
Fax: 0870 904 7378
(advertising ONLY)

RadCom is published by the Radio Society of Great Britain as its official journal on the first day of the relevant month and is sent free and post paid to all members of the Society.

Closing date for contributions, unless otherwise notified, is five weeks prior to publication date.

All material in RadCom is subject to editing for length, clarity, style, punctuation, grammar, legality and taste.

No responsibility can be assumed for the return of unsolicited material (if in doubt, call us first!)

Filmset by JJ Typographics Ltd, Southend, Essex.

Printed by Southernprint (Web Offset) Ltd, Poole, Dorset.

THIS MONTH:
A look at the activities staged for National Science Week - see page 42

News and Reports

Technical Features

Down To Earth - Amateur Radio From The Ground Up

Reviews

Regulars

RSGB Matters

RADIO SOCIETY OF GREAT BRITAIN

THE NATIONAL SOCIETY WHICH REPRESENTS UK RADIO AMATEURS

Founded in 1913 incorporated 1926.
Limited by guarantee
Member society of the
International Amateur Radio Union
Patron: HRH Prince Philip, Duke of Edinburgh, KG, KT

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 Subscriptions Department from which full details of Society services may also be obtained.

General Manager:
Peter Kirby, MIMgt, MISM, G0TWW
Company Secretary: Mrs Susan Minocha
Honorary Treasurer: Ken Ashcroft, FCA, FCMA, G3MSW

BOARD OF THE SOCIETY
PRESIDENT: D F Beattie, BSc (Eng), CIPD, F Inst. D, FRSA, G3BJ

MEMBERS
G L Adams, G3LEQ
R H Biddulph, MA, PhD, CChem, CEng, FRSC, MIM, M0CGN
G W Dover, BSc, Dip Ed, G4AFJ
R Horton, BSc, PGCE, G3XWH
R M Page-Jones, CEng, MIEE, G3JWI
R C Whelan, BSc, MSc, PhD, G3PJT

REGIONAL MANAGERS
P R Sheppard, DipOS, FinstSMM, G4EJP
J F Layton, G4AAL
S N Lloyd Hughes, GW0NVN
J D Smith, MI0AEX
T W G Menzies, RSSA, GM1GEQ
K A Wilson, M1CNY
R E Piper, G3MEH
R S Atterbury, G4NQI
J H Martindale, GM4VPA
I Rosevear, G3GKC
Details of the Society's volunteer officers can be found in the RSGB Yearbook 2001

HEADQUARTERS AND REGISTERED OFFICE
Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE

Tel: 0870 904 7373

Fax: 0870 904 7374

All calls to the RSGB are charged at National Rate

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

E-mail addresses:
sales@rsgb.org.uk (books, filters, membership & general enquiries)
GB2RS@rsgb.org.uk (GB2RS and club news items)
RadCom@rsgb.org.uk (news items, feature submissions, etc)
AR.Dept@rsgb.org.uk (Morse tests, beacons, repeaters, GB calls, licensing)
IOTA.HQ@rsgb.org.uk (Islands On The Air)
GM.Dept@rsgb.org.uk (managerial)

Website: www.rsgb.org

WebPlus: Members-only web site **www.rsgb.org/membersonly** Use your callsign in lower case as the user name, and your membership number (see *RadCom* address label) as the password.

RSGB BOARD HIGHLIGHTS

THE FIRST meeting of the smaller Society Board was held on 23 March 2001. The following is a brief summary of the main issues discussed.

The Board approved honorary appointments of a Company secretary (Mrs Susan Minocha, taking over from Peter Kirby who had been acting as Company secretary for some time) and an Honorary Treasurer, Mr Ken Ashcroft, G3MSW, who had been financial adviser to the Society until the end of 2000. Neither receives any remuneration for the work in these honorary capacities.

The Board considered the priorities for each of the portfolio-carrying Board members under the new Board structure and agreed some initial steps to bring focus to the work of the Board. Board members will take responsibility as spokesmen for the Society's work in their respective portfolios.

The Board then reviewed key issues in the each portfolio, including:

Business, Commercial and Publications: a review of subscription levels, membership trends, membership recruitment initiatives and membership databases.

Spectrum: a review of progress on the case for additional spectrum allocation around 7MHz and possible spot frequencies for amateur use around 5MHz.

Regulatory and International: a review of progress of the discussions with the RA on the future structure of licensing, and possible introduction of a foundation licence. In this respect the Board authorised that discussions be continued to attempt to reach agreement in these areas.

The Board reviewed the initial consultation paper from the Treasury on its Spectrum review and agreed that the Society should input urgently those matters of interest to radio amateurs so as to ensure that these came with in the scope of the review.

Technical: a review of progress on the renewed interest in Power Line Communications and actions being taken to combat the threat to the amateur bands and HF spectrum more generally.

Membership: a review of progress in setting up the new field organisation, approval of further Regional Managers, the *Regional Handbook* and a plan to hold a region 14 ORM.

The Board also agreed that further volunteer help was needed in key areas of Society activity. Steps will be taken to identify relevant helpers.

PORTABLE HF CONTESTS IN THE UK

THE SOCIETY has been considering the effects of the current Foot and Mouth crisis. Guidance from official sources has been sometimes in conflict and it is clear that different guidance applies in various parts of the country. The Society has decided on balance that it would be irresponsible to continue with plans for any portable contests until the current crisis is past. Therefore, RSGB HF NFD 2001 [scheduled for 2 / 3 June - *Ed*] is **cancelled**. There will still be the usual activity from other Region 1 co-ordinated events and we encourage would-be participants to operate from home or club stations to give support to these events. Similarly the *portable* sections of the Low Power Contest in July are also **cancelled**; the fixed station section, however, will still be run.

The Society is not supporting 'field day style' operations in the IOTA Contest 2001, although this position will be reviewed nearer the date of the contest.

SPECIAL OFFER OF THE MONTH

THIS MONTH we have not one, but four special offers, so we have decided to call it the RSGB 'Spring Sale'. The *RSGB IOTA Directory* and the *Radio Communications Handbook* are now available at 25% off; the *Call Seeker 2001* CD is 30% off, and the *Microwave Handbook* (Vol III) is an amazing 40% off. All these prices are for members only. See the ad on page 49 this month for full details.

RSGB MORSE TEST SERVICE ANNIVERSARY

THE RSGB's Morse Test Service celebrates its 15th anniversary over the weekend of **12/13 May**. At least 27 County Morse test teams will be on the air mainly on 80 and 40 metres (and naturally, using CW) using GB0 callsigns such as GB0IOW from the Isle of Wight and GB0LDN from London. The Chief Morse Examiner will use GB0CW and the Deputy Chief GB0MTS. A certificate will be made available at a cost of £2.50 for anyone contacting at least 10 of the stations active. Please make the cheque payable to RSGB and send your application to the RSGB Chief Morse Examiner, David Waterworth, G4HNF, 116 Reading Road, Woodley, Reading RG5 3AD. QSLs are not required to claim the award, which is also available to listeners. In order to encourage newcomers each team will spend some time calling slowly in the Novice CW section of 80m, above 3560kHz.

COUNCIL ON THE MARCH IN MAY

RSGB GENERAL Manager Peter Kirby, G0TWW, will be giving a presentation on the work of the RSGB at Colchester Radio Amateurs on **10 May**. For further details contact Kevin Bell, M0BCK, tel: 01206 561117.

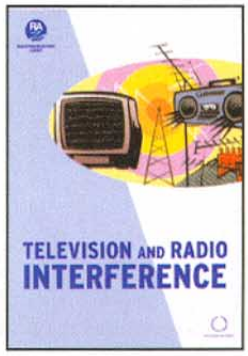
RADIO SPECTRUM MANAGEMENT REVIEW

A RADIO Spectrum Management Review has been announced by the government. In a press release from Her Majesty's Treasury, it was announced that Professor Martin Cave is to lead the independent review of spectrum management. An 'issues paper', setting out initial areas of interest, will be published in May and the review will report to the Chancellor and the Secretary of State for Trade and Industry by the end of the year. The RSGB is aware of the review and will be monitoring its work closely.

DOMESTIC INTERFERENCE: NEW POLICY

THE RA HAS announced a new policy on domestic interference and has issued a new RA179 leaflet which is now entitled *Television and Radio Interference*. Under the new system, the complainant will be charged £50 if, following an investigation, the RA finds that the interference is *not* due to any illegal use of radio or faulty electrical equipment, but is due to a problem with the complainant's own TV or radio installation. No charge will be made to the complainant if the interference is found to be due to illegal radio use or faulty electrical equipment outside the complainant's premises.

If householders wish to report a possible source of interference but do not wish to commit themselves to a possible charge, they can give details of a source of interference by contacting the local office of the RA. The RA staff will use this information as part of their intelligence-gathering on possible illegal use of radio. For further details please contact the RA and ask for a copy of their leaflet RA179, *Television and Radio Interference*.



LICENCE CHANGES EFFECTIVE 1 APRIL 2001

THE AMATEUR RADIO Licences (A), (A/B) and (B), and the Amateur Radio (Novice) Licences (A) and (B) have been amended with effect from 1 April 2001. A press release from the Radiocommunications Agency dated 4 April said: "From 1 April 2001 Radio amateurs are able to advertise either amateur or computer related equipment via amateur radio. Following consultation with the Radio Society of Great Britain, we are allowing advertising over packet radio for a trial period (one year) after which a thorough review and overview will take place. Future discussions will hinge on whether or not this facility should / could be extended to other modes / bands. Amateurs can place a private (not commercial) advertisement only through their nearest available operational mailbox, where it will be held for viewing. The SyOps would be responsible for ensuring that the advertisement complied with licence conditions. If this were not the case the SysOp will be required not to place the advert on the system. For further information in connection with the licence conditions, please refer to the Gazette Notice published on the Agency web site [at www.radio.gov.uk/] under 'What's New'."

Other licence changes introduced on 1 April allow UK Novice licensees to operate in the segment 430.0 to 432.0MHz, reflect previously-announced agreements to make the licences free to those over 75 years of age and remove some of the geographical restrictions on unattended operation. The full text of the notices is available on the RSGB web site.

RSGB SUBSCRIPTION RATES

THE RSGB has decided to amend the structure of the Society affiliation fee for clubs. As of 1 July 2001, clubs will now pay the same fee as normal full members of the Society rather than the previous discounted fee. The reason for this change is the concern of the Society and many clubs over the rise in litigation and the need for clubs to have cost-effective insurance cover. The Society will now provide, as part of the affiliation fee, public liability cover for club meetings and events. This change has the advantage of providing cover at a fraction of the cost of separate cover. The same level of cover is currently being offered for £50 p.a. by our approved insurer ARIS. ARIS will be providing the new cover, underwritten by Cornhill Insurance. Clubs currently insured with ARIS will generally be able to claim refund of the balance of their existing insurance premium.

The Society has also reviewed its subscription levels for other categories of membership. The RSGB is not immune from inflationary pressures and at the same time has ever-increasing work to protect amateur radio privileges in the face of mounting commercial interests in our spectrum and demands for improved membership services.

We have therefore reluctantly decided that it is necessary to increase the annual full, family corporate and Concessionary membership fees by £2.00 (or some 16p per month) from 1 July 2001. Other rates will increase pro-rata. For the full member, this broadly equates to the level of inflation since the last increase. To cushion the impact on our members, the Society has introduced the facility to pay monthly by Direct Debit, at the rate of £3.38 per month for full members.

RSGB YEARBOOK 2002

WE'RE ALREADY starting to update the *RSGB Yearbook* for 2002. Would secretaries of affiliated clubs and societies please ensure that HQ has the most up-to-date contact information on record: it is this information that is published in the *Yearbook*. Please write ASAP to Subscriptions Department at RSGB or e-mail: subscriptions@rsgb.org.uk

One complaint of those who buy the *RSGB Yearbook* is the number of entries marked: "Details withheld at licensee's request". Some amateurs have very good reasons for not wanting their details printed in full, but many would not mind having just their approximate location published. But because a few people are extremely sensitive about any details getting out, it is our policy to have *either the full entry or the 'withheld notice'*.

Do you know whether your *Yearbook* entry is correct? Some people are surprised to find that their address is not published. This may arise from a period when the licensing authority defaulted to 'no publicity': if you didn't tick the 'YES' box your details were not released for publication. If you do want your full address published, make sure that RLC know this: write to them at: Radio Licensing Centre, PO Box 885, Bristol, BS99 5LG.

This year, we are once again offering to add a maximum of 252 characters to the *existing* entry - whether particulars are withheld or not. This may include your forename, Locator, local packet BBS, e-mail address, or whatever you think may be useful. If you have withheld your full details, you may wish to add your town or Locator. For cost reasons we are still unable to include IARU locators or WAB squares automatically, so you may find it useful to list these for the benefit of others. There is no need to write if there is no change to the entry used last year.

A Special Entry normally costs £10 but, as a service to members only, anyone sending in details before the **deadline of 1 July** will not be charged. Please send details by post to: Yearbook Editor, RSGB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE, or by fax to 01707 645105, or by e-mail to publications@rsgb.org.uk. Entries *cannot* be accepted by telephone.

RadCom NEWS

BackpackRecord

A NEW RECORD has been claimed for two-way pedestrian mobile operation. On 28 February RSGB member Demetre Valaris, SV1UY, and Max Pompe, ZL1BK, made a two-way contact using portable low-power transceivers with handheld antennas. The record-breaking contact was made on 14348kHz CW at 0625UTC and again at 0645UTC on SSB while Max was hiking in a park near his home in Auckland and Demetre was hiking on Mt Ymittos. The distance between the two operators was 17,549km, but the signals actually travelled via the long path, an incredible 22,593km. Both operators were using 5W output and SV1UY used a 2m-long centre-loaded whip while ZL1BK used a hand-held 5m centre-loaded dipole. Demetre and Max repeated their achievement on 18157kHz on 11 March, using the same radios and antennas and from the same locations.

Power Line Communications: a Worrying Development

THE SOCIETY understands that the German government has now approved the introduction of Power Line Communications (PLC) systems, provided they comply with a German regulation for wideband radio emissions known as 'NB30'. These regulations have been strongly opposed by radio users in Germany, but the German government has decided to "give modern telecommunications technologies a chance".

The RSGB notes the approval of this German regulation with grave concern. The emission levels in NB30 are much higher than the levels proposed by UK HF radio users as a 'worst case' for acceptable interference from such systems. Even these levels of emission can only be met by using low power PLC systems of limited functionality. The Society believes that this may be one reason why one major player has announced its withdrawal from the PLC market. Other manufacturers, however, are still pursuing this technology. The interference potential of PLC is clearly spelled out in the EMC column in April's *RadCom*.

We are actively working with the other UK users of the HF radio spectrum to produce objective and rational arguments for proper regulation of PLC systems. However, it is clear that there is a European agenda to provide cheap wideband data systems and that the technical arguments for preservation of the HF spectrum appear to be ignored.

The RSGB is committed to fight for preservation of the radio spectrum as a valuable natural resource, and is making its position known through all available channels, both nationally and internationally. We continue to encourage other national radio societies to follow our example and work with their fellow HF users to bring some sense into this debate.

(Hilary Claytonsmith, G4JKS, EMC Committee Chairman.)

Lord is President

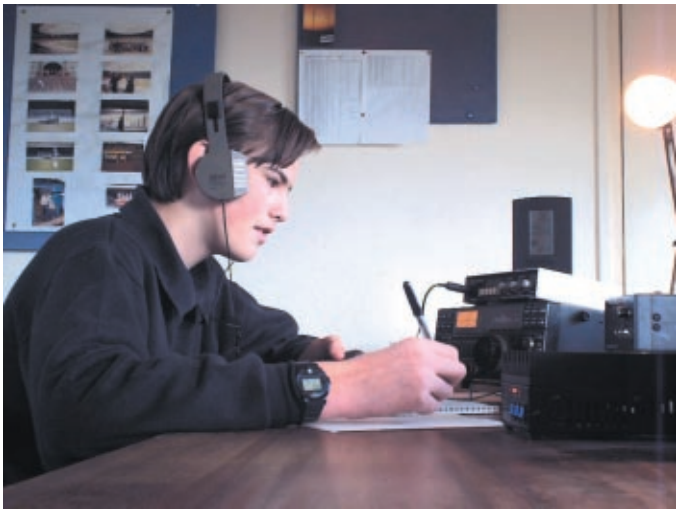
LORD RIX, CBE, DL - known to many radio amateurs as Brian Rix, G2DQU - has agreed to become the Honorary President of the Finningley ARS near Doncaster. Lord Rix is well known for his connections with the area and with the RAF.

National Museums Weekend

THE DATE FOR the National Museums Weekend, organised by Harry Bloomfield, M1BYT, and Geoff Steedman, M0BGS, has now been confirmed: **2 / 3 June**. Amateurs are invited to 'sell' the idea to their local museum curator and put on a special event station that weekend. Look at the web site at www.qsl.net/m1byt, which will have a list of participating stations, and details (TBA) of an award available for working a significant number of participating stations.

Where possible, packet and UI-View will provide a colourful and dynamic illustration of some of the newer aspects of radio communications. Appropriately, the National Photographic Museum in Bradford is expected to be on a live ATV link via a repeater in the region. Harry Bloomfield says, "Here's hoping we all find it highly 'a-museing', in time to make it a national event next year." For further details call him on tel: 0113 2866 897.

'Grand Old Man' has 'FUN'



Jonathan 'Gus' Constable, at the age of 13, is the 'Grand Old Man' of amateur radio, having gained the callsign 2E1GOM at age of 10. Gus has now passed the RAE and 5WPM Morse test and has become M5FUN, which he requested because "amateur radio is fun". His radio goes on as soon as he gets home from school and he monitors it for rare DX and in particular IARU squares which he is collecting for awards. Away from home Gus is an active member of the QRZ Amateur Radio Group of Sussex, helping at all the events run by the group. He has also given talks and demonstrations to local Scout and Guide groups and (under supervision) ran two special event stations at the South Chailey Secondary School in Sussex, which resulted in others taking up the hobby. Gus is hoping to take his 12WPM Morse code test and gain an M0 callsign soon.

VHF / UHF Award News

MARCH FOLLOWED recent trends and only provided claims for the 6m band. Getting his feet firmly on the bottom rung of the 'country' and 'square' ladders was John Scott, M1BRE (ST), who is rewarded with certificates for 10 countries (2-way) and 25 squares. John also sent sufficient cards to claim stickers at the 20 and 50 levels.

'Codge' Sampson, M5WNS (TQ), who last year claimed an IARU Millennium Award sent in a successful entry level claim for both squares and countries. A long-time supporter of the award scheme, Ela Martyr, G6HKM (CM), successfully claimed certificates and stickers for 10 countries (2-way) and for 25 squares. Ela, who still holds a high rank in the squares table, has decided to rise to the challenge of a fresh start after a move which imposed quite severe restrictions on her operating.

Finally John Adlington, M1DVT (ST), has gained stickers at the 30 country (2-way) and 50 square level. Congratulations to all recipients.

Summary of Award Recipients for March:

50MHz: 25 Squares: M1BRE, M5WNS, G6HKM. 50s: M1DVT, M1BRE.

10 Countries (2-way): M1BRE, M5WNS, G6HKM. 20c: M1BRE. 30c: M1DVT.

More on RSGB VHF / UHF awards can be found at: www.rsgb.org/awards

The Missing Link

AN ERROR crept into a diagram in the 'Noise Bridge' article starting on page 17 of the April issue. In Fig 6, there should be a wire link between the top right and bottom right tags of the on / off switch, thus enabling a 'straight-through' connection of input to output. Thank you to those readers who spotted this.

Air Ambulance SES

IT'S THE 10th anniversary of the West Midlands air ambulance service, and 10 special event stations will be on the air on **12 / 13 May** to raise funds for the County Air Ambulance, a registered charity. Listen for GB stations with suffixes AA ('Air Ambulance'), AAS ('Air Ambulance Service'), CAA ('County Air Ambulance') and FFL ('Fight for Life'). There is be an award for working or hearing three of the stations. The cost is £3.50 plus a 1st class stamp and return address label. Applications should be sent to Geoff Woodford, G0KNM (QTHR 2001).

Nominations Invited for Prestigious Humanitarian Award

The Bad Bentheim Golden Antenna Award

EVERY YEAR the town of Bad Bentheim in Germany presents an award called 'The Golden Antenna' to a radio amateur or an amateur radio group that utilises technology in connection with humanitarian work.

Last year's winner was Serdar Demirci, who used amateur radio to help people in the Izmit earthquake in Turkey in 1999. Nominations are now invited for this year's award. If you know of any amateur radio enthusiast or group of enthusiasts whose utilisation of technology is connected to humanitarian work, please write before 1 June 2001 to: 'Golden Antenna Award', The Town of Bad Bentheim, PO Box 1452, 48445 Bad Bentheim, Federal Republic of Germany or send an e-mail to: veldhuis@stadt-badbentheim.de

The winner of the Golden Antenna 2000, Serdar Demirci with his wife and (right) Mayor Günter Alsmeier during the ceremony at Bad Bentheim castle.

The prize winner or winners will be invited to the 33rd German-Dutch Amateur Radio Days and their travel and accommodation costs will be paid. The jury evaluating the nominations includes the President of IARU Region 1 and the President and Chairman of the Dutch and German amateur radio societies.

LF Roundtable

FOLLOWING ON from the highly successful series of microwave roundtables, an LF Roundtable, or forum, will now be held for operators at the other end of the radio spectrum. This will take place on **Sunday 20 May** at the HQ of the Flight Refuelling Amateur Radio Society, near Wimborne, Dorset. The event will comprise a bring and buy session and open meeting / discussion in the morning. For the afternoon it is intended to arrange a series of mini lectures and demonstrations of LF techniques. For details contact Andy Talbot, G4JNT, tel: 01489 787424, e-mail: g4jnt@thersgb.net or G0API, tel: 01202 692649, e-mail: g0api@tesco.net

HMS Hood Anniversary

GB2HA WILL BE on the air on 26 May to commemorate the 60th anniversary of the sinking of *HMS Hood*. All but three of the ship's complement of 1421 officers and men were lost when *Hood* was sunk. The HMS Hood Association was formed in 1975 by the former ship's company and the membership is now world-wide. Look for GB2HA on 80, 40, 20 and 2m.

Internet Linking Progress

IAN ABEL, G3ZHI, gave a talk to the Christchurch amateur radio club - without flying the 12,000 miles to ZL. Ian gave his presentation about the IRLP (Internet Repeater Linking Project) system to the Christchurch club using iPhone, talking on his local 2m repeater. After the talk he took questions from club members. Using this system, any club using iPhone could have a guest speaker from anywhere in the world, 'live'. Ian only used audio, but it is possible to also use video.

● THE FIRST UK IRLP node is now up and running. Greg, G4CUI, now has a node on the IRLP system and has been linking to GB3US, the 70cm repeater at Sheffield University and GB3HH on 2m at Buxton in Derbyshire. The link is on at 2000 -2200, subject to Greg's availability.

For the YL Who Has Everything?

A BUCKINGHAMSHIRE jeweller is marketing a range of unique rings and bracelets that might be *just* the thing if you're looking for a classy present for a YL or XYL operator. You can have your own private message spelt out in Morse code on the jewellery, with the 'dits' in round (brilliant cut) diamonds and the 'dahs' in oblong (baguette cut) diamonds. Further details can be obtained from Hester Clarke County Jewellers, Aylesbury, tel: 01296 482963.

NEVADA®

LARGE STOCKS
FAST DELIVERY
EXPERT ADVICE
www.nevada.co.uk

USED EQUIPMENT
BUY WITH CONFIDENCE
All safety tested & guaranteed for 3 months

HF TRANSCEIVERS
ICOM 725 ..... 100W HF TRANSCEIVER 395
ICOM IC756 ..... 6M/HF TRANSCEIVER 999
ICOM IC765 ..... 100W HF TRANSCEIVER 799
YAESU FT900 ..... 100W HF MOBILE BASE 599
YAESU FT920AF ..... 100W HF + 6M 895
YAESU FT1000 ..... 200W HF TRANSCEIVER 1299
YAESU FT1000MP ..... 100W HF TRANSCEIVER 1399

VHF/UHF TRANSCEIVERS
AKD 2001 ..... 2M FM TRANSCEIVER 125
ALINCO ALM-203E .. HANDIE 2M 99
ALINCO DJ-SR1 PKGE .. 2 X PMR446 + NICADS, CHGER 149
ALINCO DR-140E .... 2M FM MOBILE TX 149
ALINCO DR-430 ..... 70CMS MOBILE 155
ALINCO DR 510E .... 2M/70CM MOBILE TRANS 179
ICOM IC2100H ..... 2M FM MOBILE TRANSCEIVER .. 169
ICOM IC3230H ..... 2M/70CM MOBILE TRANS 225
KENWOOD TM 231E .. 2M MOBILE 139
STANDARD C156A .. 2M HANDIE + ACCS 99
STANDARD C8900 .. 2M FM MOBILE 125
TRIO 751E ..... ALL MODE 2M MOBILE 325
YAESU FT41 ..... 70CMS HANDIE + ACCS 125
YAESU FT225RD ..... 2M MULTIMODE TRANS 359
YAESU FT411 ..... 2M FM HANDIE - BOXED 125
YAESU FT726R ..... 6M/2M/70CM BASE TX 499
YAESU FT736R ..... FULLY LOADED 999
YAESU FT5100 ..... 2M/70CM MOBILE TRANS 269
YAESU FT530+ACCS 2M/70CM HANDI BASE, CHGR ETC 149
YAESU FTL2014 ..... VHF PMR TRANSCEIVER 75
YAESU VXM100 ..... MARINE TRANSCEIVER 129

AMPLIFIERS
TOKYO HL700 ..... SOLID STATE HF AMP 599
TOKYO HL100B ..... 100W AMP 21 - 28MHZ 129
TOKYO SAGRA 600 2M 700WAMP 2X4CX250R 799
M MODULES ..... 432/50 LARGE 70CMS AMP 125

SCANNERS & RECEIVERS
AKD HF3 ..... HF RECEIVER 125
BEARCAT UBC220XLT .. HANDHELD SCANNER 99
BEARCAT UBC3000XLT .. HANDHELD SCANNER 125
BEARCAT UBC9000XLT .. 500 CHANNEL BASE 199
COMMTEL COM510 .. HANDHELD SCANNER 139
ICOM R10 189
ICOM ICR72 ..... HF RECEIVER 399
JRC NRD345 ..... HF RECEIVER 325
MATSUI WR220D .. SHORTWAVE RECEIVER 25
REALISTIC PRO 57 .. BASE SCANNER 59
SONY ICF-SW7600G .. SHORTWAVE RECEIVER 119

ACCESSORIES
AMDAT ADC60 ..... FREQ STANDARD CLOCK UNIT 99
HI-MOUND HK702 .. PADDLE KEY 45
HI-MOUND HK802 .. BRASS HAND KEY 49
KENWOOD AT250 .... AUTO TUNER 175
KENWOOD VS2 ..... VOICE BOARD 40
MFJ 784B ..... DIGITAL FILTER 139
MW MODULES 432/144 .... 2M/70CM TX 59
OSCAR SWR-200 .... SWR POWER METER 35
SYMEK TNC 2H+RF DECK .. 9.6K TNC +10W RADIO 179
SWAN WM6200 ..... 50-150MHZ PWR/SWR M 30
TONO Q-550 ..... TERMINAL UNIT 125
YAESU FC-1000 ..... AUTO ATU FT757 ETC 189

NEW ITEMS COMING IN DAILY - CALL

DAIWA SWR/POWER METERS

DAIWA CN-801H

1.8-200MHz
Power Rating
20/200/2kW
1kW (144MHz)
£109.95
£6 p&p

DAIWA CN-801 VM

140-525MHz
Power Rating
20/200W
Large clear meter
£109.95
£6 p&p

DAIWA CN-101L

1.8-150MHz
Power Rating
15/150/1.5kW
1kW (144MHz)
£59.95
£6 p&p

DAIWA CN-103LN

Power Rating
20/200W
(140-525MHz)
£65.95
£6 p&p

DAIWA TRIPLE BAND ANTENNAS

IDEAL REPLACEMENT ANTENNAS
144/430/1200MHz
HA45S ..... SMA ..... Triple band L: 4.5cm £12.95
HA45B ..... BNC ..... Triple band L: 4.5cm £12.95
HA96B ..... BNC ..... Triple band L: 9.5cm £16.50
Add £1.50 postage & packing for all antennas

DAIWA CS-201A

HIGH QUALITY 2 WAY ANTENNA SWITCH
- 0 - 600MHz
- 1kW CW • SO239

£19.95 £2 P&P

HEIL PRO SET
THE DX'ERS CHOICE FOR OUTSTANDING AUDIO

PRO SET 4
For contesters & DX'ers who want to cut through the pile ups. Using hc4 insert.
£129.95 £5 P&P

PRO SET 5
A fuller range insert for rag chewers who want quality with clarity. Hc5 insert.
£129.95 £5 P&P

AD-K ..... Kenwood Adaptor Cable **£14.95**
AD-I ..... Icom Adaptor Cable **£14.95**
AD-Y ..... Yaesu Adaptor Cable **£14.95**

SCANMASTER HF-2
Remote 2 Way
Antenna Switch
Frequency (0-475MHz)
Power 1kW PEP

PL259 **£39.95**
'N' Type **£41.00**

THIS MONTH'S BEST BUYS!

PALSTAR PS-50
CHEQUE SPREAD

50 Amp heavy duty supply with meters. 13.8V DC 40/50 Amp

NEVADA PRICE ~~£169.~~ £149

YAESU FT-817
CHEQUE SPREAD
NEW! IN STOCK!

- HF/6/2/70 cms
- Transportable with wide RX
- Supplied c/w Nicads, Charger, antenna & mic

NEW COMET LOW PROFILE 'FLEXIBLE' ANTENNAS for the YAESU FT817 only £59.95
See the Comet box

NEVADA PRICE £799

PATCOMM PC 16000E
A full featured HF Transceiver with a patented built-in keyboard interface. Data may also be sent to a dumb terminal for display via a RS232 built-in serial port.

RTTY & CW MADE EASY!

- Powers 1 - 100W
- DSP filters built-in
- Gen coverage RX
- Built-in keyer

Send SAE for FULL INFO

NEVADA PRICE £1590

ROPEX The 'First'

30/130W 136kHz TRANSMITTER
NEVADA PRICE £179

ANTENNAS

ZX YAGIS MINI 2000
Our most popular mini beam.
14/21/28 MHz Tri-band mini beam.
2 mtr boom 5mtr long eles - 11kg
£229.95 £10 p&p

2X MONO BAND YAGIS

BAND	EL	BOOM	GAIN	PRICE
14MHz	2	1.7	6.3	£149.95
14MHz	3	1.7	9.1	£199.95
18MHz	2	1.45	6.3	£129.00
21MHz	3	4.15	0.1	£159.00
21MHz	4	6.4	11.4	£189.00
24MHz	2	1.1	6.3	£99.25
28MHz	2	0.9	6.3	£98.00
28MHz	4 DX	5	11.4	£166.00
50MHz	2	0.6	6.2	£49.95
50MHz	3	1.75	9.1	£89.00
50MHz	4	?	?	£?
50MHz	5	4.35	12.1	£129.00

12 p&p on all mono band Yagis

2X LOW COST VERTICALS
GP3 ..10,15,20 3.9mtrs 500W £59.95
GP3W.12,17,30 4.3mts 500W £69.95

FORCE 12
EF410..4 El 28MHz Yagi ..... £299 £12 P&P
N1217.12/17 3 Element Yagi .. £599 £12 P&P

SIRIO 28MHZ BEAMS
SY27-3..26-30MHz 3el 7.6 dBi £79.95 £12 P&P
SY27-4..26-30MHz 4el 9.6 dBi £69.95 £12 P&P

OUTBACKER HF MOBILE
OUTBACKER..(80 - 10) 6ft £159
OUTBACKER OB58 Split..(80 - 10) £169
OUTBACKER Outrunner..(160 - 10) 9ft .. £169

COMET HIGH QUALITY JAPANESE ANTENNAS
NEW LOW PROFILE 'FLEXIBLE' ANTENNAS FOR THE YAESU FT817

CHF-412
7, 21, 144MHz, 0.74M Long £59.95
CHF-816
3.5, 28, 50MHz, 0.74M Long £59.95
postage & packing £4.75

COMET BASE ANTENNAS
GP-15N ..... 50, 144, 430MHz, L: 2.4m 300W PEP £89.95
GP-1 ..... 144/430MHz 3/6dB 1.25mtrs 200W £49.00
GP-3 ..... 144/430MHz 4.5/7.2 1.78mtrs 200W £59.95
GP-6 ..... 144/430MHz 6.5/9.0 3.07mtrs 200W £89.95
GP-98 ..... 144/430/1.2GHz 2.94mtrs £129.95

COMET HF MOBILE ANTENNA
CA-UHV ..... 7, (14) 21, 28, 50, 144, 430MHz 1.9 mtrs £89.00
L14 ..... Optional 14MHz coil for CA-UHV £19.95
UHV-6 ..... 7, 21, 28, 50, 144, 430 1.9 mtrs £89.00
postage & packing £9.50 all items above

COMET VHF MOBILE ANTENNAS
CHL-285 ..... 50/144MHz Mobile 300W, length 1.32 mtrs £24.95
CHL-350 ..... 28/50MHz Mobile 200W, length 2.16 mtrs £39.95
HR-50 ..... 50MHz centre loaded , length 2.13 mtrs £39.95
SB-15 ..... 50/144/432MHz with w/fold-over £46.95
SBB-2 ..... Dual band Mobile 144/432 length 0.46 mtrs £19.95
SBB-4 ..... Dual band Mobile 144/432 length 0.92 mtrs £29.95
SBB-14 ..... Tri band Mobile 50/144/432 lth 1.08 mtrs £39.95
postage & packing £8.00 all items above

COMET HANDIE ANTENNAS
SM-A3 ..... SMA connector 144/432/900MHz £19.95
SH-95 ..... BNC connector 144/432/1200MHz £26.95
RX-5 ..... SMA connector 144/430MHz + wide RX £26.95
postage & packing £3.75 all items above

COMET MOBILE ANTENNA CABLES/MOUNTS
3D-4MB ..... SO239 Base/4mtrs coax c/w PL259 plug £15.50
CK-3M4B ..... SO239...Base w/4mtrs coax c/w PL259 plug £24.50
MG-4M ..... Heavy duty mag mount/4mtrs /PL259 ..... £29.95
RS-700 ..... Gutter Mount fully adjustable £17.95
RS-730 ..... Hatch/Trunk Mount fully adjustable £19.95
T8R ..... Hatch/Trunk Mount standard model £14.95

COMET BALUNS
CBL-2000 ..... 0.5 - 60MHz 2kW 1:1 ..... £27.50
CBL-30 ..... 1.7 - 30MHz 1kW 1:1 ..... £21.95

COMET FILTERS
CF-30S ..... 32MHz low pass filter, 150W CW £19.95
CF-30MR ..... 32MHz Low pass, 1kw PEP £37.50
CF-50S ..... 50MHz low pass filter, 150W CW £21.50
CF-50MR ..... 50MHz low pass, 1kw PEP £37.50

COMET BAND PASS FILTERS
CF-BPF6 ..... 50MHz band pass filter, 150W CW £42.50
CF-BPF2 ..... 144MHz band pass filter, 150W CW £42.50

COMET DUPLEXERS
CF-416A ..... 144/430MHz SO239/PL/PL £27.50
CF-416B ..... 144/430MHz SO239/PL/'N' £28.50
CF-706 ..... For IC706/CA-HV 1.3-56MHz/75-320MHz £39.00
CF-360A ..... 1.3-30MHz/49-470MHz SO239/PL/PL £37.95
CF-530 ..... 1.3-90MHz/125-470MHz SO239/PL/PL £39.95

COMET TRIPLEXERS
Comet CFX-431A 144/430/1200MHz £46.00
Comet CFX-514N 50/144/430MHz £47.95

MasterCard VISA DELTA SWITCH
USE YOUR CREDIT CARD FOR SAME DAY DESPATCH!

023 9231 3090

ALL GOODS SHIPPED for 24 hour delivery
(UK MAINLAND ONLY)
PLEASE ADD £10.00
(unless otherwise stated)

NEW OPENING HOURS
MON - FRI 9.30 - 5.30
CLOSED ALL DAY SATURDAY

e-mail: info@nevada.co.uk • website: www.nevada.co.uk

• Unit 1 • Fitzherbert Spur • Farlington • Portsmouth • PO6 1TT

• NO HASSLE
• NO CATCH
• NO PROBLEM!

CHEQUE SPREAD

Buy the radio of your choice at the best price and pay by 3 POST DATED CHEQUES - INTEREST FREE! or part exchange your old radio & pay the balance by CHEQUESPREAD - EASY ISN'T IT!

LOW LOSS COAX SPECIALS!

NEVADA H100 — Semi airspaced double screened low loss 50 Ω cable

FREQ	LOSS PER 10 MTRS
28MHz	0.20dB
50MHz	0.25dB
100MHz	0.35dB
400MHz	0.82dB

100 METRE DRUM QUANTITY PRICE ~~£85~~ **£59**

NEVADA RG213 — Popular low loss 50 Ω cable

FREQ	LOSS PER 10 MTRS
28MHz	0.36dB
50MHz	0.45dB
100MHz	0.67dB
400MHz	1.47dB

100 METRE DRUM QUANTITY PRICE ~~£73~~ **£49**

NEVADA RG58 — Popular lightweight coax cable

FREQ	LOSS PER 10 MTRS
28MHz	0.78dB
50MHz	0.97dB
100MHz	1.4dB
400MHz	3.0dB

100 METRE DRUM QUANTITY PRICE ~~£38~~ **£25**

NEVADA MINI RG-8 — Low loss small diameter cable

FREQ	LOSS PER 10 MTRS
28MHz	0.69dB
50MHz	0.86dB
100MHz	1.28dB
400MHz	2.82dB

PRICE PER METRE ~~£0.45~~

100 METRE DRUM CLEARANCE PRICE ~~£45~~ **£29** £8 p&p

PALSTAR KH-6

- 50 - 54MHz
- 4W RF out (12V)
  2W RF out (9V)
- UK Repeater offsets
- Intelligent Power Save circuit
- CTCSS Encode/Decode
- Scan functions • Memory recall
- C/w 8 cell AA battery case
  (batteries not inc)

~~£159~~ **£99** £8 p&p

NEW LOW PRICE!

OPTIONAL EXTRAS

KH6/BC...Empty Battery Case.....£8.95
KH6/DA...Slide on DC Adaptor.....£7.95
KH6/HF...Flexi Hi-Gain Antenna.....£12.95
KH6/NP...NiCad Battery Pack.....£29.95
KH6/CP...Cigar Adaptor PWR Lead £8.95

YAESU ROTATORS

G1000C HEAVY DUTY
C/W Control Box & 25 Cable.....**£559**
G650C MEDIUM DUTY
C/W Control Box & 25 Cable.....**£459**
G450C LIGHT DUTY
C/W Control Box & 25 Cable
.....**£349**
*£10 p&p on all Yaesu rotators

LINEAR AMP UK

NEW! Pioneer 1.3kw HF amp (4 x 572 B) Now in stock

NEVADA PRICE **£1295**

£15p&p all amps

DISCOVERY (LP) 2M 3CX400 (500W)	£895
DISCOVERY (HP) 2M 3CX800 (1kW)	£1395
HUNTER SIX 6M 3-500ZG (900W)	£895
RANGER 811H HF 4 X 811A (800W)	£895
NEW PIONEER 4 X 572B (1300W)	£1295
CHALLENGER 1 HF 2 X 3CX 800 (1.5kW)	£1395
CHALLENGER II HF 3CX 1500 (1.5kW)	£1995

YAESU FT1000MP MK V

HF 200W All mode transceiver

NEVADA PRICE **£2795**

ICOM IC-756 PRO

save £496

Icoms latest SUPER rig

SPECIAL OFFER BULK PURCHASE ~~£2395~~ **£1895**

NEVADA PRICE ~~£2395~~ **£1895**

KENWOOD TS-2000

DC to Daylight! HF to 1200MHz* Coming soon!

*1200MHz optional

NEVADA PRICE **£1699**

YAESU FT-847

70cm - Top Band All Mode

NEVADA PRICE ~~£1699~~ **£1199**

ICOM 910H

- VHF/UHF All mode TX
- Suitable for DX'ing or Sat
- 100W 2mtr/ 75W 70cm
- Full Duplex

1.2GHZ & DSP OPTIONAL

NEVADA PRICE **£1299**

KENWOOD TS570 DGE

100W HF radio with a superb DSP RX.

NEVADA PRICE ~~£999.95~~ **£849**

YAESU FT-100

Compact 100W HF Transceiver

NEVADA PRICE **£799**

ICOM 705 MKIIG

100W HF/6 + 50W 2M + 20W 70cms

NEVADA PRICE ~~£1199.95~~ **£995**

KENWOOD TM-D700E

Dual band DATA mobile radio

NEVADA PRICE **£469**

YAESU FT-90

Micro-sized TWINBANDER WIDE RX inc AM AIRBAND

NEVADA PRICE ~~£475~~ **£349**

INCLUDES FREE YSK90

ICOM IC-718

100W HF Transceiver Built in keyer General coverage RX

NEVADA PRICE **£699**

WORLDSPACE

DIGITAL SATELLITE RADIO

- Removable satellite antenna
- Mono/stereo high quality programmes direct from satellite
- Mains or battery (not supplied)

NEVADA PRICE **£99.95**

YAESU FT-8100

Dual band high power mobile + wideband receive

NEVADA PRICE **£399**

ICOM IC-R75

PRICE MATCH

- 0.03 -60MHz
- Twin PBT built-in
- PC control capability
- Synchronous AM detection

IN STOCK! READY TO SHIP!

NEVADA PRICE **£699**

ICOM 2800H

- 232 channels
- FM narrow capability with a dedicated narrow band FM mode
- Up to 50W or 35W output for VHF and UHF bands

NEVADA PRICE **£399**

YAESU FT-1500M

50W Heavy duty 2 metre FM mobile

NEVADA PRICE **£229**

NEW!

ICOM IC-R8500

PRICE MATCH

IN STOCK! Covering 100kHz - 2GHz & lots of features inc computer control.

NEVADA PRICE ~~£1349~~ **£1299**

SG-230

HF Smart Tuner

PRICE MATCH

NEVADA PRICE **£359.95**

TIMEWAVE DSP 599ZX V-S

NOW WITH PSK 31 INTERFACE

- Eliminate heterodynes
- Filters QRM
- Brickwall PSK31 filter
- Sound card interface
- Binaural CW
- CW spotlight
- Enhanced noise reduction

NEVADA PRICE **£359.95**

ANC

ANTENNA NOISE ELIMINATOR

Reduces noise from power lines, TVs etc - up to 40dB. Wipes out S9 line noise. 500kHz-80MHz

NEVADA PRICE **£199.95**

PK12 PACKET TNC

- 1200 BPS, VHF/UHF packet
- Host mode
- Advanced command set
- GPS commands
- APRS adaptor avail.
- Includes PK-TERM 99 demo software

NEVADA PRICE **£129.95**

YAESU VX-5R

50-144-430MHz Wide Band Receiver Ultra Rugged Construction

NEVADA PRICE ~~£359~~ **£299**

YAESU VX1R

Mini 2M/70cm transceiver & wideband RX 500kHz-999MHz.

NEVADA PRICE **£169**

KENWOOD THD7E

Dual Band Handie

Up to 6W Output • Built in TNC!

NEVADA PRICE **£269**

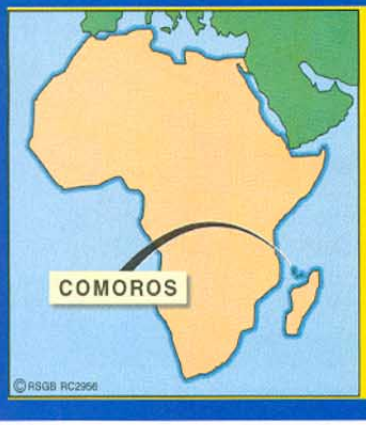
IT'S EASY TO PAY!

CHEQUE SPREAD

• by three post dated cheques

minimum order: £99

- Simply divide the price (including carriage) into 3 equal payments.
- Write 3 cheques dated in consecutive months starting with today's date.
- Write your telephone number, cheque card No & expiry date on the back of each cheque.
- Post them to us, enclosing your name & address & we will (subject to status) send your goods immediately.



The D68C Comoros DXpedition

RadCom editor Steve Telenius-Lowe, G4JVG*, describes what it was like to be on the Five Star DXers Association D68C DXpedition - the biggest DXpedition of all time

THOSE GUYS AT D68C are like the Energizer bunny. They just keep going and going and going! This comment, from a top US DXer, was one of many such remarks received during the D68C DXpedition to the Comoros. There can't be many UK radio amateurs who were at all active on the HF bands during the month of February who were not aware of the presence of D68C. This DXpedition, organised from the UK by the Five Star DXers Association, has broken most of the DXpedition operating records and set many more.

GENESIS

THE GENESIS OF the D68C operation can be traced back to 1998, when a core group of seven UK radio amateurs, all members of CDXC (Chiltern DX Club) - the UK DX Foundation [1], organised a DXpedition to the Spratly islands (see *RadCom* April 1998). That operation was extremely successful, making around 65,000 QSOs as 9M0C. All the members of the team were delighted with this but when the group returned to the UK to give presentations at local radio clubs, it became apparent that few in the audience had actually made a contact with the station. This came as something of a surprise to us because at the time we had assumed that anyone who wanted to make a QSO with 9M0C would have been able to do so.

The team formed a group called the 'Five Star DXers Association' (FSDXA) with the simple aim of organising DXpeditions from time to time. FSDXA is closely associated with CDXC but took over the financial liabilities associated with mounting a major DXpedition. FSDXA now owns the assets - antennas, masts, cable etc - left over from the 9M0C operation.

When the FSDXA started to think about 'the next one' a short-list of three locations emerged. Two of them were eventually ruled out, one on the grounds of cost, the other because of operating restrictions placed by the licensing authority there. The remaining location was the Comoros, and this fulfilled all our criteria perfectly. It was quite easy to obtain a licence, there had been very few DXpeditions in recent years, and those operations that had taken place were of the one or two-man 'holiday' DXpedition type, for just a week or 10 days. There had been no major DXpeditions from the Comoros for many years. We discovered that there was a good quality hotel, Le Galawa Beach, ideally situated on the northernmost tip of Grande Comore, the most northerly island in the chain. With a beach-side location on the north coast we were assured of an excellent take-off towards all the major amateur population centres in the world - North America, Europe and Japan. The presence of the hotel meant we could concentrate on getting the radio side of things right, without having to worry about life-support measures such as accommodation, food, drink, power, fuel etc.

DXPEDITION PHILOSOPHY

WE LEARNED A lot from the 1998 9M0C operation, so much so that we wrote a book, *DXpeditioning Behind the Scenes* [2], about the lessons learned. Our surprise at the relatively small number of UK stations that managed to make a contact with 9M0C meant that we resolved to do much better the second time around. Top UK DXers had been able to make contacts with 9M0C, but the 'average' UK HF licensee, using perhaps a 'typical' 100-watt transceiver to a multi-band vertical or G5RV did not. Why was this? Was it because they tried to make a contact but couldn't get through the pile-up? Because they heard the size of the pile-up and therefore didn't even try? Or simply because they were just not interested in trying to work DX stations?

We believed the answer was probably a combination of all three. The philosophy behind the D68C DXpedition was to change all this. We set forth a three-pronged attack:

To ensure that we could hear all the stations calling, even those with very low power and simple or inefficient antennas, we had to have excellent antennas ourselves. We decided on monoband Yagis for 30 to 6m, plus directional vertical arrays for 40 and 80m.

Secondly, in order to give confidence to stations calling that we *would* hear them, and therefore persuade them to call us rather than giving up immediately, our signal needed to be 'loud'. The monoband Yagis ensured we had good strong signals on all bands, but to emphasise the point we determined to use the full legal power limit on all bands. We also decided to operate for three weeks, including three full weekends, so that by the end of the operation all those stations using high power and / or beam antennas would have already been able to make a contact, making the pile-up much smaller and leaving the way clear for QRP stations or those using indoor antennas.

Finally, in order to engender the enthusiasm of those amateurs who would not normally bother to call a DX station, we started a

The Force 12 monoband Yagis were lined up along the stunningly beautiful beach.

* *c/o RSGB HQ*

The D68C Team - Operators

(L to R in photo) John, N7CQQ; Maury, W3EF; Wes, W3WL; Shaun, M0BJL; Jeff, 9H1EL; Taizo, JA3AER; Don, G3XTT; Mark, M0DXR; Don, G3BJ; Jens, DL7AKC; Neville, G3NUG; Rob, PE9PE; Hawk, SM5AQD; Steve, G3VMW; Mike, G3SED; Justin, G4TSH; Bob, GU4YOX; Kazu, JA1RJU; John, G3WGV; Nigel, G4KIU; Steve, G4JVG; Tony, G0OPB; Victor, UT8LL; Tim, G4VXE; George, 5B4AGC (Marios, 5B4WN, not present).

Support Team

AA5XE Dale (6m Pilot), BRS32525 Bob (SWL QSL Manager), G3NOM Ray (Far East Pilot), G3SWH Phil (QSL Manager), G3WRO Keith (Logistics), G3ZAY Martin (Chief Pilot), G4KIU Nigel (Webmaster), G4PDQ John (EU *PacketCluster* Server), G4ZFE Richard (EU QSO Server), N1DG Don (NA Pilot and QSO Server).

publicity campaign, with regular press releases detailing our operation and explaining its philosophy. An article in the 'Down to Earth' section of the February *RadCom* [3] probably did more than anything else to raise awareness of the forthcoming DXpedition among non-DXers in the UK. Another enticement was our decision to offer trophies to those stations making the most band and mode QSOs with D68C.

THE TEAM

DURING THE EARLY planning period, we had decided to operate a minimum of six stations around the clock, 24 hours a day, for three weeks. This obviously requires a large team of operators, and it was calculated that around 25 would be ideal.

The core group of seven operators first approached a number of amateurs, the main criterion being that they were known personally to at least one other member of the core team. Since one of our aims was to encourage newcomers to DXing, we invited a new DXer to become a team member. Mark Haynes, M0DXR, at just 17, had impressed several members of the team with his operating skills in DXing and contests. He only needed to be asked once and joined up immediately! With such a large group the possibility of personality clashes was very real, and we wanted to avoid this at all costs. In addition to being accepted as an excellent operator, the team had to be convinced that anyone proposed would fit in well with the rest of the group.

As soon as the publicity machine started working we were approached by very many amateurs, some known to us, some that we had never heard of before, but all of whom wanted to be involved with the DXpedition. Unfortunately we had to disappoint a number of amateurs who were very keen to be part of D68C and who would undoubtedly have contributed a great deal to the operation.

We ended up with 26 operators from 11 DXCC countries: a multi-national, multi-lingual, multi-skilled team that worked together as one towards the overall success of the operation.

SPONSORSHIP

IT WAS CLEAR that transporting nine or 10 transceivers, the same number of linear amplifiers, over 20 antennas, antenna masts and gin poles - not to mention four *kilometres* of low-loss coax cable! - was going to be expensive. It was determined that the easiest way of transporting this quantity of equipment - around 3.5 tonnes, as it turned out - was to use a 20ft shipping container. Fortunately there was a container port at Moroni, about a half-hour drive from Le Galawa Beach hotel.

A few months before the D68C operation, Yaesu launched their new FT-1000MP MkV transceiver and we were delighted to be the first major DXpedition to use this new 'flagship' radio. Thanks to a generous sponsorship deal from Yaesu HQ, with strong backing from Yaesu (UK), we were able to take six FT-1000MP MkV transceivers and six VL-1000 amplifiers to the Comoros.

We already had a Cushcraft 3-element 20m Yagi and a 6-element 6m beam that we had used on Spratly, but our other beams then had been tribanders. We are grateful to Force 12 who supplied monoband Yagis for 10, 12, 15, 17 and 30m at a specially discounted rate for us. They also loaned us two 2-element vertical beam arrays for 15 and 20m. The German company Titanex provided four of their V80S 80m quarter-wave verticals and a V160S 87ft vertical for 160 and 80m, again at a favourable discount.

All members of the team were expected to pay their own way to the Comoros from wherever they lived in the world, and to pay for their own accommodation, food and drink while on the expedition. The remainder of the costs were to be raised through sponsorship deals.

I produced an eight-page colour brochure which we had professionally printed and which was sent out to around 150 DX clubs throughout the world to ask for their help in sponsorship. Many DX clubs made donations towards the DXpedition, as did several local radio clubs in the UK and many individuals. We were especially grateful to these people, for their contributions were completely unsolicited and therefore all the more appreciated.

Several members of the core team had a professional background in business and they prepared a business case which was used to attract sponsorship from non-amateur radio corporations. This proved very successful and without it we would have been looking at a serious financial deficit.

ML&S and Nevada were the major UK amateur radio sponsors of the expedition, and we were very grateful too that the Radiocommunications Agency recognised the encouragement we were giving to amateur radio in the UK by making a generous financial contribution.

All the profits on the sale of the book *DXpeditioning Behind the Scenes* [1] went towards the purchase of equipment for the DXpedition.

Many hundreds of man-hours were spent in arranging sponsorship. It was hard work, but it paid off. A complete list of sponsors can be seen in the sidebar. We are extremely grateful to all of them.

PLANNING

THE CORE GROUP held full-day meetings at roughly monthly intervals for the nine months prior to the expedition, but the majority of the planning was carried out by e-mail. There was an enormous amount of detail to be sorted out. Literally thousands of e-mails circulated cyberspace.

Neville, G3NUG, became the team leader, with Don, G3BJ, and John, G3WGV, his deputies. Each member of the core team was allocated a number of areas of responsibility according to their own areas of expertise and over which they were 'king'. Neville was the 'Corporate Sponsorship King', while Don became licensing and video king. Tony, G0OPB, looked after RF and EMC matters; Mike, G3SED, antenna selection, siting and maintenance, myself propagation prediction and band planning.

Neville also had the massive responsibility of ensuring that the container and all the equipment arrived safely at its destination and would be cleared by customs. John, G3WGV, was the expedition's treasurer, keeping a detailed account of all income and expenditure.

Every antenna was assembled, dimensions measured and marked for easy reassembly, and SWR checked at G3NUG's QTH, then broken down into maximum 19ft lengths to fit into the shipping container. Guy ropes were measured and cut and affixed to the guy rings on the Racal 30ft push-up masts and 40ft scaffold pole masts.

John, G3WGV, who had been developing the *DX Server* software originally used on 9M0C, went into overdrive and worked long hours to perfect this system which helped to make the D68C operation such a success.

As part of the planning process, Don, G3BJ, flew out to the Comoros in September last year to undertake a site survey. Again, this proved invaluable in enabling him to make suitable arrangements for the accommodation of the stations, siting of the antennas, licensing, and generally arranging the goodwill of the hotel staff.

Another of the team members, Nigel, G4KIU, set up a web site for the operation (see footnote). This proved extremely popular and since its launch in October last year over 300,000 pages have been viewed. Don, G3XTT, in charge of marketing, sent out press releases to DX bulletins, amateur radio magazines and anyone who said they wanted to receive one. When we came on the air we wanted the whole world to be waiting for us!

The equipment and antennas were stockpiled at G3NUG's QTH then loaded into the shipping container. Eventually the day came when the steel doors were slammed shut and sealed and we waved goodbye to our 3.5 tonnes of kit as the container made its way to the port.

ARRIVAL

THE CONTAINER took four weeks to get to the Comoros but one day in January we heard from the hotel that it had arrived safely. The majority of the team met at Heathrow for an overnight flight on Air Mauritius and a one-day stay on that island before the onward journey to the Comoros by Air Tanzania.

February in the Comoros is the wet season. It was very hot, very humid, and took a little time to acclimatise! Nevertheless, as soon as customs clearance had been arranged it was all hands on deck to move the equipment from the container to the operating shacks. Five small bungalows had been provided by the hotel for our operation. Neville had already divided the team into groups of four, each with their own antenna or equipment projects. Thanks to Don's site survey everyone already had a clear idea of where each antenna was to be placed.

The Force 12 6-element 10m beam ready to be raised. In the background, the 4-element 17m beam already up.

While the container was being unloaded the heavens opened and it started to rain, a torrential tropical downpour. There was nothing to do but to continue working in the rain. It was unpleasant working in such conditions although our concerns that we would succumb to sunburn came to nil! It rained virtually non-stop for the three days it took us to build and erect all the antennas, after which the sun came out. Typical!

Although there was plenty of space for the antennas, the ground was highly treacherous, consisting of a rubble made up of razor-sharp lava rocks covered in thorny vegetation. Strong boots and thick jeans were the order of the day, despite the climate, to prevent broken ankles and scarred legs. Despite the best of precautions one team member tripped and fell on the loose rocks. Fortunately, although winded, there was no damage done.

The four Force 12 monoband Yagis for 10, 12, 15 and 17m were set up in a line just above the beach and the huge Titanex vertical for 160 and 80m was placed right on the beach, with many dozens of radials buried under the sand. At high tide the sea covered most of the radials and this had a noticeable effect on the tuning, necessitating separate high and low tide markings on the ATU!

Unloading the 20ft steel shipping container.

THE OPERATION

WE WENT ON the air at midnight local time (2100UTC) on 8 February, with eight stations simultaneously. Conditions were good and despite the hour all the bands were open, right up to 28MHz. We can only imagine what the bands sounded like in Europe and North America with D68C on all bands from 80m to 10m simultaneously! The pile-ups at first were, naturally, quite something to behold. At one point during the first 24 hours of operation D68C was making over 1600 QSOs per hour!

I was operating on 20m SSB for the first four hours of the DXpedition, transmitting on 14195kHz and listening from 14200 to 14210kHz. At the start of the DXpedition we always operated 'split', listening slightly higher than our own transmit frequency. This was done for two main reasons: transmitting and receiving on different frequencies ensured that the pile-up did not drown out our signal in our target area; and spreading the pile-up over 10kHz allowed us to pick out an individual callsign from the many hundreds calling. With good operating techniques it was not necessary to spread the pile-up over more than 10 or at the most 15kHz, even when we first opened up. This contrasted with one other recent DXpedition that was heard listening over 55kHz of band - a ludicrous amount. This interferes with other band users having 'normal' contacts and is to be deplored.

Our operating practices were decided well before the DXpedition started and were laid

Up she goes! The 87ft Titanex vertical for 80 / 160m goes up in a tropical downpour.

out in an 'Operating Manual' which every member of the team read before the start of the operation. For example, we decided that we would *not* operate 'by numbers'. With good equipment and good ears it is just not necessary, and it only leads to frustration when operators call out of turn, either because they are not willing to play the game or simply because they do not understand English well enough to understand properly what is going on.

Another operating practice we all agreed on was the necessity of giving our own callsign frequently - ideally after every contact, although there were occasions when a perfectly-timed 'tail-ender' allowed us to work a second station before giving our callsign. How many times have you heard DXpeditions just calling "QRZ?" and not giving their callsign for several minutes or even tens of minutes at a time? We felt this was bad operating practice and we would not do it.

After the first 24 hours of operation we were amazed to see that 16,412 QSOs had been logged, beating the first-day DXpedition QSO record of 14,000 set by FO0AAA on Clipperton Island last year. After the first couple of days of frenetic operation, the pile-ups thinned out just a little and it was then that the best QSO rates occurred. The logging software had a rate meter which showed how many QSOs per hour you were logging as a 'peak' rate (for the last 10 contacts) and over a longer period of time (last 100). My highest peak rate was 444 QSOs per hour when working North Americans on 20m SSB. Working QSOs at this rate means that you have to have good operators at *both* ends of the circuit - no matter how good the DXpedition operator, he needs a minimum of 10 *consecutive* good, snappy, operators calling to achieve such high rates.

On 80 and particularly 160m the rates were naturally very much slower than this. All credit must go to the low-band operators and in particular Mike, G3SED, who battled against S9+20 static levels night after night as lightning threatened the 87ft Titanex vertical - the highest thing for miles around!

The only band that disappointed was 6m. Unfortunately, propagation did not cooperate and we never did get the big openings we had been hoping for. Nevertheless, we had several dedicated 6m operators who managed to work 405 stations, mainly in Southern Europe and North Africa, but unfortunately no-one from the UK made it on 6m.

Our operating stints were built around four-hour shifts and most operators did two shifts per day, leaving plenty of time for eating, drinking, sightseeing, swimming, building or repairing antennas and occasionally even sleeping. Every day at 2.00pm local time - when the bands were at their quietest with only 15, 12 and 10m open - we had a team meeting to discuss the feedback we were receiving by e-mail from our team of 'pilots' around the world. These meeting were good fun, with plenty of light-hearted banter as well as serious business.

THE *DX SERVER*

DX SERVER is the name of some very clever software developed by John Linford, G3WGV. It was used for the first time on 9M0C, but has been further developed and enhanced by John in the intervening three years. *DX Server* gave the D68C operators unprecedented access to the entire DXpedition log in real time.

All operating positions were connected by Ethernet to a central server, providing each operator with information not normally available in a DXpedition situation. The logging software, which was part of the total system, also had fully integrated RTTY and CW facilities. So, without giving a full breakdown of the extensive system, imagine one of the DXpedition operators starting a spell after a much-needed rest. On logging on at an operating position, the CW keyer settings at that position immediately reflected his personal preferences. He was able to see, using simple commands, who was operating at each other position, and on what mode and frequency. As he worked the pile-up, because the complete DXpedition log was constantly updated to the server, he was able to list all QSOs made so far by any station he worked, as well as being able to check not only his own run rate, but that of the DXpedition as a whole. A huge amount of other data was available to him from his operating position.

Neville, G3NUG, having fun on 15m SSB

After the shift, most operators gravitated towards 'the server hut', one of the five bungalows that had been kitted out like Mission Control, Houston. Here we compared our 'scores' with those of the other operators and checked the latest reports from the team of pilots. Interrogating the server allowed each operator to see a full statistical breakdown of the DXpedition to date, by band, mode, area of the world, etc.

Of course, all this information was made available via the Internet to the DXpedition pilots, allowing them to respond effectively to e-mails and phone calls from around the world. We believe that the level of integration of this operator support / logging / DXpedition management software went well beyond anything that any previous DXpedition had used.

NEVADA COMOROS TROPHIES

THE NEVADA Comoros Trophies were designed to encourage both beginners and top DXers to call D68C on as many bands and on as many modes as possible. The trophies will be awarded to the top three stations in the world *and* the top three in the UK that work D68C on the highest number of bands and modes. An amazing 98 stations achieved 20 or more band-mode slots!

To encourage beginners, trophies are also available to the top three low-power (maximum 100 watts) stations in the world and in the UK using single-element antennas (eg dipole or vertical) working D68C on the highest number of bands, regardless of mode. Three Nevada Comoros Trophies are also available to UK clubs whose members make the most QSOs with D68C. Finally, there are three trophies available for SWLs.

The closing date for applications is 31 May 2001. They should be sent to FSDXA,

STATION EQUIPMENT

Yaesu transceivers:
6 x FT-1000MP MkV
2 x FT-920
1 x FT-847
1 x FT-900
6 Yaesu VL-1000 Quadra linears
3 other linears
Patcomm PC16000 and PC9000 transceivers
14 networked PCs

ANTENNAS

6 el. 6m Yagi (Cushcraft)
6 el. 10m Yagi (Force 12)
4 el. 12m Yagi (Force 12)
4 el. 15m Yagi (Force 12)
4 el. 17m Yagi (Force 12)
3 el. 20m Yagi (Cushcraft)
2 el. 30m Yagi (Force 12)
3 el. A3S 10/15/20m Yagi (Cushcraft)
3 el. A3WS 12/17/30 Yagi (Cushcraft)
Pair of 30m Verticals
Pair of 20m Verticals (Force 12)
Pair of 15m Verticals (Force 12)
4-Square 40m (Gladiator)
4-Square 80m (Titanex)
85ft Vertical 160/80m (Titanex)
Beverages, Pennants, Rhombic for receiving.

MOONRAKER

www.amateurantennas.com

TEL: (01908) 281705. FAX: (01908) 281706

Log Periodic

MLP32 TX & RX 100-1300MHz one feed, S.W.R. 2:1 and below over whole frequency range professional quality (length 1420mm) **£99.95**

Mobile HF Whips
(with 3/8 base fitting)

AMPRO 6 mt **£16.95**
(Length 4.6' approx)
AMPRO 10 mt **£16.95**
(Length 7' approx)
AMPRO 12 mt **£16.95**
(Length 7' approx)
AMPRO 15 mt **£16.95**
(Length 7' approx)
AMPRO 17 mt **£16.95**
(Length 7' approx)
AMPRO 20 mt **£16.95**
(Length 7' approx)
AMPRO 30 mt **£16.95**
(Length 7' approx)
AMPRO 40 mt **£16.95**
(Length 7' approx)
AMPRO 80 mt **£19.95**
(Length 7' approx)
AMPRO 160 mt **£49.95**
(Length 7' approx)
AMPRO MB5 Multi band 10/15/20/40/80 can use 4 Bands at one time (length 100") **£65.95**

Dual band mobile antennas

MICRO MAG 2 Metre 70 cms Super Strong 1" Mag Mount (Length 22") **£14.95**
MR 700 2 Metre 70 cms (¼ & ⅝ wave) (Length 20") (⅜ fitting) **£6.99**
MR 700 2 Metre 70 cms (¼ & ⅝ wave) (Length 20") (SO239 fitting) **£9.99**
MR 777 2 Metre 70 cms 2.8 & 4.8 dBd Gain (5/8 & 2x5/8 wave) (Length 60") (3/8 fitting) **£16.95**
MR 777 2 Metre 70 cms 2.8 & 4.8 dBd Gain (5/8 & 2x5/8 wave) (Length 60") (SO239 fitting) **£18.95**
MR 750 2 Metre 70 cms 5.5 & 8.0 dBd Gain (¼ & 3 x ⅝ wave) (Length 60") (SO239 fitting) **£38.95**

Single band mobile antennas

MR 214 2 Metre ¼ wave (⅜ fitting) **£3.99**
MR 214 2 Metre ¼ wave (SO239 fitting) **£5.00**
MR 258 2 Metre ⅝ wave 3.2 dBd Gain (⅜ fitting) (Length 58") **£12.95**
MR 650 2 Metre ⅝ wave open coil (3.2 dBd Gain) (Length 52") **£9.95**
MR 775 70 cms ⅝ wave 3.0 dBd Gain (Length 19") (SO239 fitting) **£14.95**
MR 775 70 cms ⅝ wave 3.0 dBb Gain (Length 19") (⅜ fitting) **£12.95**
MR 776 70 cms ⅝ over ⅝ wave 6.0 dBd Gain (Length 27") (SO239 fitting) **£18.95**
MR 776 70 cms ⅝ over ⅝ wave 6.0 dBd Gain (Length 27") (⅜ fitting) **£16.95**
MR 444 4 Metre loaded 1/4 wave (Length 24") (⅜ fitting) **£12.95**
MR 444 4 Metre loaded ¼ wave (Length 24") (SO239 fitting) **£15.95**
MR 641 6 Metre loaded ¼ wave (Length 56") (⅜ fitting) **£13.95**
MR 644 6 Metre loaded ¼ wave (Length 40") (⅜ fitting) **£12.95**
MR 644 6 Metre loaded ¼ wave (Length 40") (SO239 fitting) **£13.95**

Tri band mobile antennas

MR 800 2 Metre 70 cms 6 Metres 5.0, 7.9 & 3.0 dBd Gain (⅞, 3 x ⅝, ¼ wave) (Length 60") (SO239 fitting) **£39.95**

½ Wave Vertical Fibre Glass (GRP) Base Antenna 3.5 dBd
(without ground planes)

70 cms (Length 26") **£24.95**
2 metre (Length 52") **£24.95**
4 metre (adjustable top section) **£36.95**
6 metre (adjustable top section) **£46.95**

Vertical Fibre Glass (GRP) Base Antennas

SQ & BM Range VX 6 Co-linear:- Specially Designed Tubular Vertical Coils individually tuned to within 0.05pf (maximum power 100watts)

BM100 Dual-Bander **£29.95**
(2 mts 3dBd) (70cms 6dBd) (Length 39")
SQBM100*Dual-Bander **£39.95**
(2 mts 3dBd) (70cms 6dBd) (Length 39")
BM200 Dual-Bander **£39.95**
(2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")
SQBM200* Dual-Bander **£49.95**
(2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")
BM500 Dual - Bander **Super Gainer** **£49.95**
(2 mts 6.8dBd) (70cms 9.2dBd) (Length100")
SQBM500 Dual - Bander Super Gainer **£59.95**
(2 mts 6.8dBd) (70cms 9.2dBd) (Length100")
BM1000 Tri-Bander **£59.95**
(2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")
SQBM1000* Tri-Bander **£69.95**
(2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")
SQBM 100/200/500/1000 are Polycoated Fibre Glass with Chrome & Stainless Steel Fittings. 2 years warranty.

2 metre vertical co-linear base antenna

BM60 ⅝ Wave, Length 62", 5.5dBd Gain **£49.95**
BM65 2 X ⅝ Wave, Length 100", 8.0 dBd Gain **£69.95**

70cms vertical co-linear base antennas

BM33 2 X 5/8 wave Length 39" 7.0 dBd Gain **£34.95**
BM45 3 X 5/8 wave Length 62" 8.5 dBd Gain **£49.95**
BM55 4 X 5/8 wave Length 1002 10 dBd Gain **£69.95**

Tri-Bander Beam 5dBd all bands

TBB3 3 Element 6mts, 2mtr, 70cms, Boom Length 1.1mts, Longest Element 3mts, 5.00 dBd Gain. **.£65.95**

HB9CV 2 Element Beam 3.5 dBd

70cms (Boom 12") **£15.95**
2 metre (Boom 20") **£19.95**
4 metre (Boom 23") **£27.95**
6 metre (Boom 33") **£34.95**
10 metre (Boom 52") **£64.95**

Mini HF dipoles
(length 11' approx)

MD020 20mt **£39.95**
MD040 40mt **£44.95**
MDO80 80mt **£49.95**

Crossed Yagi Beams
All fittings Stainless Steel

2 metre 5 Element
(Boom 64") (Gain 7.5dBd) **£64.95**
2 metre 8 Element
(Boom 126") (Gain 11.5dBd) **£84.95**
70 cms 13 Element
(Boom 83") (Gain 12.5dBd) **£54.95**

Yagi Beams
All fittings Stainless Steel

2 metre 4 Element
(Boom 48") (Gain 7dBd) **£19.95**
2 metre 5 Element
(Boom 63") (Gain 10dBd) **£34.95**
2 metre 8 Element
(Boom 125") (Gain 12dBd) **£44.95**
2 metre 11 Element
(Boom 156") (Gain 13dBd) **£65.95**
4 metre 3 Element
(Boom 45") (Gain 8dBd) **£39.95**
4 metre 5 Element
(Boom 128") (Gain 10dBd) **£54.95**
6 metre 3 Element
(Boom 72") (Gain 7.5dBd) **£49.95**
6 metre 5 Element
(Boom 142") (Gain 9.5dBd) **£69.95**
70 cms 13 Element
(Boom 76") (Gain 12.5dBd) **£39.95**

ZL Special Yagi beams All fittings stainless steel

2 metre 5 Element
(Boom 38") (Gain 9.5dBd) **£35.95**
2 metre 7 Element
(Boom 60") (Gain 12dBd) **£45.95**
2 metre 12 Element
(Boom 126") (Gain 14dBd) **£65.95**
70 cms 7 Element
(Boom 28") (Gain 11.5dBd) **£24.95**
70 cms 12 Element
(Boom 48") (Gain 14dBd) **£44.95**

Halo Loops

2 metre (size 12" approx) **£12.95**
4 metre (size 20" approx) **£18.95**
6 metre (size 30" approx) **£24.95**

Multi purpose antennas

MSS-1 Freq RX 0-2000 Mhz, TX 2 mtr 2.5 dBd Gain, TX 70cms 4.0 dBd Gain, Length 39" **£39.95**
MSS-2 Freq RX 0-2000 Mhz, TX 2 mtr 4.0 dBd Gain, TX 70cms 6.0 dBd Gain, Length 62" **£49.95**
IVX-2000 Freq RX 0-2000 Mhz, TX 6 mtr 2.0 dBd Gain, 2 mtr 4dBd Gain, 70cms 6dBd Gain, Length 100" **£89.95**

G5RV Wire Antenna (10-40/80 metre)
All fittings Stainless Steel

	FULL	HALF
Standard	£22.95	£19.95
Hard Drawn	£24.95	£21.95
Flex Weave	£32.95	£27.95
PVC Coated Flex Weave	£37.95	£32.95

TS1 Stainless Steel Tension Springs (pair) for G5RV **£19.95**

Power Supplies

PS-20 20amp with 25amp surge Dual Meter & Adjustable Voltage 5-15v **£99.95**
PS-30 30amp with 35amp surge Dual Meter & Adjustable Voltage 5-15v **£119.95**

Short Wave receiving antenna

MD37 SKY WIRE (Receives 0-40Mhz) **£29.95**
Complete with 25 mts of enamelled wire, insulator and choke Balun Matches any long wire to 50 Ohms. All mode no A.T.U. required. 2 "S" points greater than other Baluns.
MWA-H.F. (Receives 0-30Mhz) **£29.95**
Adjustable to any length up to 60 metres. Comes complete with 50 mts of enamelled wire, guy rope, dog bones & connecting box.

Mounting Hardware
ALL GALVANISED

6" Stand Off Bracket
(complete with U Bolts) **£6.00**
9" Stand off bracket
(complete with U Bolts) **£9.00**
12" T & K Bracket
(complete with U Bolts) **£10.95**
18" T & K Bracket
(complete with U Bolts) **£14.95**
24" T & K Bracket
(complete with U Bolts) **£18.95**
3-Way Pole Spider for Guy Rope/wire **£3.95**
4-Way Pole Spider for Guy Rope/wire **£4.95**
1½" Mast Sleeve/Joiner **£8.95**
2" Mast Sleeve/Joiner **£9.95**
Solid copper earth rod 4' **£9.95**

Poles H/Duty (Swaged)

1¼"x 5' Heavy Duty Aluminium Swaged Poles *(set of 4)* **£19.95**
1½"x 5' Heavy Duty Aluminium Swaged Poles *(set of 4)* **£29.95**
2" x 5' Heavy Duty Aluminium Swaged Poles *(set of 4)* **£49.95**

Reinforced hardened fibre glass masts (GRP)

1½" Diameter 2 metres long **£16.00**
1¾" Diameter 2 metres long **£20.00**
2" Diameter 2 metres long **£24.00**

Guy rope 30 metres

MGR-3 3mm (maximum load 15 kgs) **£6.95**
MGR-4 4mm (maximum load 50 kgs) **£14.95**
MGR-6 6mm (maximum load 140 kgs) **£29.95**

Coax

RG58 BEST QUALITY STANDARD per mt **35p**
RG58 BEST QUALITY MILITARY SPEC per mt **60p**
BEST QUALITY MILITARY SPEC MINI 8 per mt **70p**
RG213 BEST QUALITY MILITARY SPEC per mt **85p**
H100 Coax Cable per mt **£1.10**
PHONE FOR 100 METRE DISCOUNT PRICE.

10/11 Metre Verticals

G.A.P.12 1/2 wave alumimum (length 18' approx) **£16.95**
G.A.P.58 5/8 wave aluminium (length 21' approx) **£19.95**

Baluns

MB-1 1:1 Balun **£23.95**
MB-4 4:1 Balun **£23.95**
MB-6 6:1 Balun **£23.95**

Ribbon ladder USA imported

300Ω Ribbon (20 Metres) **£13.00**
450Ω Ribbon (20 Metres) **£13.00**

Tri/Duplexer & antenna switches

MD-24 (2 Way Internal Duplexer) (1.3-35 Mhz 500w) (50-225 Mhz 300w) (350-540 Mhz 300w) insert loss 0.2dBd SO239 fittings **£22.95**
MD-24N same spec as MD-24 "N-type" fitting **£22.95**
MD-25 (2 Way external/Internal Duplexer) (1.3-35 Mhz 500w) (50-225 Mhz 300w) (350-540 Mhz 300w) insert loss 0.2dBd **£24.95**
CS201 Two way antenna switch, frequency range 0-1Ghz, 2.5 Kw Power Handling SO239 fittings **£18.95**
CS201-N same spec as CS201 "N-type" fitting **£28.95**
Tri-plexer 1.6-60Mhz (800w) 110-170Mhz (800w) 300-950Mhz (500w) SO239 fitting **£49.95**
4 way antenna switch 0-500Mhz **£29.95**

Antenna Rotators

AR-300XL Light duty UHF\VHF **£49.95**
YS-130 Medium duty VHF **£79.95**
RC5-1 Heavy duty HF **£349.95**
RG5-3 Heavy Duty HF inc Pre Set Control Box **£449.95**
AR26 Alignment Bearing for the AR300XL **£18.95**
RC26 Alignment Bearing for RC5-1/3 ..... **£49.95**

Rotator Cable

3 Core ..... **0.45p** per metre
7 Core ..... **0.80p** per metre

Mounts

TURBO MAG MOUNT (7") ⅜ or SO239 ..... **£14.95**
TRI-MAG MOUNT (3x5") ⅜ or SO239 ..... **£39.95**
Stainless Steel Heavy Duty Hatch Back Mount with 4 mts of coax and pl259 plug (⅜ or SO239 fully adjustable with turn knob) **£29.95**
Stainless Steel Heavy Duty Gutter Mount with 4 mts of coax and PL259 plug (⅜ or SO239 fully adjustable with turn knob) **£29.95**

Best Quality Antenna Wire

The Following Supplied in 50 metre lengths

Enamelled 16 gauge copper wire **£9.95**
Hard Drawn 16 gauge copper wire **£12.95**
Multi Stranded Equipment wire **£9.95**
Flex Weave **£27.95**
Clear PVC Coated Flex Weave **£37.95**

Inductors

Convert your g5rv half size into a full size with only a very small increase in size. Ideal for the small garden. **£21.95**

Traps

10 metre trap 400W **£21.95**
15 metre trap 400W **£21.95**
20 metre trap 400W **£21.95**
40 metre trap 400W **£21.95**
80 metre trap 400W **£21.95**

UNIT 12, CRANFIELD ROAD UNITS, CRANFIELD ROAD
WOBURN SANDS, BUCKS MK17 8UR. sales@moonrakerukltd.com

All prices plus £6.00 P&P per order

c/o Neville Cheadle, G3NUG (QTHR). It is hoped to present the trophies at this year's RSGB International HF and IOTA Convention to be held in Old Windsor in October.

ARRL DX CW CONTEST

THE MIDDLE OF our three weekends' activity coincided with the ARRL DX CW Contest and, after some debate, we decided that we should operate in the 'Multi-Two' category of the contest. Two stations only were dedicated to the contest, allowing the others to concentrate on the WARC bands on CW and SSB, and on the traditional HF bands on SSB when there was no propagation to North America.

A small team lead by Maury, W3EF, was set up to concentrate on the contest during this weekend. The two stations in one of the five operating bungalows became the contest station, and the antennas were reconfigured to allow the contesters access to the 10, 15 and 20m monoband beams.

This procedure worked very well, and 4554 QSOs were made, to set a new Africa Multi-Two record. At the same time, huge numbers of QSOs were made by the non-contesters on 12, 17 and 30 metres.

ODD MODES

WE DELIBERATELY delayed our appearance on the data modes, RTTY and PSK, because demand on the other modes was so high. Once started, though, we put over 4000 RTTY QSOs in the log, setting a new record for the number of RTTY QSOs made on a DXpedition by a large margin.

PSK is the exciting new data mode that everyone's talking about and D68C was the first major DXpedition to operate seriously on this mode. We made over 1100 contacts on PSK, showing that it is rapidly gaining in popularity among HF operators.

For some reason, and despite the fact that almost all modern HF transceivers include FM, this mode has never really taken off in Europe, although '10 FM' is very popular in Japan. Rob, PE9PE, was particularly keen to operate FM on 29MHz and he made this band-mode his own. We set up an additional 100-watt station for 29MHz using the Cushcraft A3S tribander and found we could operate on FM at the same time as the high-power station was operating on 10m CW or SSB, without any mutual interference. We went on to make over 3400 QSOs on '10 FM', setting yet another new record. Numerous stations commented that D68C was the very first contact they had ever made on 10 FM.

SUMMING UP

WHEN D68C was in the planning stages, we knew that we were mounting a big DXpedition. Never in our wildest dreams, though, did we expect it to be quite so successful as it was. We believe we broke all DXpedition band QSO records except those on 160, 20 and 6 metres, *all* the DXpedition mode records (SSB, CW, FM, RTTY and PSK), records for the total number of QSOs, 'uniques' (the number of different callsigns making contacts with us), as well as the first-day QSO total.

The final QSO tally was 168,722, with 45,315 'uniques'. What really amazed us, though, was the UK total: 13,690 QSOs with 3452 different stations - we just didn't think that there were that number of UK stations active with HF radios! It is this figure that gives us great confidence in the future of our hobby. We were absolutely delighted by the very large number of M5 licensees, newly-licensed M0 stations, and UK Novice stations that we worked. Many stations commented that we were the first DX station they had 'chased'. Many more said that they were working us with QRP or on an indoor antenna. Probably the most amazing contact was with a station in California who worked us on 10m using an FM handheld!

Of those 3452 UK stations, the following made 20 or more band-mode 'slots': G0TSM, G3LAS, GW3YDX, G4UJS (23); G4OBK, G3MCS, G3SBP, G3KWK, G3WVG, G3XTZ, GM4AFF (22); G3JFS, GI0KOW, G3TXF (21), G4CBW, G0VDE, G3JNB, G4PDQ, G0AAA (20).

During and after the expedition, many hundreds of comments were received, almost all complimentary. When compiled together there were well over 50 A4 sheets. Here are just a few examples:

"I was thrilled to work D68C on 14 MHz, with my much-modified Wilderness Radio SST (3 x 3 x 2in), powered by a battery and running 1W output. I know from QRPp discussion groups that many stations worked D68C while running power at the 100 milliwatt level. That certainly is a credit to the operators on both ends. My thanks to everyone at D68C for an operation that allowed us QRPpers to work halfway around the world. It was a thrill." (a K6 in Utah).

"For about an hour, I have been listening to a *great* D68C operator working simplex on 28.520MHz. This (British accent) ham has been very patient with mobiles, inexperienced operators and non-DX types while keeping up a great QSO rate. Just listening has been quite a treat! Wish all DX operations were like this one!" (a K4).

"The quality of your operators is top notch, your pile-up management was excellent, and your *ears*, especially on the low bands was unbelievable. I look forward to your next destination." (a W3).

"What a great expedition! Great organisation, great signals, great operators. I can't say enough good things! I worked D68C on 12 band-modes in the first two days!" (a K9).

"Brilliant operators, the web page had everything, excellent signals everywhere on every band and mode, absolutely superb operation. You have set the standard for everyone else to follow." (a G0).

"Worked you on SSB with 2 watts then during the ARRL DX contest with 500mW on 10m CW to a Cushcraft AR10 Ringo vertical up 25ft." (an N2).

"What can you say about a group that has provided over 160,000 QSOs? Can there be anyone who has not been able to work them on any mode / band? Signals have been outstanding on all bands and the operators superb. The Five Star DXers Association has set so many DXpedition

Low tide at Moroni harbour. These wooden boats are used to off-load cargo - including our shipping container! - from vessels that are too large to berth at the dock. In the background, the 16th century Friday Mosque.

It wasn't all work and no play - here Steve, G3VMW; Justin, G4TSH; George, 5B4AGC; and Steve, G4JVG, enjoy ice-cold beer.

SPONSORS OF D68C

Corporate: Amateur Radio

Array Solutions, Cable Experts, *CQ Ham Radio* Japan, Cushcraft, *The Daily DX*, Dog Park Software, Dunestar, Force 12, *Funk Amateur*, Linear Amp UK, Martin Lynch & Sons, Nevada, Patcomm, UK Radiocommunications Agency, Titanex, Vibroplex, World Space, Yaesu.

Corporate: Non Amateur

Air Mauritius, Bass Take Home, Le Galawa Beach Hotel, London Business School, Parfetts, Sofitour, States of Guernsey Tourist Board, Steelhead Design (Exeter).

DX Groups and Radio Clubs

Akita DXA, Alamo DX Amigos RC, Arkansas DXA, British Amateur Radio Teledata Group, Chiltern DX Club (CDXC), Clipperton DX Club, Danish DX Group, Delta DXA, Eastern IOWA DXA, Echelford ARS, Ehime DX Group, European DX Foundation, Far East DXploiters, Fort Wayne DXA, German DX Foundation, GM DX Group, Guernsey ARC, Horndean & Dist ARC, Kermadec DXA, Lone Star DX Group, M2000A Team, Magnolia DXA, Nara DXA, North California DX Foundation (NCDXF), Northeast Wisconsin DXA, Northern Ohio DXA, OHDXF, Oklahoma DXA, Osaka DX Lovers Group, Racal Amateur Radio Club, Reading & District ARC, RSGB DXpedition Fund, RSGB IOTA Committee, Shiga DXers (Japan), Six Meter International Radio Klub (SMIRK), Southeastern DX Club, Virginia DXCC, Western New York DXA.

Individual Sponsors

CN8WW, DJ9ZB, G0WAT, G3JNB, G3URA, G3YMC, G4EAG, G8FXX, GM0IRZ, JA3AAW, JA3CSZ, JA3EOP, JA7FWR, JA7JHT, JA7MFL, JA7QQQ, JA7RHJ, JA7SN, JA7XVZ, JE3AGN, JE3USO, JE7RJZ, JG3KFM, JG7AMD, JG7LQU, JH3OTS, JH7BZR, JH7NPF, JR1VAY, JR7FBR, JR7HAN, JR7JPC, JR7VHZ, JR7WFC, JR7XKN, JS3CTQ, K8ME, KO4RR, N7MQ, VK5WO, VK6LC, WA4OBO.

Sponsors of Young Amateur of the Year

BAE Systems, Harlow & District ARS, Johnson Stevens Agencies, Nortel Networks, Raytheon.

To each and every one, the organisers of the D68C DXpedition are extremely grateful.

records, it would take a super-human effort to best the levels that they have set from Comoros. Congratulations to the Five Star DXers." (the *QRZ DX* bulletin).

"D68C has set the standard that all future DXpeditions will aspire to." (a K0).

"'Amazing signals' said the D68C operator this afternoon when I worked them using 200mW to my 2m collinear on 12m! If nothing else, this DXpedition has shown me how much better my 2m antenna is for 12m than anything else I've got!" (a G3).

"Best darn DX operation ever in my 23 years as a ham! I don't think anyone will ever beat your records! Could you guys go to VU4 or P5 next?" (a W3).

A slide show is being produced for radio club talks. Interested club officers should contact Neville, G3NUG (QTHR), who will try to arrange for one of the team members to give a talk. Anyone who made a contact with D68C who wishes to receive a QSL card should please QSL to Phil Whitchurch, G3SWH (QTHR), either direct with an SASE or via the bureau. SWLs may QSL to Bob Treacher, BRS32525 (address on page 84).

If this article has whetted your appetite for DXing, please contact CDXC [1]. If you think you may wish to give DXpeditioning a go youself, some good advice appears in the *Amateur Radio Operating Manual* [4], and, in more detail, in [2].

REFERENCES

[1] CDXC membership is open to anyone with an interest in HF DXing. For further details please contact the Secretary, Shaun Jarvis, M0BJL, 11 Charnwood Way, Langley, Southampton, Hants, SO45 1ZL, or e-mail: m0bjl@btinternet.com

[2] *DXpeditioning Behind the Scenes*, edited by Neville Cheadle, G3NUG, and Steve Telenius-Lowe, G4JVG. Available from RSGB Sales (see page 86).

[3] 'Working D68C - a How To Guide', by Neville Cheadle, G3NUG, and Don Field, G3XTT, *RadCom*, February 2001.

[4] *Amateur Radio Operating Manual* (5th edition), edited by Ray Eckersley, G4FTJ. Available from RSGB Sales (see page 86).

WWW.

D68C: www.dxbands.com/comoros
CDXC: www.cdxc.org.uk
Le Galawa Beach Hotel, Comoros: www.wlh.co.za/ioislands/galawa/galawa-1.htm

A Door-Loop Receiving Antenna

By Ed Chicken MBE, G3BIK*

THE TUNED LOOP HF receiving antennas described here are intended for use indoors such as in a bed-sit or loft, where space is at a premium and the installation of a normal antenna impractical.

The loops are unobtrusive, effective, directional, and very easy to make using inexpensive hook-up wire. The wire loop antenna is simply wound on self-adhesive or self-suction plastic hooks stuck on whichever face of the door is convenient. This method of attachment avoids damage to the door itself, and the hooks can eventually be removed without trace.

Details are given for a range of antennas to cover the full short wave band from 1.5 to 30MHz, and one for the 136kHz LF band. From the details given here, a loop can be selected for and tuned to the frequency band of interest. Also described is a simple but functional loop-signal amplifier, the output from which is taken via coaxial cable to the radio receiver.

ABOUT THE LOOPS

STRICTLY SPEAKING, a 'loop' antenna has but one single turn, whereas a 'frame' antenna has two or more turns. Most of those to be described here are multi-turn and hence are actually 'frame' antennas. However, to call them door-frame antennas might be confusing because they are *not* wound around the door-frame, but on the door-face. So, for this article, they will be called loop rather than frame antennas.

And now to the directivity feature that makes the door-loop antenna unique. The response pattern of a loop antenna is a figure-of-eight similar to that of a dipole, but with one important difference. With a dipole antenna, maximum response is when it is broadside on to the signal, and minimum response when in-line. But with a loop antenna, *minimum* (not maximum) response occurs when it is broadside on to the arriving signal. *Maximum* pick-up of received signal is when the plane of the door is in line with the signal. Similar to the dipole however, maximum and minimum responses are bi-directional. In other words, when a loop antenna is positioned for maximum received signal, the signal could be coming from either of two opposite directions. The same applies to a null.

This means that the all-round response of any loop antenna is obtainable by rotating it through no more than 135 degrees. This is exactly what the door hinges provide free of charge, simply by opening or closing the door to give a nearly complete directional response from signal maximum to minimum. Elegant simplicity? Obviously, the realisable response pattern depends upon the extent of available door swing. A door that can swing through 180 degrees will give a full response pattern, whereas if its swing is restricted to say 90 degrees (as with my own), then the pattern is also restricted, but only marginally, so don't be put off by that.

Here is an novel indoor receiving antenna that will appeal to SWLs and licensed amateurs alike. Mounted on the back of an internal wooden door, its bi-directional response pattern can be rotated by opening the door!

Regarding the diameter of a loop antenna, theory has it that, for optimum performance, the loop diameter must not exceed $\lambda/8$ at the highest frequency in use (ie 1.25m at 30MHz), so the standard domestic door fits that bill nicely. It should be pointed out, however, that these particular door-loop antennas are all of rectangular or square section, not circular, the different geometry being of no practical significance!

Considering now the Q-factor of the loop, the use of thin PVC-covered stranded wire means that the Q cannot be as high as might be achieved by using thicker or more specialised wire such as Litz. In favour of a modest Q, however, the tuning of the loop is not critical, which means that the receiver can be tuned across an entire frequency band without having constantly to re-tune the loop. Furthermore, any loss of signal level due to a lower Q is more than made up for by the signal amplifier to be described later.

Any wire loop, whether it be of one or more turns, constitutes an inductance which would need to be tuned to the frequency-band of interest. No normal tuning capacitor will have a big enough swing to tune any one loop across the entire short-wave band, which means that a range of loop inductance values is required to give the required frequency coverage. The HF loops described here have inductance values in the microhenry range, to be tuned by the 2 x 126pF AM sections of a low-cost miniature AM/FM tuning capacitor of the type used in transistor radios. Note that in this balanced loop arrangement, the two 126pF sections of the tuning capacitor are actually in series (*not* parallel) with the loop, hence the maximum capacitance swing is only 63pF. This limits the tunable frequency range for any one loop, but that could be doubled by using instead a 2 x 500pF tuning capacitor.

One must bear in mind that any loop antenna will have a self-capacitance determined by its dimensions. That self-capacitance, typically a few picofarads, will act in parallel with the loop's inductance to form a resonant circuit which will give the as-yet unconnected loop a self-resonant frequency. When a tuning capacitor is connected across the loop antenna, the loop's self-capacitance will act in parallel with the tuning capacitor, thereby changing its apparent value. So, a knowledge of the self-capacitance value can be useful when calculating the tuning range of a variable capacitor connected across a given loop-inductance. The self-capacitance of these HF loops was measured and found to range from about 6pF to 30pF from smallest to largest loop.

Approximate values of inductance to be expected from loops of different sizes and numbers of turns are shown in **Table 1**, based on the use of 7/0.2mm wire. It will be appreciated that these values can only be approximate because of the

* *Ivy Thorn Cottage, Hepscott, Morpeth, Northumberland NE61 6LQ.*

Loop size (m)	One turn		Two turns		Three turns		Four turns	
	L (µH)	f (MHz)	L (µH)	f (MHz)	L (µH)	f (MHz)	L (µH)	f (MHz)
0.6 x 0.3	2.4	***11.9 - 30.0***	8.0	***6.3 - 13.2***	15.4	4.4 - 8.7	24.3	***3.4 - 6.4***
0.6 x 0.6	3.2	10.2 - 24.3	11.1	5.3 - 11.0	23.0	3.5 - 6.2	39.0	3.0 - 4.3
0.6 x 1.0	3.9	8.6 - 21.2	15.3	5.6 - 8.4	31.0	3.0 - 5.2	52.6	***2.2 - 3.6***
0.6 x 1.75	7.0	7.0 - 16.2	23.1	3.5 - 5.9	47.8	2.3 - 3.6	83.7	***1.7 - 2.7***

Table 1: Showing the frequency ranges to be expected from different sized loops, based on the use of 7/0.2mm PVC-covered hook-up wire and a 2 x 126pF variable capacitor.

differences in door design, but they will be near enough for practical purposes. The tuning capacitor will make up for any modest differences in finished loop inductance.

There is of course no reason why heavier gauge wire such as 16/0.2 or 20/0.2 should not be used, especially for the HF loops as opposed to the 20-turn 136kHz loop, the limit being the size and strength of the support hooks. The inductance (and hence the tuning range) of the finished loop would not be markedly different from that of the thinner wire and the extra cost would be negligible.

CONSTRUCTION

ASSUMING AN average-sized wooden internal door of dimensions 2m high by 0.6m wide, the height of these loops has been restricted to 1.75m, to leave space at the lower part of the door face for the amplifier box and outgoing coaxial cable.

A maximum of twelve plastic self-adhesive or self-suction hooks is needed, the larger the better (especially for the 136kHz loop) because the smaller ones tend to break easily. Such hooks are readily available at very low cost from most hardware shops or street markets.

Refer now to **Fig 1** which shows the hook-method of winding for the loops. Decide which face of the door is to be used for the antenna, then stick the hooks on the door face. The hooks are numbered 1-12 in Fig 1. For HF use, all 12 hooks may be used, but for 136kHz only hooks 1,2,10,11,12 are needed. Be careful to position each hook with its open side facing up or down as shown on the drawing. Hooks 7,8,10,12 are inverted for ease of loop winding. Hooks 9 and 11 serve as fastening points for the wire tails of the various loops (and maybe even as a suspension point for the amplifier).

To decide on a loop size for a given frequency range, use Table 1. The figures in bold italics suggest that the entire short-wave band could be covered with five loop antennas, but that could be reduced to two or three by using instead a 2 x 500pF tuning capacitor. Once this size has been chosen, **Table 2** can be used to recover information about which hooks to use and where to start and finish the loop.

Fasten one end of the wire by a half-hitch or elastic band on the central fastening-hook (9 or 11), leaving a tail of about 75mm, then wind the chosen number of turns around the four hooks given in Table 2, and back to the fastening hook. Again, fasten the wire leaving a 75mm tail as before. Strip back the wire tails and connect them to the loop-terminals on the amplifier assembly. Your first door-loop antenna is now finished and ready for action.

Details of the amplifier for use with the loops are given in **Fig 2**, **Fig 3** and **Fig 4**. It is mounted on the door, together with the tuning capacitor, as shown in Fig 1.

Loop Size		Use hooks	Start/finish at hook number
Width (m)	Height (m)		
0.6	0.3	7, 5, 6, 8	9
0.6	0.6	7, 3, 4, 8	9
0.6	1.0	7, 1, 2, 8	9
0.6	1.75	10, 1, 2, 12	11

Table 2: Information on using the hooks shown in Fig 1 for loops of different sizes.

136kHz DOOR-LOOP ANTENNA

THIS LONG-WAVE antenna is offered as an experimental project. It has been included to embrace the recently-released amateur band where the length of even a quarter-wave antenna would be about 550 metres. But first, a small change needs to be made to the loop-signal amplifier for use at this frequency. Because of the increased reactances of the three 1nF coupling capacitors C4, C5 and C6 at 136kHz, it is necessary to replace them by capacitors of value 10nF. Changes to the tuning capacitor, VC1, are mentioned later in this section.

The antenna consists of 20 turns of 10/0.1mm hook-up wire (equivalent to about four 25m reels) wound on hooks 11, 10, 1, 2, 12, 11, to produce an inductance of about 1.8mH. To tune that 1.8mH to about 136kHz would require an effective parallel capacitance of 750pF. That figure would include the self-capacitance of the loop. Measurements indicate that the very narrow 136kHz band could be covered by using the same 2 x 126pF mini AM/FM tuning capacitor as used with the HF loop antennas, but with a 590pF capacitor soldered across each of its 126pF sections to give a tuning range of approximately 132 - 139kHz. Alternatively, using a 2 x 250pF variable capacitor with 470pF padding capacitors would give a tuning range of about 139 - 145kHz; a range of about 132 - 158kHz is available from a 2 x 500pF variable with 270pF padding capacitors. Swinging the tuning capacitor through its range whilst listening to 136kHz on the receiver would soon let you know if the loop is tuning to that frequency. The noise peak is quite pronounced.

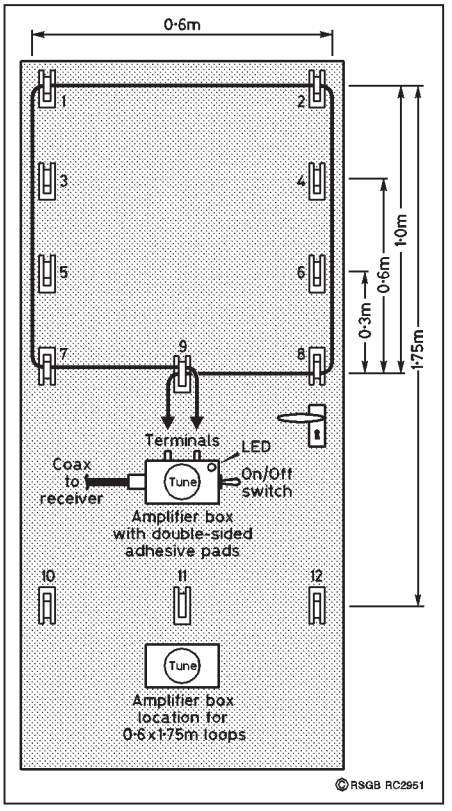


Fig 1: Disposition of hooks, amplifier and tuning capacitor on the side of a standard door.

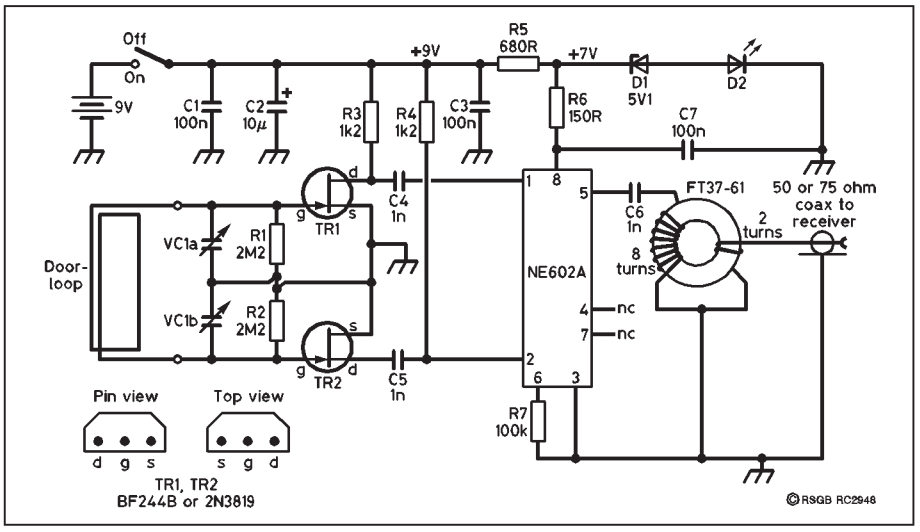


Fig 2: Circuit diagram of the loop antenna and amplifier.
Notes: (a) see Tables 1 and 2 for loop details;
(b) for HF use, VC1a, b = 2 x 126pF variable;
(c) for 136kHz use, VC1a, b = 2 x 500pF variable and C4, 5, 6 = 10nF.

LOOP-SIGNAL AMPLIFIER

THE CIRCUIT DIAGRAM of an HF tuned loop and its signal amplifier is shown in Fig 2. The battery-powered amplifier uses two field-effect transistors in a balanced input configuration. This arrangement preserves the electrical balance of the loop about ground potential, and the high input impedance ensures that the Q-factor of the loop is not unduly damped. The RF gain of the FET input stage is quite low, but this receives a boost from the NE602 integrated circuit to give an overall signal voltage gain of at least 10 (20dB).

Power supply to the amplifier is from a PP3 9-volt battery at about 15mA. The transistors each take about 6mA and the NE602 draws about 2mA. The maximum voltage supply rating for an NE602 is 8V. It is therefore fed from a stabilised 7V supply, derived from the 9V rail by using a 5V1 Zener diode in series with a light-emitting diode. The LED also serves as a battery 'ON' indicator light.

The NE602 is perhaps best known as a double-balanced mixer/amplifier, but in this application its internal local oscillator circuit is made inoperative by R7. The NE602 amplifier then acts in a cascode mode, with an output available at either pin 4 or 5. Either of these pins can be used to give an unbalanced output, with an output impedance of about 1500Ω. This is transformed down to about 50 - 70Ω by means of a toroidal ferrite transformer, so allowing the use of co-axial cable to feed the output signals into a short wave receiver. Although many receivers have a 50Ω antenna input socket, 75Ω TV coaxial cable would be quite suitable.

AMPLIFIER CONSTRUCTION

THE COMPONENT layout for assembly of the amplifier on perforated 0.1-inch matrix stripboard is shown in Fig 3, and also shows where holes should be cut in the copper tracks on the reverse side of the board. The use of a proprietary track-cutter (sometimes listed as a 'Spot Face Cutter') is recommended. It can save a lot of frustration and is a good long-term investment! Alternatively, a 3mm twist drill operated gently between thumb and forefinger works well.

The 4:1 turns ratio (theoretically 5:1 but 4:1 worked better) output matching-transformer is very simple to wind. It consists of an eight-turn primary winding and a two-turn secondary, using single-strand PVC-covered wire such as from telephone cable, wound on a ferrite ring type FT37-61 (0.37-inch outside diameter, number 61 mix).

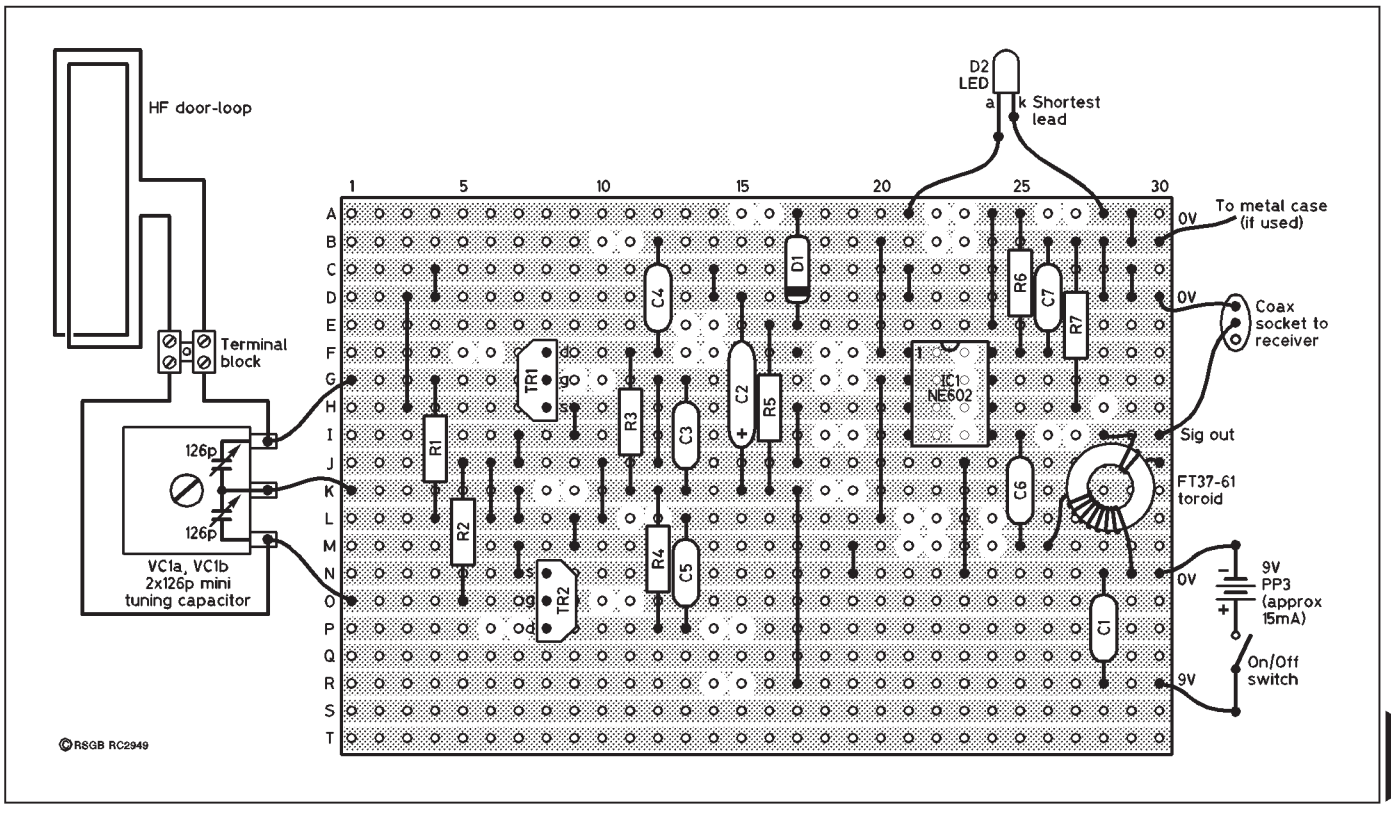


Fig 3: Layout of components on the stripboard, showing connections to off-board components.

KENWOOD TS-2000

TS-B2000

Breathtaking is the word to describe the TS-2000 specification. Whether you operate, SSB, CW, Data modes, FM or AM, and whether you are an HF operator or VHF/UHF enthusiast, you'll find the TS-2000's performance and flexibility unrivalled. This all-band, all-mode transceiver takes the "station-in-a-box" concept to a new high level whilst offering exceptional value for money. What is more, you will never need to buy another filter; the TS-2000 has its own built-in digital filters. You can easily change the shape and bandwidth to suit mode, preference or band conditions. Add to this the DSP audio filtering that offers Beat cancel, CW auto-tune, Noise reduction and transmit audio shaping, and you have one very serious radio. But there's more. Satellite users have 10 dedicated memories and manual control for Doppler shift. And with the optional UT-20 you can monitor any band and any mode, whilst also monitoring VHF or UHF FM/AM signals - even on the same band. For example, you can keep an ear open on the local repeater or call channel whilst hunting the DX. You can even monitor the VHF DX cluster (using the built-in AX-25 TNC) whilst working HF DX, display the information on the screen and ask the transceiver to automatically QSY to the DX frequency. But to really appreciate all the features the TS-2000 has to offer, you'll need the 10-page colour brochure, available from Waters and Stanton by simply phoning 01702 204965.

NOW AVAILABLE AT

WATERS&STANTON

- Frequency: 30kHz-60MHz, 142-152MHz, 420-450, (1240-1300MHz optional)
- Wideband Rx Dealer Mod.
- RF Output: HF/50/144MHz 100W, 440MHz 50W, 1200MHz 10W
- Modes: LSB, USB, CW, FM, AM, FSK
- Independent sub-band 118-174MHz, 220-512MHz (FM/AM only)
- Built-in automatic ATU HF/50MHz (preset memory)
- IF DSP for main-band use
- AF DSP for sub-bands
- Combination of Digital IF filters & IF DSP slope tuning
- Digital IF AGC
- IF Auto-Notch function
- Manual Notch for single wave
- AF beat canceller
- Choice of Noise Reduction - NR1 for SSB, NR2 (SPAC) for CW
- CW Autotuning
- DSP variable demodulation for SSB/CW/FSK/AM
- Built-in TNC (1200/9600bps) For DX Cluster
- Information displayed on LCD
- Electronic keyer system
- Size 270 x 96 x 317mm
- Weight 7.8kg

TS-2000

Waters & Stanton PLC, Spa House, 22 Main Road, Hockley, Essex SS5 4QS.
Telephone: 01702 206835 Fax: 01702 205843 E-mail: sales@wsplc.com
Also at Chesterfield Rd, Matlock, Derbyshire Tel: 01629 582380

ALINCO

WORK THE WORLD WITH ALINCO!

QUALITY – INNOVATION – STYLE

Mobiles

DR135E

Voice/data mobile 144MHz transceiver

Large alphanumeric display, up to 7 character • 100 memory channels • conventional or narrow FM modes • great for APRS operations • ignition key on/off feature • front panel data/GPS/theft alarm/wire cloning port • rear panel computer port • theft alarm feature • four scan modes VFO, memory, CTCSS tone, DCS tone • AM air band reception • Optional EJ-41U TNC can be ordered already installed or added later • choice black or pewter coloured face plate • rugged construction • direct frequency entry from DTMF microphone • new backlit keys on DTMF microphone • autodial memories (10) • instantly switch from voice to data (packet) mode • retains mode and TNC settings through power on/off cycles • easy to operate

£235.95

DR610E

144/430MHz FM Dual band TX

RF attenuator • multiple scan functions • S meter squelch function • time out timer • automatic power off • 1200/9600 packet compatible • remote control via optional DTMF mic • internal duplexer • DTMF squelch function • AM airband receive • 120 memories + 2 call channels

£399.95

DR605E

144/430MHz FM Dual band TX

Cable cloning with other DR-605 units • channel only display mode • 9600 bps packet port • scanning functions • large heat sink does away with need for ventilation fan • external speaker port • CTCSS encoder (50 tones) decoder (optional EJ-24U) • output 144MHz 50W/430MHz 35W • 100 memories + 2 call channels

£299.95

DRM03SX

FM mobile transceiver

100 memories, plus a call channel • 10W/ 1W output power • CTCSS encoder (50 tones) decoder (optional EJ-20U) • adjustable repeater offset for each memory channel • T.O.T. time out timer

£239.95

DRM06TH

50MHz FM mobile TX

100 memories, plus a call channel • 20W/ 2W output power • CTCSS encoder (50 tones) decoder (optional EJ-20U) • adjustable repeater offset for each memory channel • T.O.T. time out timer

£249.95

HF

DX70TH

HF/50MHz All mode TX

Transmit on all HF + 50MHz amateur bands, SSB, CW, AM and FM • general coverage receiver 150kHz-30MHz, 50MHz-54MHz, all modes • built-in speech compressor • QRM/QRN reduction with IF shift, RF attenuator • 100 memory channels, each stores mode, sprit, frequency, AGC RF attenuation or gain • Two VFO's + memory operation • rear panel connector for external amplifier, antenna, power • noise blanker • all mode squelch • quick offset • Rit (Receiver Incremental Tuning) • high/low power setting control • two scan modes • separate antenna terminals for HF and 6m • RF gain/attenuator control • dial lock • CTCSS for 10m and 6m repeater operation(TH)

£699

DX77E

Desktop HF transceiver

Transmit on all HF amateur bands, SSB, CW, AM, FM • general coverage receiver 500kHz - 30MHz, all modes • 100 watts output SSB, CW and FM /40 watts AM • smooth tuning of 10Hz steps • built-in speech compressor • front panel mounted speaker with loud, clear audio • QRM/QRN reduction with IF shift, RF attenuation and optional CW filter • 100 memory channels, each stores mode, sprit, frequency, AGC RF attenuation or gain • rear panel connector for external amplifier, antenna, power and computer • Rit (Receiver Incremental Tuning) • high/low power setting control • dial lock • DDS

£599

NEVADA®

DISTRIBUTION DIVISION

- fax: 023 9231 3091
- e-mail: info@nevada.co.uk
- website: http://www.nevada.co.uk
- Unit 1 • Fitzherbert Spur • Farlington
- Portsmouth • Hants • PO6 1TT

ORDER HOTLINE
023 9231 3090

430MHz Handhelds

DJS41E

430MHz FM handheld transceiver
Output - 500mW • 20 memories • CALL channel • 1750Hz tone burst • 39 CTCSS tones encode and decode • scan VFO or memories • key lock function • S meter • low battery indicator

OPTIONS - EME-4 earphone • EME-12 headset with vox (earpad type) • EME-13 headset with vox (earphone type) • EME-15 tie-pin earphone mic with vox • EMS-9 speaker mic • EBP-25N NiCad battery pack • EDH-18 car lighter adaptor and voltage convertor • ESC-27 soft case • EBC-6 mobile bracket

£99.95

DJ496E

430MHz FM handheld transceiver
Output - 4 watts (with EBP-48 battery) or 5 watts (13.8 VDC input) • memory - 40 channels + CALL • speaker mic/clone and external power jacks • scans VFO or memory channels • illuminated display and front panel keys • CTCSS (encode/decode/39 codes) • tone burst (1000.1450.1750 and 2100Hz) • S meter • theft alarm • EBP-48N & EDC96 Charger supplied as standard

OPTIONS - EBP-48N 9.6V 700mAh high output Nicad battery • EBP-50N 9.6V 700mAh high output NiMH battery • plus lots more

£175.95

Dual Band Handhelds

DJC5

144/430MHz FM dual band handheld
Output - 300mV • 144MHz +430 band coverage • 50 memory channels, plus two CALL channels • each memory capable of non-standard split operation • 600 mAh internal Lithium-ion battery • internal speaker • CTCSS encode and decode • user selectable tone bursts of 1750, 2100, 1000 and 1450Hz • battery save feature • cable cloning capability • clear plastic case included • 'snap-in' charger included

OPTIONS - EMS-50 speaker mic • EME-2 tie-pin earphone/mic • EDC-36 car charger cable for use with EDH-26 charger tray • EDS-7 conversion cable • EMS-9 speaker mic* • EME-4 earphone/mic* • EME-16 tie-pin/ earphone mic* • plus lots more • *requires EDS-7

£189.95

PMR 446 - Licence Free Radio
Call for more details on Alinco's range of PMR radios and accessories

DJV5E

144/430MHz FM dual band handheld
Alphanumeric display, up to 6 characters • 200 memory channels • up to 5 watts output, 3 output settings • CTCSS encode + decode, DTMF squelch and 4 different European Tone Bursts • accepts up to 13.8 VDC direct input • 4 scan modes, 5 programmable scan banks • input voltage display with over voltage warning • autodial memories • automatic high temperature protection feature • standard high power 700mAh NiCad battery pack and charger • SMA antenna connector • eight different tuning steps

£225.95

DJG5EY

144/430MHz FM dual band handheld
Up to 5 watts output depending on battery selection or direct voltage input • H/M/L output power settings • ergonomic design • large, top-mounted speaker • electronic volume and squelch controls • cross band repeater capability (T) • aircraft band receive • drop-in charger included with NiCad models • over the air cloning function (with other DJ-G5 radios) • built in CTCSS tone encoder and decoder (50 tone)

OPTIONS - EME-12 vox headset • EME-13 vox mic/earphone • ESC-28/29 soft cases • plus lots more

£289.95

144MHz Handhelds

DJS11E

144MHz FM handheld transceiver
Output - 500mW • 20 memories • CALL channel • 1750Hz tone burst • 39 CTCSS tones encode and decode • scan VFO or memories • key lock function • S meter • low battery indicator

OPTIONS - EME-4 earphone • EME-12 headset with vox (earpad type) • EME-13 headset with vox (earphone type) • EME-15 tie-pin earphone mic with vox • EMS-9 speaker mic • EBP-25N NiCad battery pack • EDH-18 car lighter adaptor and voltage convertor • ESC-27 soft case • EBC-6 mobile bracket

£99.95

DJ193E

144MHz FM handheld
Output - 5 watts with standard battery • memory - 40 channels + CALL • speaker mic/clone and external power jacks • scans VFO or memory channels • illuminated display and front panel keys • CTCSS (encode + decode 39 tones) • DCS (encode + decode 104 codes) • Tone bursts (1000.1450.1750 and 2100Hz) • S meter • theft alarm • EBP-48N & EDC96 Charger supplied as standard

OPTIONS - EPB-48N 9.6V 700mAh high output NiCad battery pack • EDC-36 car lighter cable with filter • EDC-43 car lighter cable • EMS-9 speaker mic • plus lots more

£139.95

DJ195E

144MHz FM handheld
Output - 5 watts with standard battery • memory - 40 channels + CALL • speaker mic/clone and external power jacks • scans VFO or memory channels • illuminated display and front panel keys • CTCSS (encode + decode 39 tones) • DCS (encode + decode 104 codes) • Tone bursts (1000.1450.1750 and 2100Hz) • S meter • theft alarm • EBP-48N & EDC96 Charger supplied as standard

OPTIONS - EPB-48N 9.6V 700mAh high output NiCad battery pack • EDC-36 car lighter cable with filter • EDC-43 car lighter cable • EMS-9 speaker mic • EMS-47 speaker microphone with volume control • ESC-36 soft case • EME-17 earphone mic •EMS-51 miniature type speaker microphone • plus lots more

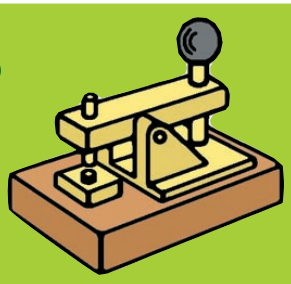
£159.95

ALINCO - RUGGED - GOOD LOOKING - SUPER VALUE!

Nevada - UK Distributors for Alinco products

DEALERS!
for further details contact
our TRADE DEPARTMENT
Phone:
Intl: +44 (0)23 9231 3095
Fax:
Intl: +44 (0)23 9231 3091

NORTHERN IRELAND'S FIRST 5WPM MORSE CAMP



DON'T MISS YOUR CHANCE

A Morse Camp for Northern Ireland will take place at the University of Ulster, Jordanstown Campus, Shore Road, Newtonabbey on SATURDAY 30th JUNE and SUNDAY 1st JULY 2001 from approximately 9.00am to 6.00pm each day.

The complete package includes: 5WPM self-assesment tape, pre-event practice and tips; Group and individual tuition from expert instructors; Free tea and coffee.

The cost of the full weekend will be £15 for members (£20 non-members) plus the standard fee of £15 for the 5WPM test. There will be a maximum of 30 places on this weekend event, which will be the only Morse Camp in Northern Ireland during 2001. Places filled on a first come first served basis irrespective of whether or not you are an RSGB member.

Other Morse Camp Dates:

26/27 May	Harrogate Ladies' College, Yorks
9/10 June	RSGB HQ, Potters Bar, Herts
27/28 October	Harrogate Ladies' College, Yorks

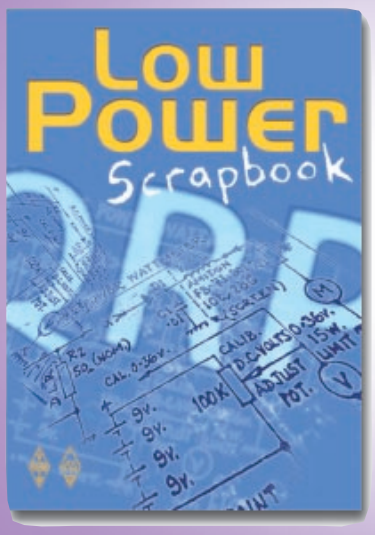
If you are interested, please contact the AR Department at RSGB HQ for an application form. Tel: 0870 904 7373. E-mail: ar.dept@rsgb.org.uk

---

GREAT NEW PUBLICATIONS FROM THE RSGB

Low Power Scrapbook

The G-QRP Club are renowned as the leaders in Low Power and this book contains 133 of the very best projects from the Club's magazine Sprat. This book is 320 pages of the original material, brought together in a handy A5 book.



Choose from dozens of simple transmitter and receiver projects for the HF bands and 6m, including the tiny Oner transmitter and the White Rose Receiver. Sample the many VFOs, tuners, accessories and antennas on offer. Learn from the construction techniques of experienced constructors.

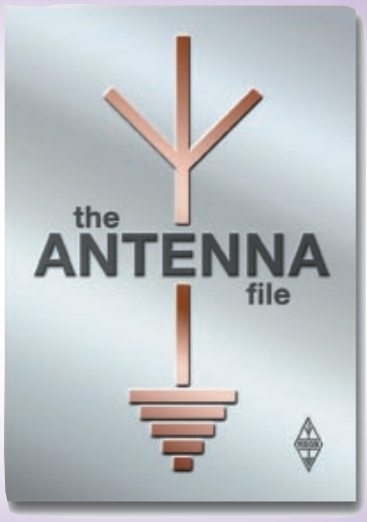
Ideal for the experimenter or someone who likes the fun of building and operating their own radio equipment.

A5 publication

ONLY £11.04 + p&p
(non-members) £12.99

The Antenna File

The Radio Society of Great Britain produces some of the best works on antennas and this is a collection of that work from the last ten years. This book contains 288 pages of articles drawn from the Radcom magazine and includes:



- 50 HF antennas, 14 VHF/UHF/SHF antennas, 3 receiving antennas, 6 articles on masts and supports, 9 articles on tuning and measuring, 4 on antenna construction, 5 on design and theory, and 9 Peter Hart antenna reviews.
- Every band from 73kHz to 2.3GHz
- Beams, wire antennas, verticals, loops, mobile whips and the G2AJV Toroid

In fact everything you need to know about antennas and how to get the best out of them.

A4 publication

ONLY £16.14 + p&p
(non-members) £18.99

www.rsgb.org/shop or Tel: 0870 904 7373

A twin section of screw-type electrician's terminal block is used for the loop connection. The finished board and its external components could be fitted into any convenient metal or plastic container, although it must be said in truth that in my own set-up, the amplifier assembly was left uncased and simply suspended from the loop's central fastening-hook... and it worked fine! If a metal box is used, be sure to strap the metal to the 0-volt rail of the board.

The miniature tuning capacitor can be mounted on the front panel of the box, with its spindle protruding. Two M2.5 fixing screws are required. Some tuning capacitors are sold complete with an extension spindle to accommodate a standard knob, which should be fitted. A tuning dial is not really necessary, because the loop antenna will simply be tuned by ear (or S-meter) for maximum signal strength on the frequency band in use.

A Belling-Lee (TV type) coaxial plug and socket would be suitable at the amplifier end of the coaxial cable, but a plug to suit the receiver's antenna socket should be fitted to the other end. Although its length is not critical, the coaxial cable should be kept as short as possible.

The finished box can be secured to the door face by means of double-sided adhesive tape or pads, just below the loop's fastening-hook, or maybe even just hung on the hook itself!

USING LOOP ANTENNAS

SIMPLY CONNECT the coaxial cable between the loop-signal amplifier and the short-wave receiver's antenna socket, switch on the amplifier, tune the receiver to the frequency band appropriate to the loop antenna, and adjust the loop's tuning capacitor for maximum signal or noise level in the receiver. You can now use the receiver anywhere on that band without having to tune the loop again. If needs be, try opening and closing the door to peak the loop on any selected signal, or perhaps to minimise an interfering signal. ♦

FURTHER READING

'An Introduction to Variable Tuned Circuits', G3PMJ, *RadCom* March 2001, pp34/35.
Backyard Antennas, by Peter Dodd, G3LDO (RSGB Shop).
HF Antennas for All Locations, by Les Moxon, G6XN (RSGB Shop).
Practical Antennas for Novices, by John Heys, G3BDQ (RSGB Shop).

A note for the academic experimenter: although classical theory states that inductance is directly proportional to the number of turns squared ($L \propto N^2$), experience with these loops suggests that the power of N is nearer 1.8 than 2 ie ($L \propto N^{1.8}$ not N^2). That might not seem much of a difference but take, for example, the 0.6m x 1.75m loop antenna whose 1-turn inductance was measured at 7µH. Now for this 20-turn loop of the same dimensions, its inductance should be

$$7\mu H \times N^2 = 7 \times 20^2 = 7 \times 400 = 2800\mu H,$$

compared with the measured value of 1800µH. This would equate to

$$7\mu H \times N^{1.853} = 7 \times 257.5 = 1802\mu H.$$

You would need to use the x^y function on a scientific calculator to check this. However, armed with that knowledge, it becomes easy to calculate what the inductance would be for a different number of turns on any one of the loops.

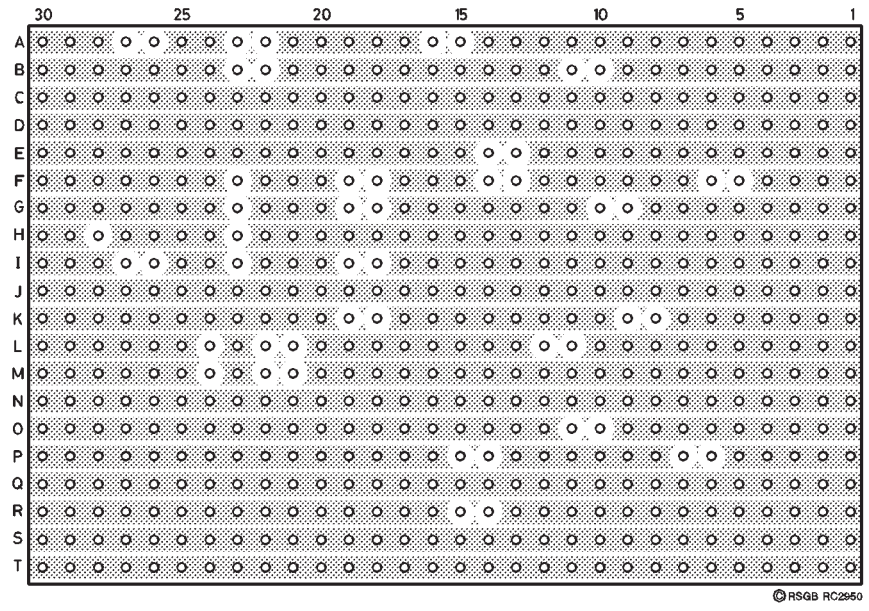


Fig 4: Showing the track-cutting positions from the track side.

COMPONENTS LIST

Resistors

R1, 2	2M2
R3, 4	1k2
R5	680R
R6	150R
R7	100k

Capacitors

C1, 3	100nF, ceramic
C2	10µF, electrolytic 25V
C4, 5, 6	1nF, ceramic (10nF for 136kHz use)
VC1a,b	2x126pF miniature AM/FM variable capacitor, eg Maplin AB11M

Semiconductors

D1	5V1 Zener diode
D2	Light emitting diode, red
TR1, 2	BF244B FET
IC1	NE602A or SA602AN, double-balanced mixer

Additional Items

12 off	Self-adhesive/suction hooks
2 off	Screw M2.5 x 6mm
1 off	8-pin DIL socket
4 off	25m reel 10/0.1mm light duty connection wire
2 off	10m pack 7/0.2mm hook-up wire
1 off	Strip 2A terminal block, screw type, eg Maplin FE78K
1 off	Ferrite ring type FT37-61
1 off	Vero stripboard, 0.1in hole spacing, 30 x 20 holes
1 off	Switch, SPST miniature
1 off	PP3 battery
1 off	Connector for PP3 battery
1 off	Belling-Lee coaxial plug and socket

WHATEVER NEXT

STEVE WHITE, G3ZVW
31 Amberley Road, London N13 4BH.
e-mail: steve.white@rsgb.org.uk

I REMEMBER my first modem well; it was a US Robotics Sportster 14.4K. I remember just as well how I felt when, a few months after buying it, 28.8K modems hit the market. Anyone who bought one of those would probably have been about as happy as I was when, a short time after that, 56K modems were released.

56K is just about the limit that the Public Switched Telephone Network (PSTN) can handle, because the bandwidth is limited to about 3kHz, so that is where most of us have stuck for some time. If you want a higher rate of transfer you have to look at alternatives such as ISDN (which uses two telephone lines) or Digital Subscriber Line (DSL) type technology, each of which involves additional equipment at the exchange end of the local line. For areas where cable TV exists, there are so-called 'cable' modems.

A FASTER MODEM

NOW, NORTEL Networks are introducing their 1-Meg modem into the international marketplace (it has been available in North America for some time). It is aimed at high-end residential customers, telecommuters, and small-to-medium-sized businesses.

Offering data rates of 1.3Mbps downstream and 320Kbps upstream, it is 17 times faster than 56Kbps analogue modems and almost eight times faster than ISDN. It operates without a splitter or home rewiring, and modems are easily installed by the customer (which eliminates the need for an at-home service call).

As with other 'fast' modems, additional equipment is required at the telephone exchange. This means that it will *not* simply be a case off buying a 1-Meg modem and plugging it in; it will become part of a package offered by the local telecommunications company.

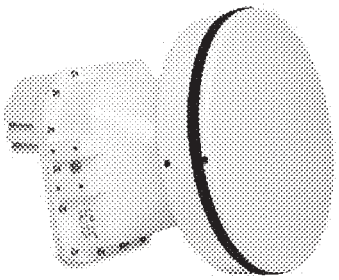
The limitation of the Nortel Networks 1-Meg modem is that the signal has a limited distance of travel before it degrades too much. Basically, if there is no more than about three miles of copper between the point of delivery and the local telephone exchange, it should work.

BROADBAND MICROWAVE ACCESS

IF THE 1.3Mbps data rate of Nortel Networks' 1-Meg modem doesn't sound enough, how does 155Mbps sound?

Point-to-Multipoint (PtMP) systems are similar in design to both cellular and narrowband wireless local loop systems, employing a wireless cell covering a specified geographical area of typically a 2 to 5km radius to deliver communications services to subscribers within that cell area. The bandwidth of these connections range from 64Kbps to 155Mbps, and part of the equipment at the customer end of the proceedings is shown in the photo below.

Nortel Networks' Internet BWA System 5000 Series enables telecommunication operators to take advantage of high-frequency allocations (24GHz to 38GHz) to deliver high-speed, high-density and multimedia services to new and existing customers with short lead times, low cost and simple deployment. **Fig 1** shows what else is going on in that part of the frequency spectrum. To provide consistency and congruity with wired networks, the Internet BWA System 5000 Series architecture is designed to support Asynchronous Transfer Mode (ATM). The ATM cell structure allows two-way transmission of mixed media - such as voice, data, and video - with adaptive layering to maximize the integrity of each medium.



The CTR (Customer Transceiver), part of the Internet BWA System 5000, consisting of a 24 - 38GHz integrated radio transceiver and 14in dish antenna.

Part of the Internet BWA System 5000 is the Customer Transceiver (CTR - pictured above), an integrated radio transceiver and 14in dish antenna designed to operate in a wide array of microwave frequencies ranging from 24GHz to 38GHz. It is responsible for receiving and transmitting Point-to-Multipoint transmissions to and from the base station and is intended for location outdoors at the customer site, mounted on a pole, building or residential rooftop. The combined configuration eliminates the expensive waveguide runs that are usually associated with separate microwave radio and antenna configurations, and provides better transmission and reception while minimising signal and power loss. To quote the Nortel publicity material, "It has been designed to operate in the harshest of environments, with a -40ºC to +55ºC operating temperature performance and a rugged weatherised construction that guarantees performance even in the most demanding climates of the world . . . By employing advanced Monolithic Microwave Integrated Circuits (MMIC) technology, Nortel Networks has created a CTR that is compact and lightweight with low noise emissions, making it an excellent solution for deployment in sensitive environments." The maximum transmit power is 23dBm for QPSK and 20dBm for 16-QAM, resulting in a maximum EIRP of 59dBm for QPSK and 56dBm for 16-QAM (antenna gain is 36dB).

Conspicuously, the Nortel

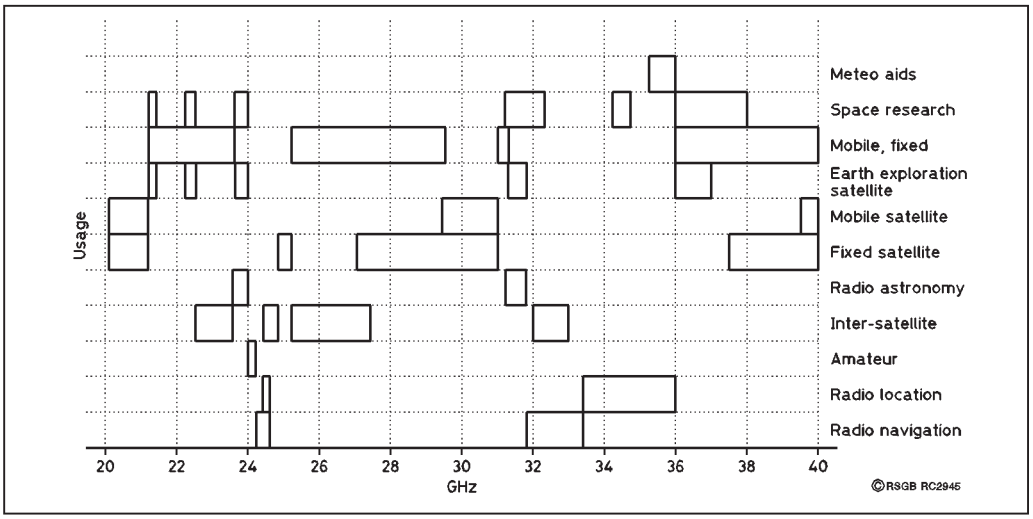


Fig 1: An overview of the allocation of the frequency spectrum between 20 and 40GHz. Note the small but exclusive amateur allocation at 24GHz.

publicity doesn't mention access to individual houses, concentrating instead on serving large corporations, small to medium-size business, or multi-tenant dwellings. However, it strikes me that as the general public demand more and more (and higher bit rate) telecommunication services, PtMP could be the ideal platform for delivering them. Way up in the GHz part of the spectrum, the potential for interference to and from existing radio services (broadcast, amateur, public services, etc) should be a lot less than at, say, MF or HF.

HOW MANY?

CONTINUING ADVANCES in the methods of production have enabled semiconductor manufacturers to etch components smaller and smaller. This means less heat that needs to be dissipated, which in turn leads to the design and production of integrated circuits containing yet more devices. The Intel Pentium 4™ processor contains as many as 20 million transistors, and now comes the news of a new generation of microprocessor from Intel. Called the Itanium™, it is a 64-bit processor that contains approximately 350 million transistors.

ANY USE TO US?

DOLBY NOISE REDUCTION is something that practically everyone with a cassette deck in their hi-fi will be familiar with, but it is just one of many innovations that have come out of Dolby Laboratories. Dolby Digital Headphones is a new innovation that makes a standard pair of stereo 'cans' sound like surround sound speakers. It occurred to me that such a system could be of use to radio amateurs, perhaps in the reception of Morse on a crowded band.

I would very much like to hear from anyone who has used such a set-up for listening to Morse, to discover if it did indeed make life any easier.

	Double Density CD	Conventional CD
Data Capacity	1.3GB (2048B/sector)	CD-ROM (Mode1)/-R/-RW: 650MB (2048B/sector)
Wavelength	780nm	
Objective Lens	Playback: NA = 0.50	Playback: NA = 0.45
	Record/Playback: NA=0.55	Record/Playback: NA=0.50
Disk Size	Diameter: 120mm Thickness: 1.2mm	
Track Pitch	1.1µm	1.6µm
Minimum Pit Length	0.623µm	0.833µm
Scanning Velocity	0.90m/s	1.2- 1.4m/s
	(multiplies according to drive speed)	
Error Correction	CIRC7	CIRC
Modulation	EFM	

Table 1: Basic specifications of conventional and Double Density CD-ROM/-R/-RW formats.

MINE OF INFORMATION

AT SOME STAGE I was going to discuss the possibility of using an MP3 player as a voice keyer (eg for contesting), but news of the following product encourages me to believe that a somewhat more comprehensive outboard voice keyer could be implemented.

The Terapin Mine is a portable multi-use storage device, about the size of a VHS videotape (see photo below). It features an internal 10 or 12GB hard disc and does so much that it is difficult to fit it into one category of device. Terapin describe it as a data bank, digital player, Internet link, network device, and "your complete digital information manager like nothing anyone has seen."

The Terapin Mine, a data bank, digital player, Internet link, network device stores digital audio, digital images and just about any other kind of data you can imagine.

A USB port and Ethernet capability (plus an optional wireless LAN PCMCIA card, shown plugged into the top of the Mine in the photo) permit it to connect to other machines, and a headphone output enables the user to listen to MP3 or audio files whilst on the move. Power is derived from internal batteries or an AC adapter. It is the analogue (headphone) audio output that leads me to think that contest logging programs such as *SD* or *TR* should be adaptable enough (perhaps through modification) to interface via this device to provide a comprehensive voice keyer. Clearly it would be possible to implement a simple voice keying function, such as a CQ call, by recording yourself via a sound card in your PC, copying the file to the Mine, then pressing a button.

The Mine is due to become available in mid-2001, but with a price tag of about US$500, I expect it will be a while before we see a lot of them. What the Mine could do though is cause the price of MP3 players to drop, making them not much more than the price of a pocket tape recorder. In that case I would expect enterprising and innovative amateurs to start experimenting with using MP3 players as voice keyers, perhaps controlling them from the logging computer.

I would be very interested to share information from anyone who has used an MP3 player as part of their amateur radio activities.

DOUBLE DENSITY CD

THROUGHOUT HISTORY there have been instances where technology has advanced by the adaptation of an existing format into something a bit better. Certainly this was the case when the 5.25in 360kB floppy disk evolved into the 1.2MB, and again when the capacity of the 3.5in floppy disk was upped from 720kB to 1.44MB. Recently, Sony and Philips have been working on a project that could result in Compact Disc going much the same way.

Double Density CD is designed to provide a natural migration path for both consumers and manufacturers alike, as the new format offers a low-cost solution to high capacity discs that inherit the basic specifications of existing CD formats. This allows manufacturers to utilise their current CD technologies and production facilities to manufacture Double Density CDs.

As **Table 1** shows, Double Density CD formats' high capacity is achieved by a few simple modifications to the existing CD format. To increase data density, track-pitch and minimum pit length are reduced to increase the data capacity from 650MB to 1.3GB. To accommodate this higher physical bit density, a parameter in the error-correction scheme has been changed, and the address format has been expanded. A copy control scheme will also be included in the format, to meet the increasing demands for secure content protection.

According to reports, DDCD drives and media should not cost much more than current CD-RW drives and media. However, in light of the 1TB potential of the Fluorescent Multilayer Disc that was mentioned in this column last month, I wonder whether the 1.3GB capacity that DDCD offers is going to be enough to make it attractive? ♦

If there is an item of new technology you would like to know more about - or one that you know about and think ought to be mentioned here - drop a line to the author, or e-mail him at the address at the start of the feature.

WWW.

Dolby Digital Headphones	www.dolby.com
Terapin Mine	www.mineterapin.com
Double Density CD	www.cdrinfo.com/articles/doubledcd/index.shtml
PtMP	www.nortelnetworks.com/products/01/bwa/pmp/index.html
1-Meg modem	www.nortelnetworks.com/products/01/1mm/fandb/fandb_nonamerica.html

TEL: 01268 752522 ESSEX AMATEUR RADIO SERVICES

4, Northern Ave., Benfleet, Essex SS7 5SN E-mail: ears97@cableinet.co.uk Web: www.ears97.com

For All Your Communication Needs New / Pre Owned We Give The Best Deals Mail Order Next Day Delivery From People You Can Trust

ICOM	
IC 781 flag ship	£1,899.00
IC 756 PRO	£1695-00
IC 756 HF+6M+ATU	£895.00
IC 756 HF+6M+ATU	£775.00
IC 706IIG HF /2/6/70	£799.00
IC 706II HF /2/6/70 DSP	£695.00
IC 706II HF /2/6/70	£625.00
IC 735 HF	£395.00
IC 725+FM HF	£325.00
VHF/UHF	
IC 575H 6m/mode 100 watt	£595.00
IC 821H 2m/70cm m/mode	£795.00
IC 207H 2m+ 70cm	£249.00
IC 2100H 2m	£165.00
IC T8E 2m + 70cm	£195.00
IC T7E 2m + 70cm	£150.00
IC 32E 2m + 70cm	£165.00
IC 21ET 2m +70cm	£150.00
IC 21E 2m + 70cm	£125.00
IC 2GXET 2m	£75.00
IC Q7E 2m +70cm	£169.00
YAESU	
FT1000MP/AC/COLLINS/FILTERS	£1,399.00
FT 847 HF/2/6/70	£895.00
FT 100 HF/2/6/70	£699.00
FT 817 HF/26/70 PORTABLE	£799.00
FT 817 HF/26/70 PORTABLE	£699.00
FT 900 AT	£596.00
FT 890 AT	£595.00
FT 840 + FM	£499.00
FT 757GX II	£295.00
FT 757GX I	£195.00
VHF/UHF	
FT 726 2M+ 6M M/MODE BASE	£395.00
FT 8000 2m + 70cm	£195.00
FT 4700 2m + 70cm	£195.00
FT 90R 2m + 70cm	£279.00
FT 2600 2m	£130.00
FT 3000M 2m	£200.00
FT 2200 2m	£150.00
FT 50R 2/70	£150.00
FT 530 2/70	£150.00
VX 5 R 2/70	£235.00
VX 1 R 2/70	£125.00
FT11R 2m	£90.00
FT41R 70cm	£90.00
KENWOOD	
TS 950SD HF	£995.00
TS 2000 HF/6/2/70cm	£1,599.00
TSB 2000 HF/6/2/70cm	£1,499.00
TS 870 S HF	£995.00
TS 850 SAT HF	£695.00
TS 570 DGS HF/ 6m	£795.00
TS 570 DGE HF	£699.00
TS 450 SAT HF	£550.00
TS 50S HF	£400.00
VHF/UHF	
TS790E 2m+70cm BASE M/M	£795.00
TS711E 2m M/MODE BASE	£395.00
TR 751E 2m + 70cm M/MODE	£325.00
TMD700E 2m + 70cm	£365.00
TM 455E 70cm M/M	£350.00
TH 79 E 2/70	£175.00
TH G71E 2/70	£175.00
TH 42E	£90.00
TH 26E	£50.00
ALINCO	
DX 70 TH HF + 6m 100W	£499.00
D X70T HF + 6m	£395.00
DR 605 2/70	£195.00
DR 430 70cm 35WATTS	£150.00
DJ 195	£95.00
DJ 190	£80.00
DJ 191	£95.00
DJ 480	£65.00
DJ 460	£50.00
DJS1E	£50.00
DJG1E	£50.00
ADI	
AR146	£165.00
AT600	£90.00
AT400	£65.00
AT450	£65.00
AT200	£65.00
LINERS	
ICOM PW 1 HF/6m	£2,600.00
YAESU FL 2100Z 1kw	£395.00
DENTRON MLA 2500B2KW	
Eimac 8875	£695.00
KW 600 400watts HF	
Single 572B	£225.00
ATU+ASS	
AEA 300 ATU	£125.00
MFJ 269 ANALYZER	£250.00
MFJ 989C 3kw	£275.00
MFJ 962C 1.5kw	£150.00
MFJ 949 300+D/LOAD	£139.00
MFJ 948 300W	£115.00
MFJ 971 m/atu	£80.00
MFJ 901B	£75.00
AT 180 ICOM	£295.00
AT 50 KENWOOD	£195.00
FC 1000 AUTO/ATU	£175.00
TOKYO HC400L	£100.00
PSU	
SEC1223 23amp compact	£80.00
NISSEI 30 AMP MTERS ETC	£99.00
Manson 30 amp	£89.00
SMC 35AMP PSU	£125.00
MICS	
KENWOOD MC 85	£85.00
ICOM HM 77	£50.00
ICOM HM 70	£25.00
ICOM HM 46	£30.00
ADDONIS AM 803	£75.00
YAESU MD 100	£65.00
RECEIVERS / SCANNERS	
ICOM 72E ac new + FM	£399.00
KENWOOD R 5000	£495.00
YAESU FRG 100	£299.00
LOWE 225	£225.00
AOR 3030	£295.00
MVT 9000 MK2	£275.00
MVT 7300	£250.00
MVT 7100	£125.00
ICOM R2	£125.00
ANTENNA	
COMET CF 706 Triplexer	£40.00
VARGARDA 3ele6m	£65.00
YAESU SWR YS 6O 1.8-60Mhz	£50.00
DIAMOND SWR SX400 140-525Mhz	£60.00
DIWA 630 SWR 140-460 Mhz	£65.00
MFJ 815B SWR 1.8-60Mhz	£50.00
WELTZ SP400 SWR 140-500Mhz	£60.00
ACCESSORIES	
KPC 3 version 8.3 plus New	£125.00
YAESU FTS 8 ctcss ft736 ft767	£55.00
YAESU FTS 22	£55.00
YAESU FTS 27	£38.00
INRAD 714 455 Khz 1.8 SSB filter	£105.00
KENWOOD CW YG-455-C-1	£120.00
KENWOOD CW YG-455-CN-1	£150.00
KENWOOD SSB YK-88S-1	£60.00
KENWOOD SSB YK88SN	£60.00
KENWOOD AM YK-88 A	£50.00
KENWOOD VS-2	£45.00
MFJ 784B DSP	£100.00
MFJ 264 D/LOAD	£50.00
MFJ 1088 clock	£20.00
MFJ 702 low pass filter	£20.00
ICOM CW FL 32 A	£50.00
ICOM CW FL100	£65.00
ICOM SSB FL223	£50.00
ICOM AM FL-33	£35.00
ICOM FM-AM-UI-7	£40.00
IC0M UT-66	£30.00
ICOM UT 106 DSP	£75.00
ICOM OPC-600	£20.00
ICOM OPC-592	
ICOM OPC-589	£15.00
ICOM OPC-581	£29.00
ICOM OPC-587	£35.00
ICOM OPC-478	£20.00
ICOM MB-58	£15.00
ICOM MB-62	£10.00
ICOM MB-63	£6.00
ICOM AD-88	£10.00
ICOM AD-87	£8.00
ICOM AD-75	£10.00
ICOM BC-133	£20.00
ICOM BC-119	£45.00
ICOM BC-06	£15.00
ICOM BC-02	£10.00
ICOM BC-01	£10.00
ICOM BP-200	£35.00
ICOM BP-171	£20.00
ICOM BP-170	£14.00
ICOM BP-85	£60.00
ICOM BP-4	£14.00
ICOM CP-12	£20.00
ICOM CP-11	£20.00
ICOM CP1	£10.00
ICOM HM-77 mic	£50.00
ICOM HM-70 mic	£29.00
ICOM HM-46 mic	£30.00
ICOM HS-51 H/set	£45.00
ICOM HS-10 H/set	£30.00
ICOM HP-1 H/phones	
MARINE-RADIO'S	
ICOM M700 SSB	£200.00
ICOM M127EURO	£299.00
ICOM M3 EURO	£150.00
ICOM M1EURO	£225.00
ICOM S3F	£200.00
ICOM ICT22 E NEW	£165.00

WANTED PRE OWNED EQUIPMENT FOR CASH TEL: 01268 752522

COASTAL COMMUNICATIONS

19 Cambridge Road, Clacton-on-Sea, Essex CO15 3QJ

VISA, ACCESS, AMEX,RSGB,DELTA,SWITCH, Licensed Credit Brokers

AMATEUR RADIO FOR THE RADIO AMATEUR

E-mail: coastal@adsman.com

MON-SAT 9-5pm
WED 9-1pm
01255 474292

KENWOOD TS 50	S/H	399	KENWOOD TM455E	S/H	399
YAESU FT100	NEW	799	KENWOOD TR751E	S/H	350
YAESU FT 817	NEW	799	YAESU FT90R	S/H	289
ICOM IC 756	S/H	850	ICOM IC2350H	S/H	250
ICOM IC 706 MKIIG	S/H	850	ICOM IC-T8E	S/H	195
YAESU FT 900AT	S/H	596	ICOM IC-T7E	S/H	175
KENWOOD TS 2000	S/H	1499	ICOM IC-Q7E	NEW	175
TRIO TS711E	S/H	395			

LARGE SELECTION OF NEW AND SECOND HAND EQUIPMENT
PHONE FOR DETAILS - 01255 474292

Newcomers' News

News and Comment from and for Amateur Radio's Newcomers. Compiled by Steve Hartley, G0FUW *

I HOPE YOU managed to get some work done on your station over the Easter break. The first holiday of the year is traditionally a time for antenna maintenance at the G0FUW homestead. Apparently I should be more focused on other less important DIY projects like gardening, decorating and the like, or so I'm told.

After the doom and gloom surrounding the foot and mouth crisis and subsequent restrictions on portable operation it is a pleasant change to be able to report some good news. My hearty thanks go to all those who continue to support the column, please keep the news coming!

PEAK 2000 UPDATE

IN THE FEBRUARY column I reported on the success of Elizabeth and Sarah Greatorex, 2E1LIZ and 2E1SAZ, following their attendance at PEAK 2000, an international Guiding event in Derbyshire. Derek Severn, G8LNG, wrote to correct me on one point by saying that "the radio station GB2PIC was entirely provided by the South Notts Amateur Radio Club. With help from friends in the Scouts / Guides we provided the facilities to train and examine 94 youngsters who obtained their communications badge during the week. Lowe Electronics very kindly lent the radio receivers used to provide the training required to meet the badge requirements."

I hope this puts the record straight and gives due recognition to the effort and enthusiasm of all concerned.

VHF CONSTRUCTION

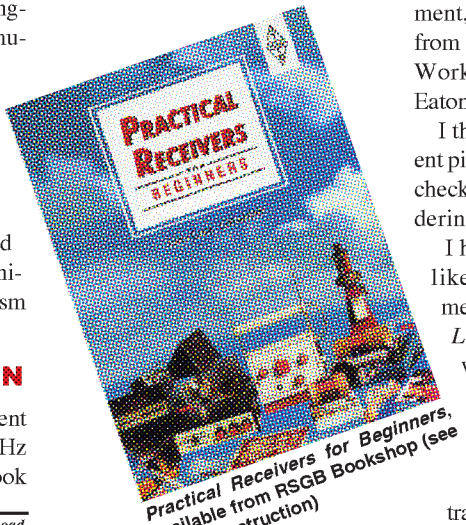
RICHARD MILLS, G4LPD, sent me a short note about the 50MHz receiver from the RSGB book *Practical Receivers for Beginners* by John Case, GW4HWR.

One of his local Novices decided to make this as a GCSE project. Rather than doing the 50MHz version, it was built as a 144MHz receiver using the modifications given in the book and a few minor changes.

The original printed circuit board was modified to include diode D3, rather than inserting it in with resistor, R9. The adjustable value for resistor, R18, was found to be 180Ω; this gave just the right range to cover the FM section of the band.

On test the radio seemed quite sensitive and it was quite stable. Richard left it tuned to the Leicester repeater, and it stayed on frequency all day!

I must say that I always find VHF construction a bit tricky but I have built the 50MHz version of this receiver and it works a treat. The book containing the construction details for this and other amateur radio receivers is available from the RSGB bookshop priced £12.74 for members. I did find a few minor errors in the text. If anyone is building the radio and would like details send me an e-mail to newcomers.radcom@rsgb.org or a self-addressed stamped envelope to the address at the foot of this page.



Practical Receivers for Beginners, available from RSGB Bookshop (see VHF Construction)

MORE CONSTRUCTION

I THINK I MAY HAVE mentioned it before but David Buddery, G3OEP, reminded me that the medium-wave receiver project in the *Novice Licence Student's Notebook* is still a viable option. The ZN414 integrated circuit went out of production some time ago but a direct replacement, the MK484, is available from Kanga Products, Sandford Works, Cobden Street, Long Eaton, Nottingham NG10 1BL.

I think the new IC has a different pin configuration so it is worth checking with Kanga when ordering.

I have to confess that I do not like using the construction method shown in the *Novice Licence Student's Notebook*, which uses electrical connector blocks. My son Adam had a go at it when he was about 10 years old and became very frustrated when the small component leads kept dropping out. I then made a printed circuit board (PCB) and things became much easier. Again, if anyone would like a copy I am more than happy to supply (diagrams *not* PCBs!) The *Novice Licence Student's Notebook* is also available from the RSGB Bookshop at £4.24.

David also sent me some interesting recollections of when he was a newcomer. He closed his note by saying that he has found the best part of our hobby is to take some simple gear into the country, throw a wire into a tree and see what happens. Let's hope that we can all join David '/P' and get back into the countryside soon.

EQUIPMENT ARRIVES


Members of the Starehe Boys Centre Radio Club (see Equipment Arrives)

TED ALLEYNE, 5Z4NU, is a regular correspondent with news of newcomers in Kenya. Regular readers will recall that Ted picked up some radio equipment that had been donated by the Harrogate Ladies College Radio Club in November. His latest report tells of the formal presentation of the gear to Starehe Boys Centre in Nairobi.

It was only in November 1999 that the subject of a radio club at the school was broached. The idea was enthusiastically accepted and 50 boys joined immediately. In April 2000 33 of the boys sat, and passed, the Novice Radio Amateurs Exam, opening the way for them all to become licensed radio amateurs. It was our initial report of their success that prompted the very kind donations from the Harrogate Club, and others.

It is also good to hear that some of the red tape that has been standing in the way of the youngsters getting their Novice licences may be coming to an end and there should be a school station on the air in the very near future. ♦

* *5 Sydenham Buildings, Lower Bristol Road, Bath, BA2 3BS.*

Down To Earth

The Voices

Part Eleven, by Gordon L. Adams, G3LEQ *

LAST MONTH, I explained the processes involved in the setting up of Radio Free Europe and Radio Liberty (initially known as Radio Liberation) by the CIA and its various cover organisations. During the early years of the Cold War, the Western world had to consider a number of ways of delivering its message to the Eastern Bloc. Whilst radio was the simplest and most direct, the Russians had set up a formidable arsenal of more than 1000 jamming stations.

BALLOON WARFARE

SINCE 1948, the Free Europe committee had been stockpiling two types of balloon that would be capable of carrying leaflets at heights of up to 40,000 feet over Eastern Europe. At a predetermined altitude they were designed to burst and shower their load over a wide area. The first such launch took place in August 1951 from Regensburg in West Germany. The target was to be Czechoslovakia. Upon release the balloons first climbed majestically into the evening sky and started to drift towards the Czech border. However, before the champagne corks could be popped and the steins of Bavarian beer could be consumed, it was observed that the wind was changing, and the balloons returned towards their launching site. Fortunately they continued to rise, and entered a favourable air current which eventually took them over the Czech border again. From 1951 until 1956 around 300 million leaflets were dropped upon the citizens of the Eastern bloc countries by balloon, which added up to some 400 tons of propaganda material. This activity was brought to an abrupt end when a Czech airliner crashed in the vicinity of a balloon flight.

During the Winter of 1954 / 55 the CIA and SIS sponsored the digging of a secret tunnel into East Berlin in order to tap underground telephone cables. The skulduggery in Berlin was to reach a crescendo in the 1960s. Over the weekend of Saturday 12 and Sunday 13 August 1961, the GDR with Soviet support, constructed a massive wall through Berlin to separate the Eastern sector from the West. Radio voices were used by the West to intrude on the VHF channels used by the East Berlin STASI (Ministry for State Security), in order to disrupt their vehicle movements. During military processions leaflet distribution was triggered by spring loaded dispensers from rooftops, using radio control from West Berlin. It is little wonder that radio communications assumed such major importance.

CIA TRUTH DOLLARS

BETWEEN JUNE 1951 and August 1952 a large headquarters building for RFE, comprising six wings, was constructed in the Bavarian city of Munich. The site was located to one side of the *Englischer Garten*, which was Munich's largest park. By the winter of 1952 / 53 the broadcasts from RFE were in full flood, and Radio Liberation was coming on stream. Initially, RL was accommodated in what had been the operations building of the pre-war Munich airport. It was here on 22 September 1938 that Adolf Hitler greeted British Prime Minister Neville Chamberlain and French Premier Edouard Daladier prior to a four power 'peace conference'. The Italian dictator Benito Mussolini was also in attendance. RL had its first transmission facilities at the former Luftwaffe air base at Lampertheim to the south of Frankfurt, which had previously been used by RFE. Whether the Americans appreciated the irony in the selection of these operations sites has never been made clear.

During the three years from 1951 to 1953 the RFE operation cost the American government $3,100,000. In addition to this, the National Committee for Free Europe was raising money from the American people in the form of 'Truth Dollar' pledges. Between 1951 and 1976 some $50,000,000 was raised, which – after expenses – allowed about $30,000,000 to help out the CIA-funded freedom broadcasters. In the early years the people were not even aware of the CIA connection. RFE was broadcasting to the satellite states of East Germany, Poland, Czechoslovakia, Hungary, Bulgaria, Romania and for a short period to Albania as well. On the other hand, Radio Liberation (which became Radio Liberty in January 1964) was directing its programming to the Soviet Union.

Radio amateurs and short wave listeners, who were not monitoring the short wave bands during those years, cannot possibly imagine the cacophony caused by RFE / RL and their accompanying Soviet jammers (see Part Three of 'The Voices' in August 2000 *RadCom*).

Part of the RFE / RL headquarters building in Munich after the 1981 bomb blast.

KGB KICKBACK

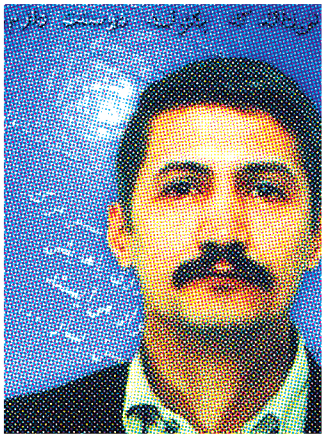
IN SEPTEMBER 1954 an RL employee, Leonid Karas, was found drowned in the Munich area under extremely suspicious circumstances. Another apparent assassination occurred in Munich in November of the same year, when Abo Fatalibey, head of RL's Azerbaijani section was found shot dead. On 23 October 1956 the Hungarian uprising broke out, and RFE kept the people informed of developments, just as it had done during the Poznan riots in Poland on 28 June 1956. Frank Wisner of the CIA's Special Procedures Group (see Part 10 of 'The Voices'), visited the Austrian-Hungarian border to see for himself the thousands of escaping refugees. In January 1959 he stood down as the CIA's chief of covert operations. Soon afterwards he had a nervous breakdown, and shot himself in October 1965. Also in 1959, a poison named Atropine was discovered in the salt cellars of the RFE staff canteen. The person believed to have done this was a Czech diplomat visiting from Austria. Perhaps the most extraordinary vengeance attacks against RFE broadcasters took place in September 1977. A man called Georgi Markov, a Bulgarian stringer (freelance writer and broadcaster) for RFE, was walking across Waterloo Bridge in London. He was brushed on the leg by the tip of another man's umbrella. He died of a strange fever four days later. Several months afterwards, the coroner's report revealed that Mr Markov had been "unlawfully killed by ricin poisoning when a metallic pellet, the size of a pinhead, was inserted into the back of his right thigh".

The same technique was tried just over a week later in Paris on a man called Vladimir Kostov. Apparently it was the UK government's germ warfare research centre at Porton Down that identified the poison as ricin, a highly toxic extract from castor oil seeds, which had no known antidote at the time. Not until Oleg Gordievsky, a KGB Colonel had

* 2 Ash Grove, Knutsford, Cheshire WA16 8BB.

defected to the West in 1985, was it revealed that the KGB had assisted the Bulgarian Security Service (Durzhavna Sigurnost) in carrying out the ricin attacks. The umbrellas used had been purchased in the USA, in order to confuse investigators in the event of the assassin being caught, and specially modified by the KGB's laboratory known as Directorate OTU.

On the night of Saturday 21 February 1981 at 9.46pm a telephone rang in the RFE / RL newsroom at the Munich HQ. One of the duty editors and broadcasters for the Czechoslovak RFE service answered the call - his name was Rudolf Skukalik. Their job was to feed live news updates at 10.00pm to the RFE / RL transmitters sited at Holzkirchen near Munich, Lampertheim near Mannheim and Biblis in Germany, Gloria in Portugal, and Playa de Pals in Spain. However, the caller merely said "Hello . . . Hello . . ." and then an earth-shattering explosion occurred. Although the newsroom and telephone switchboard room took the bulk of the blast no-one was killed and only four members of staff were seriously injured. Subsequently, it was suggested that the perpetrators might be the KGB working in conjunction with the East Germans, the Czech Secret Service (Statni Bezpecnost), or even Carlos 'The Jackal' working for President Ceaucescu of Romania. None of whom could be termed the Central Intelligence Agency

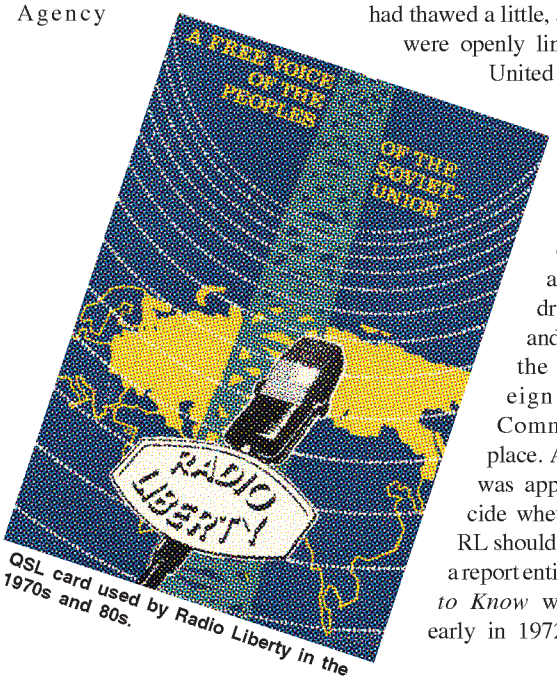


The unfortunate Iskandar Khatloni of RFE / RL, murdered in September last year.

equivalent of 'Friends'! If the Semtex, or similar, had been packed against the wall with more substantial 'tamping' in the form of piles of turves from the garden, considerably more damage and casualties would have occurred. Presumably, a quick getaway was the order of the day. More recently, on 22 September 2000, Iskandar Khatloni, a Moscow-based correspondent for RFE / RL, was killed with an axe by an unknown assailant who entered his apartment. If you had been thinking that a career with one of 'The Voices' might be interesting - perhaps you should think again!

VOLTE-FACE

THIS LATEST assassination shows that some of the Cold War enmities still exist - particularly within the CIS. In the 1970s relationships between East and West had thawed a little, and RFE / RL were openly linked with the United States Information Agency (USIA). In 1972 US President Richard Nixon announced the drafting of a bill, and hearings by the Senate Foreign Relations Committee took place. A commission was appointed to decide whether RFE and RL should continue, and a report entitled *The Right to Know* was delivered early in 1972. It was decided that they should continue, as it was believed that East-West détente was more likely to come about as a result of pressure exerted on undemocratic governments by their own informed citizens. In short *radio broadcasting had come of age*. RFE / RL continued to receive US government funding via the Board for International Broadcasting. When the 'walls' finally came down at the end of the 1980s, the radios were reconstituted, and their administration moved to Prague in the Czech Republic. Short wave transmitters continue to operate from Playa de Pals in Spain plus Biblis, Lampertheim and the Deutsche Welle site at Wertachtal in Germany. Medium wave outlets still exist in Munich (1197kHz) and Holzkirchen (1593kHz); whilst local distribution via a number of FM transmitters in several of the original Eastern European satellite states, as well as some Russian cities, now takes place.



QSL card used by Radio Liberty in the 1970s and 80s.

APRIL SPOOF

FOR THOSE WHO might not have spotted it last month, my reference to the 'London Eye' and Nodrog Smadaski (backwards anagram!) was, perhaps, a little 'over the top'. However, it did give me an opportunity to introduce a genuine competition with a book prize for the winner. The deadline for entries is Monday 30 April 2001, so you may just have time to put yours in the post if you have not done so already. Readers of 'The Voices' have told me that they have found the so-called 'numbers stations' particularly intriguing (see February 2001 *RadCom*).

The original one-time codes used during the last war employed variants of the alphabet matrix, which was printed on silk so that it could be concealed within the lining of an agent's coat or wherever. Many agents had personal texts, say in the form of a poem, that they could memorise, and employ as their transposition key. Obviously, the ideal key would comprise of a pad of random letters or figures, set out in five character groups, under which the text message is written. Finally, the pairs of letters are encrypted using the alphabet matrix. The use of numbers is more subtle, as this enables whole words to be encrypted using a small number of figures. By employing some fairly obscure dictionary or thesaurus, the coding of a word in figures could be represented by a three-figure page number and a two-figure line number. Then the message in figures would be written down under the random five-figure groups on a one-time pad, and the encryption completed by addition or subtraction, but without the normal mathematical process of 'carrying' digits.

The random five figure or letter group pads needed raise a number of problems. Firstly, it is very difficult to create truly random numbers using a machine or an electronic device. The original 'ERNIE' machine used for the drawing of winning Premium Bond numbers was supposed to base its selections on the random behaviour of electrons. Indeed ERNIE is an acronym for Electronic Random Number Indicator Equipment.

The early German WWII Enigma machines were unable to encode a letter as itself. That is to say, a letter 'H' would never be represented as an 'H' when encoded, which in itself breaches the principle of randomness. No doubt radio amateurs and computer enthusiasts have thought about this in the past. Another problem is getting a copy of these random pads to your agent on a regular basis. And finally, what happens to the agent if he is discovered by the security services equipped with such incriminating material? The conclusion, in this enlightened age in which we now live, is that electronic intelligence gathering is much more effective; since it need not involve human frailties or the need for reward money - the spending of which was always likely to attract attention!

In 'The Voices' next month, Gordon Adams takes a closer look at the island of Cyprus, after the closure of the radio station 'Sharq al-Adna'; when he examines the role of radio and radar at the eastern end of the Mediterranean. ♦

Down To Earth

Whatever Happened to Cycle 23?

Part I, by Gwyn Williams, G4FKH * Vice Chairman, RSGB Propagation Studies Committee

I DO NOT believe that it is widely appreciated, but the peak of the present solar cycle (cycle number 23 since records began) now seems to have passed. There are two pieces of scientific evidence, presented below, which support this supposition.

I guess that, from a radio propagation point of view, this cycle has been somewhat disappointing to just about everyone. Still, there are an awful lot of exotic locations waiting to be worked for those with a little patience. Just look at what the D68C DXpedition managed in three weeks [see page 14 - *Ed*] - I worked them four times on different bands with a dipole antenna, 90W and with little time in which to do it.

At the moment everyone seems to be disappointed with the cycle's progress, because propagation has not lived up to expectations. Many of the usual benefits of sunspot maxima are lacking: daily long-path propagation on 20 metres and plentiful DX contacts on 10 metres. As a result, those who look back fondly at the maximum of cycle 22 and make comparisons with the shortcomings in sunspot numbers of cycle 23 will feel somewhat let down.

Cycle 23 will not go down in history as the biggest or most explosive in history, but if you look back in your log books you will see that indeed things have picked up since 1996, when the cycle started. As seen in **Fig 1** the rise was a little steeper to start, then tapered off to give the peak in July 2000. During the rise of the cycle we experienced the normal solar events, such as large X-ray flares, coronal holes and disappearing solar filaments, all of which helped either to enhance or destroy our opportunities for long distance communications. However, also during this time, the sunspot number steadily progressed with the attendant *plage* areas on the sun increasing. Most of the iononisation that builds up our ionosphere comes from these plage areas. The iononising radiation is carried on the now-familiar solar winds, which at quiet times vary between about 300 to 400 kilometres per second. However, when large flaring does occur on the sun the solar wind can reach speeds of around 1200 kilometres per second.

* 21 Borda Cl, Chelmsford CM1 4JY.

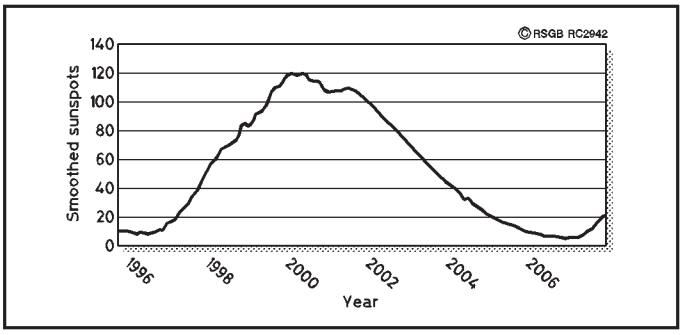


Fig 1: Smoothed sunspot numbers for Cycle 23 (measured data to August 2000, predicted thereafter).

EVIDENCE OF THE CYCLE PEAK

WITH ALL THIS activity going on, how is the sunspot maximum determined? The first piece of evidence can be seen in Fig 1 which depicts smoothed sunspots numbers. These are measured data up to August 2000 and thereafter are predictions. I take these figures from NOAA / SEC Boulder data, freely available over the Internet. Because of the prediction aspect of this data, in itself it is not sufficient to corroborate the actual peak time of the cycle although it is an excellent indicator. I first noticed this some months back and others seem to have agreed with the summation.

The next piece of evidence comes from Dr Tony Phillips, a NASA scientist, who has kindly allowed me to reproduce it here. This information is more complex and therefore requires more in the way of discussion. What we are talking about is the fact that the sun's magnetic field has changed polarity. The sun's magnetic north pole, which was in the northern hemisphere just a few months ago, now points south. "This always happens around the time of solar maximum," says David Hathaway, a solar physicist at the Marshal Space Flight Center - the magnetic poles exchange places at the peak of the sunspot cycle. In fact, it's a good indication that solar maximum is really here. The sun's magnetic poles will remain as they are now, with the north magnetic pole pointing through the sun's southern hemisphere, until about the year 2012, when they will reverse again. This transition happens, as far as we know, at the peak of every 11-year sunspot cycle - as regular as clockwork.

Meridional flows on the sun's surface carry magnetic fields from mid-latitude sunspots to the Sun's poles, explains Hathaway. The poles end up flipping because these flows transport south-pointing magnetic flux to the north magnetic pole, and north-pointing flux to the south magnetic pole. The dipole field (the name of a magnetic field resembling that of a bar magnet) steadily weakens as oppositely-directed flux accumulates at the sun's poles until, at the height of solar maximum, the magnetic poles change polarity and begin to grow in a new direction.

Hathaway noticed the latest polar reversal in a 'magnetic butterfly diagram'. Using data collected by astronomers at the US National Solar Observatory on

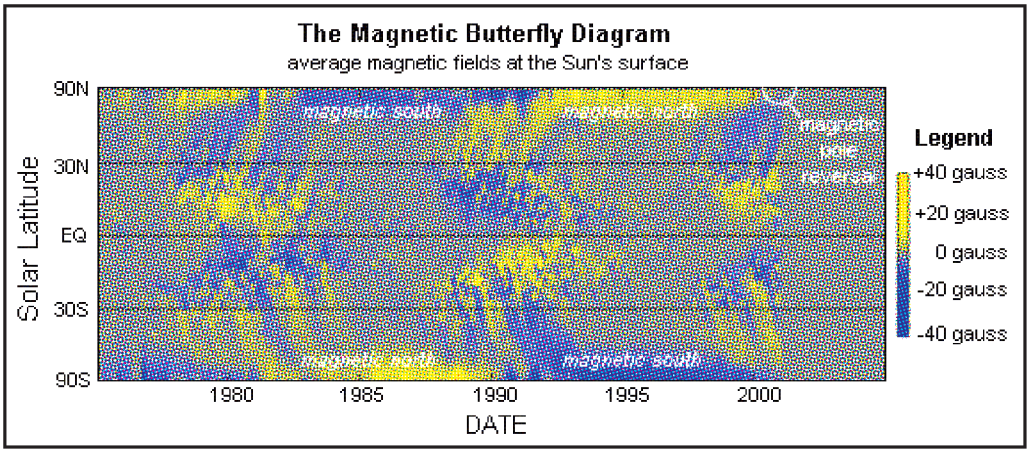


Fig 2: In this 'magnetic butterfly diagram' yellow regions are occupied by south-pointing magnetic fields; blue denotes north. At mid-latitudes the diagram is dominated by intense magnetic fields above sunspots. During the sunspot cycle, sunspots drift, on average, toward the equator, hence the butterfly 'wings'. The uniform blue and yellow regions near the poles reveal the orientation of the sun's underlying dipole magnetic field.

Kitt Peak, he plotted the sun's average magnetic field, day by day, as a function of solar latitude and time from 1975 through to the present. The result is a sort of strip chart recording that reveals evolving magnetic patterns on the sun's surface. We call it a butterfly diagram, he says, because sunspots make a pattern in the plot that looks like the wings of a butterfly. In **Fig 2**, the sun's polar fields appear as strips of uniform colour near 90° latitude. When the colours change (in this case from blue to yellow or vice versa) it means the polar fields have switched signs.

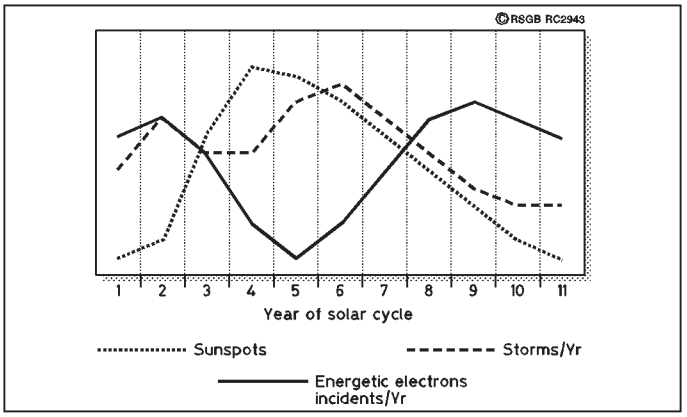


Fig 3: The effects of solar activity during the sunspot cycle. Geomagnetic activity (the number of geomagnetic storms) is shown, as are energetic electron events. The latter, which feature high fluxes of 'killer electrons', peak in the years around solar *minimum*. These electrons accumulate in satellites and, at a certain level, a high-voltage discharge can upset the satellite processors or permanently damage memory chips and other components. The general shape of sunspot activity is also shown.

WHAT HAPPENS NEXT

IT IS ALMOST certain that the peak of this sunspot cycle has passed, so what sort of phenomena can now be expected to affect radio amateurs? During solar maximum years, activity on the sun and its effects on our terrestrial environment are high. Dynamic outbreaks of geomagnetic storms and radiation showers at the earth occur sporadically but with increasing intensity and frequency during the years around maximum. During this period we can expect aurora borealis (the northern lights) to appear dramatically several times per year over continental Europe. The electric currents that flow during auroral displays disturb the ionosphere and wreak considerable havoc on long distance radio communications.

However, the most frequent storms are less intense but will still be rated as severe. They will probably appear several times per year for the next couple of years at least. These storms will be likely to cause interruptions in the use of some or all GPS navigation systems, will degrade satellite-to-ground signals and interfere with most long distance radio communications. The aurora associated with these storms will frequently cover the northern half of continental Europe, including the north of the UK. During the solar maximum years, there is typically a double peak in the frequency of these storms, first early in the maximum period and then after the maximum in sunspot numbers; see **Fig 3**. Proton showers in the space around earth are also expected to become more frequent and more intense during the period of solar maximum, but like the distribution of geomagnetic storms, the peak year may occur any time in the 1999 - 2002 era (Fig 3).

In the concluding part next month, Gwyn Williams looks at propagation phenomena that can be expected at solar maximum. ♦

WWW.

Big Bear Solar Observatory:
www.bbso.njit.edu/arm/
RSGB Propagation Studies Committee:
www.keele.ac.uk/depts/por/psc.htm

FURTHER READING

Your Guide to Propagation, by Ian Poole, G3YWX (RSGB)
Radio Auroras, by Charlie Newton, G2FKZ (RSGB).

The RSGB Spring

THE RSGB Spring Show and VHF Convention took place at Bletchley Leisure Centre in Buckinghamshire on 7 / 8 April. This was the first such show at a new venue, and the initial results are highly encouraging: nearly twice as many visitors came through the doors than at the former VHF Convention venue at Sandown Park.

We're pleased to report that most of the traders reported good takings, particularly on the Sunday. Yaesu's new FT-817 'backpacker' HF / VHF / UHF transceiver attracted a lot of attention, as did Kenwood's latest offering, the TS-2000. Meanwhile, on the Icom stand, VHF / UHF DXers and contesters alike were showing a keen interest in the IC-910, Icom's 100W 2m / 75W 70cm / 10W 23cm (optional) transceiver. The first shipments of this, and the amazing new IC-R3 scanner-with-built-in-colour-TV, were expected to arrive by the end of April.

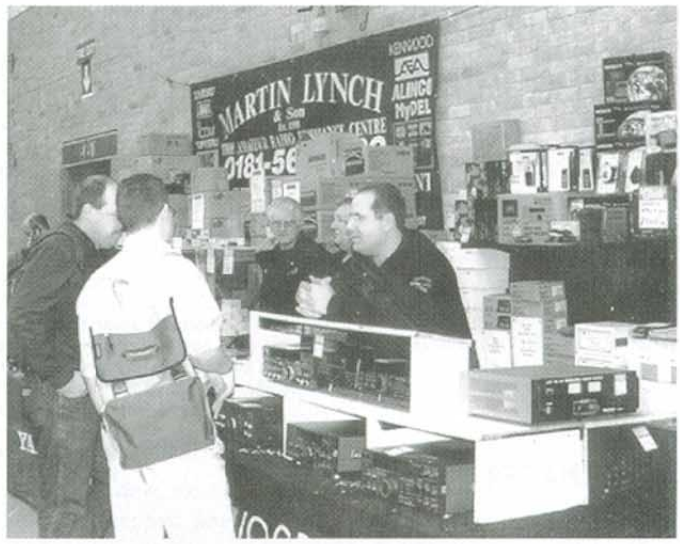
As can be seen from the photos, it was quite crowded on both the Saturday and Sunday morning, but visitors who wanted a more leisurely look around the stands had only to wait until mid-afternoon on either day, by which time the crowds had thinned out somewhat.

Fortunately the weather remained clear, if cool and breezy, on the Sunday for the guided tours around nearby Bletchley Park, home of 'Station X'. Around 300 visitors took advantage of the specially reduced price tickets available from the RSGB to see this example of Britain's national heritage.

The Spring Show wasn't just a trade show, of course, but also included the RSGB VHF Convention. A series of lectures covered topics such as 'Making More Miles at VHF', '6m Operating and Propagation', and a VHF Contests Open Forum. Peter Sprengel, PY5CC, came all the way from Brazil to give a presentation on his 6-metre operating experiences. Peter is the undisputed world top 6m DX operator, with over 200 DXCC entities worked on that band. We were delighted too that Robin Haighton, VE3FRH, President of AMSAT North America, was able to give a talk and presentation on the present situation of the Oscar 40 satellite. Thanks to AMSAT-UK who made arrangements for Robin's presentation at short notice.

The winner of the QRP transceivers competition that was being run in the February and March issues of *RadCom* in conjunction with the Bletchley Show was presented with his prize on the Yaesu stand at the show. He is Graeme Millar, G6JLU / M5AGK, of Shefford, Beds, who wins a brand-new Yaesu FT-817 transceiver, worth nearly £800, courtesy of

Young Ryan Wilson learns safe soldering techniques, under the watchful eye of Robert Snary, G4OBE.



"GB4FUN, what's that?" Watch this space . . .

Top: Martin Lynch himself doing the deals.

Middle: Our winner of the tiny Yaesu FT-817 'all-band, all-mode' transceiver, Graeme Millar, G6JLU / M5AGK (right) receives his prize from Yaesu.

Above: New books on the RSGB stand.

Show and VHF Convention

Lots of interest was shown in the new rigs of the Kenwood stand (left), the Icom stand (middle), and with Waters & Stanton.

Yaesu (UK). Graeme says he was delighted to win the prize, as "it would give me a good excuse to get out into the country to do some walking and secondly give me something I have never really had: namely the opportunity to listen with my own kit in my own time to the HF bands and CW in particular. I never have been a great believer in large amounts of power; I see the challenge of QRP CW as my field." The runner-up in the competition, R Kimberley, G4VHT, of Walsall, West Midlands, will be receiving his prize, a completed MFJ Cub 15m transceiver (donated by Waters & Stanton PLC) by post as he was unable to attend the show.

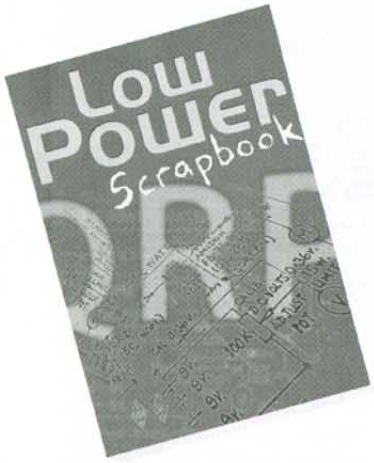
Despite some visitors finding difficulty in parking, there was, in fact, a specially arranged car park adjacent to the Leisure Centre which remained only half-full for most of each day. We later discovered that the RSGB's direction signs had apparently been removed by persons unknown overnight.

Put a note in your diary for next year: the RSGB Spring Show and VHF Convention will be held over the weekend of **13/14 April 2002.** ♦

Tim Boon, M0AFC, receives the Backpackers Trophy from RSGB President Don Beattie, G3BJ.

Peter Sprengel, PY5CC, receives the Harold Rose Trohpy from the RSGB VHF Committee for his outstanding contribution to 50MHz.

Book Review



LOW-POWER SCRAPBOOK - RSGB 2001

Described by RSGB Staff

THE ROOTS OF this book lie shrouded in the mists of 1983, when the G QRP Club first printed its own *Circuit Handbook*. This was an historical compilation of circuits from *SPRAT* between 1975 and 1982. The *Low-Power Scrapbook* carries on from there. For those not yet bitten by the QRP bug, *SPRAT* is the Club's quarterly journal, which has now passed its 100th issue.

In a Preface by the doyen of UK QRP, the Reverend George Dobbs, G3RJV, the conception and growth of the G QRP Club and its journal are detailed, even to the extent of explaining where the acronym 'SPRAT' originated. I won't spill the beans here, as you will want to get the book and find out for yourself.

Following the Preface (in English and German) is a listing of the 136 projects described in the text. In keeping with the spirit of *SPRAT*, the articles are presented in mono-spaced Courier font, and most of the diagrams seem to be the authors' originals, a format which suitably reflects the 'hands-on' approach of the QRP fraternity.

All the well-known names in QRP, both from the UK and abroad, are represented. The circuit titles, as well as the circuits, are collectors' items. Choose between the 'Wee Rig', 'Rock's Fishin' Box', the 'Pipit', the 'Asp', or the 'Teeter-Totter'.

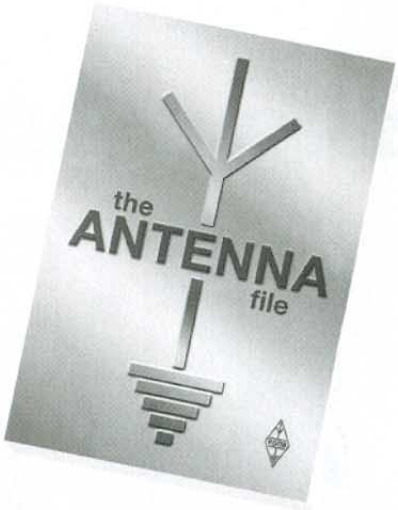
The circuits are clearly presented, but require a fair degree of practical expertise, both in building the circuits and in getting them to work. Some PCB layouts are given, with advice on preparation and construction.

There is no doubt that the book is an ideal training ground for budding QRPers and an excellent source of information for the more experienced. Indeed, anyone with an interest in radio construction will find this a gold mine of ideas and solutions.

Small enough to be carried in a jacket pocket, yet large enough to be a superb reference book, the *Low-Power Scrapbook* must be on the list of books for your next birthday or anniversary.

RSGB paperback,
A5, 320 pages,
ISBN 1-872309-73-9.

Non-Members' price £12.99
Members' price £11.04



THE ANTENNA FILE - RSGB 2001

Described by RSGB Staff

EVERY AMATEUR radio station has one thing, at least, in common: they all have an antenna of some sort. That should mean that all radio amateurs have at the very least a passing interest in antennas. For some, of course, antenna experimentation is the mainstay of their amateur radio operating and the rest of us are grateful that many have written up the results of their endeavours over the years in *RadCom*. *The Antenna File* consists of all the antenna articles that have been published in *RadCom* between 1990 and 2000.

And what a wealth of material is covered. From theory of operation through computer antenna modelling to practical constructional projects, and from the new LF bands through HF and VHF to UHF and microwave designs.

The reputation of many of the authors goes before them: Peter Dodd, G3LDO; Tony Preedy, G3LNP/A45ZZ; Dick Bird, G4ZU; Les Moxon, G6XN; Roger Jennison, G2AJV; Ted Ironmonger, G8PO; and B Sykes, G2HCG, are among the well-known antenna authors whose articles are featured. In addition there are a number of articles from European publications that have been translated and edited by Erwin David, G4LQI. Reflecting the increased use of commercial antennas, all antenna reviews carried out by Peter Hart, G3SJX, are included.

There are eight sections to the book, covering HF antennas; VHF/UHF/SHF antennas; Receiving antennas; Antenna supports; Matching, tuning, measuring; Antenna construction techniques; Design and theory; Peter Hart's antenna reviews.

This is definitely a book for any radio amateur who enjoys 'messing around with aerials' - and who doesn't?

RSGB paperback.
A4, 287 pages.
ISBN 1-872309-72-0

Non-members' price £18.99
Members' price £16.14 ♦

NEW

1000 QSL CARDS FOR ONLY £9.99 (+p&p)

Size 140 x 90mm

To celebrate Marconi's first radio transmission across the Atlantic, the RSGB has teamed up with Marconi to produce a full colour gloss card at a special low price.
Cards are available overprinted with your information for only £24.99 plus the cost of the cards, or you can inkjet them yourselves.

(example shown overprinted)

ORDER TODAY LIMITED OFFER!

MARCONI £2 COIN GIFT SETS

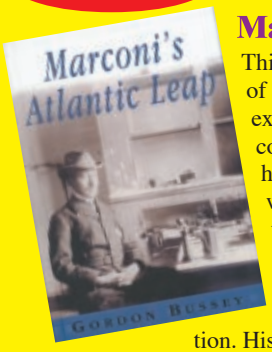
The RSGB has a small quantity of Royal Mint sets of the new £2 coin celebrating the 2001 Centenary of Marconi's first Transatlantic transmission. The sets are delightfully presented with information on the coin and Marconi's achievement. The sets are available in a brilliant uncirculated version, Sterling Silver and 22 carat Gold versions. RSGB members will also get a discount on the retail price of these fine collectors items.

Prices	RRP	Members
UNCIRCULATED GIFT PACK	£6.95	£6.25
STERLING SILVER	£28.50	£26.50
22 CARAT GOLD	£295.00	£285.00

All items will be despatched by Recorded Delivery at £1.50 per set - Overseas £2 (Gold £5 - Overseas £15)

25% OFF MEMBERS SPECIAL OFFER

Marconi's Atlantic Leap



This book contains a description of the bridging of the Atlantic by wireless in 1901. It was an extrao-rdinary achievement by Guglielmo Marconi. He was only 27 at the time. Behind it was his scientific confidence that wireless waves would follow the curvature of the earth, against the view of many distinguished scientists. In July 1900, he was determined to send a wireless message across the Atlantic, and on the 12th December 1901 he achieved his ambition. His vision, his speed of operation, his ability to inspire his Company to produce £50,000 (equal to several millions today), can be compared with the modern achievement of putting a man on the moon.

£6.99 (non-members) **£5.25 + p&p**

The Saga of Marconi Osram Valve

Electronics was born in 1904 with the thermionic diode. From then on up to c.1960, thermionic valves were THE technology; the high-tech devices of their day that drove the state of the art and which made possible the revolutionary new systems that reshaped our world: wireless, television, communications, computers, radar, scientific instruments and equipment of all kinds.
Marconi-Osram Valve was involved in the valve business right from the beginning. Its history covers 100 years, three generations, two world wars and the great developments in broadcasting in the post-war periods. The history is intertwined with Marconi, EMI, RCA, Osram and the GEC itself over virtually the whole period of electronics.
So, this is a history of valve-making with particular emphasis on wireless valves developed by Marconi-Osram Valve whose genius did so much to advance the state of the art in the new science of electronics.

£24.99 (non-members) **£21.24 + p&p**

www.rsgb.org/shop or Tel 0870 904 7373

National Science Week In Focus

As part of the British Association's National Science Week, the Radio Society of Great Britain co-ordinated a series of activities by amateur radio clubs who had volunteered to bring amateur radio to as large a section of the public as possible.

National Science Week took place between 16 and 25 March inclusive, and what follows is a summary of the happenings during that hectic time, based upon information provided by some of the participating clubs. More information on club activities, including those for whom there was insufficient space here, can be found on the RSGB web site: www.rsgb.org/scienceweek/index.htm

DOVER RADIO CLUB and Dr Ken Smith, G3JIX, put on a special event, free and open to all called "Pigs' Bladders and Voices". G3JIX organised a play highlighting the advances in science and, in particular, radio at the turn of the 19th Century. Ably assisted by three young ladies, he demonstrated some things we take for granted such as mobile phones. With the lights down, the audience marvelled at the sparks generated by a Tesla coil and the lighting of purple fluorescent tubes by it. 480 children and over 100 members of the public braved the winter weather and attended the two-day event and were held spellbound. The schoolchildren were able to attend because a matinee performance was specially arranged.

G3JIX dressed the part and suitably attired his able assistants in turn-of-the-century clothing. So good were the costumes that most of the audience was unaware that the two boys were, in fact, girls!

One concentrating, one enquiring, one amazed and one absorbed: Brian, M0ARK, has his hands full answering all the questions from children at the Chippendale Primary School, Otley.

Throwing light on the subject: G3JIX lights a fluorescent tube from a Tesla coil.

Unravelling the mysteries of the telescopic mast: Norman, G0WNT, has it all under control. The Otley children are experts on knots...

Jim Cairns, M1BKI, Chairman of the Dover Radio Club, turned out the club in force to support the activity and they put on an excellent display of amateur radio equipment. Ian, G3ROO, worked with an antique projector using glass slides to provide some vintage audio/visual support for the activity on stage.

The event was heavily subsidised by CoPUS (Committee for Public Understanding of Science). With it being so well attended, and the positive face of amateur radio shown to the public, it proved to be an extremely worthwhile event.

OTLEY AMATEUR RADIO SOCIETY was represented by six of its members on 20 March, when it visited the Thomas Chippendale Primary School and spent the day with 25 enthusiastic 10/11-year-olds.

Events included a 'warm up' session during which the children looked at how radio affects their daily lives, a presentation which covered the history of radio, demonstrations of SSTV and PSK31, a QSL-card design exercise and looking at RF with an oscilloscope. A special event station on HF and VHF, callsign GB0TCS, was also run by the club. See the photographs opposite.

A lecture describing the recent Wasini Island, Kenya, DXpedition was given by David, G3UNA, but the biggest surprise of the day was the children's eagerness to have a go at CW - some potential experts surfaced here. Their enthusiasm was amazing, so much so that the team, comprising G3UNA, G0WNT, G7ULH, G7RDJ, M0ARK and G0SNV, has been asked to repeat the event later in the year. By that time, the team may have recovered sufficiently!

SCARBOROUGH SPECIAL EVENTS GROUP operated GB2SLS from the grounds of Scarborough College. Local press featured an article on the station a few days before the start of Science Week and the group also assisted the College CCF to operate the Special Event station GB2SCY for 'Scarborough Youth College'.

The QSL card offered by the Scarborough Special Events Group.

PORTLAND AMATEUR RADIO CLUB visited Westhaven Junior School in Weymouth, Dorset. A special event station, GB1WJS, was set up within the school grounds, and over the course of three busy days was visited by every class (all 14 of them!). The pupils (whose ages ranged between seven and 11 years) were given an illustrated talk, making them aware of the various ways in which radio affects them in their everyday lives - not only through broadcast stations, but television, satellite television, mobile phones, microwave ovens and so on. A brief history of radio communications was then described. The varied activities within the hobby were then introduced, the children being particularly fascinated by a demonstration of the Morse code.

The VHF/UHF station installed at Westhaven Junior School in Weymouth. The children sent greetings messages, made satellite contacts, and saw weather satellite pictures.

WARRINGTON AMATEUR RADIO CLUB had visits from Birchwood High School, the 2nd and 24th Warrington Scout Groups and the Warrington Air Cadets. They demonstrated the use of personal computers in amateur radio and astronomy to several invited youth groups. The club operated a special event station with the callsign GB2NSW. Demonstrations showed how computers are sometimes used to replace microphones and Morse keys, by radio amateurs who can transmit data and television pictures from one computer to another. A computerised radio telescope system and a method of detecting meteors by reflected radio waves were demonstrated.

The visit by the 2nd Warrington Scouts was memorable because a new Scout was invested via a VHF radio link set up by the radio club.

A set of books on amateur radio donated by the Radio Society of Great Britain were presented by the Warrington Amateur Radio Club to Birchwood High School for their library. ♦

Jim G3NFB (right) presenting a set of RSGB books to the master and pupils of Warrington Birchwood High School. Photo: G0WJX

Not enough knobs for six hands: equipment provided by Waterside (New Forest East) ARS to Applemore College gave these youngsters a chance to find out for themselves what amateur radio is all about. The special event callsign GB0ACR was used in their Science Week activities. Photo: *Southern Daily Echo*

UK's Premier Service Centre

WE ARE STILL THE MOST COMPETITIVE PRICED SERVICE CENTRE

12.5kHz CONVERSIONS

Save money and keep your existing rig. Castle can convert most makes and models. Call us to discuss your requirements.

ICOM YAESU KENWOOD

DOOR TO DOOR COLLECTION AND DELIVERY SERVICE AVAILABLE

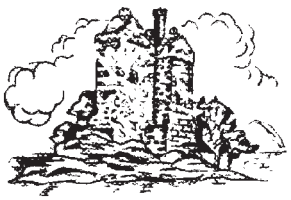
FOR SERVICE

There really is only one choice. The choice many manufacturers have made when they want their own equipment serviced. When you send a repair or service to Castle Electronics, we do the job in house. We do not use sub-contractors!

MAIL ORDER

Right in the heart of England, we are well placed to supply all major brand names at competitive prices by mail order. Before you buy from anyone, give us a call. You might be pleased you did!

For a cost of £15.00 Plus Carriage and VAT we can do a full rig check and report RING FOR DETAILS



MAIN DEALERS FOR ALL MAJOR BRANDS

Castle Electronics

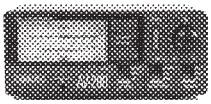
Unit 20, Wolverhampton Business Airport
Bobbington, Nr. Stourbridge,
West Midlands DY7 5DY
Tel: (01384) 221036
Fax: (01384) 221037
Email: services@castle-elect.demon.co.uk
TRADE ENQUIRIES WELCOME

QSL COMMUNICATIONS

UNIT 6 WORLE INDUSTRIAL CENTRE, COKER ROAD, WORLE, WESTON-SUPER-MARE BS22 6BX

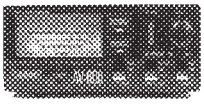
EARTH RODS 4FT Long, adjustable Brass fixing
SOLID COPPER **£10.99** P&P £4.00
COPPER PLATED STEEL **£8.99** P&P £4.00

AVAIR SWR/POWER METERS



AV 200
1.8-160MHz reads RMS & PEP up to 400W **£49** + £5.50 p&p

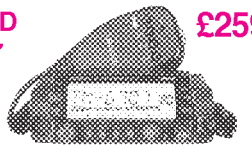
AV 400
140-525 MHz reads RMS & PEP up to 400W **£49** + £5.50 p&p



AV 600
1.8-525MHz reads RMS & PEP up to 400W **£59** + £5.50 p&p

ANTENNAS	
2m 5 element yagis	£39.95
2m 8 element yagis	£49.95
6m 3 element yagis	£55.95
6m 5 element yagis	£69.95
2m/70cms vertical 2.50m	£56.95
2m/70cms vertical 1.30m	£39.95
G5RV full size	£24.00
G5RV half size	£21.00
Base receive discone	£39.95
Mobile antenna selection available	

KENWOOD TM-G707 **£259**
2m/70cm mobile

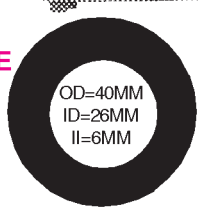


KENWOOD TM-D700 **£415**
2m/70cm mobile with TNO & APRS

ICOM IC-821H
Transceiver 2m/70cm multi-mode **£999**

MISCELLANEOUS	
Amalgamating tape	£4.99
Enamelled copper wire 50m	£7.99
Ribbed insulators	70p each
Hatch/Boot mount	£14.69
DIY QSL cards matt pack (100)	£4.50
Various plugs and adaptors	
MUCH MUCH MORE	

FERRITE RINGS
PACK OF 10
£10
INC P&P



SEND SSAE FOR QSL SAMPLES

SECONDHAND LIST	
Yaesu FT-290MKII with linear	£329
Yaesu FT-90 2m/70cm	£259
Yaesu FT-920 HF/6m transceiver	£879
Yaesu FT-757GX HF transceiver	£499
Kenwood TM-225 2m multimode	£475
Kenwood TM-G707 2m/70cms	£199
Icom IC-726 HF/6m base transceiver	£549
Kenwood AT-50 auto tuner	£249
Icom PS-85 Power supply unit	£189
Yaesu MD100A8X desk microphone	£89

SHOP OPENING TIMES
MON 10AM - 1PM
TUE-FRI 10AM - 6PM
SAT 9AM - 1PM

TEL: 01934 512757

Email: jayne@qslcomms.f9.co.uk

CARRIAGE CHARGE DEPENDS ON ITEMS REQUIRED

NOTICE TO READERS

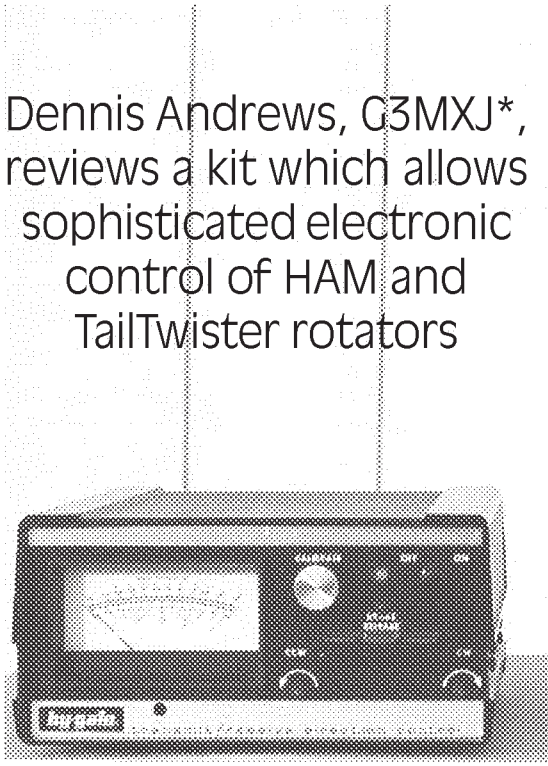
Although the staff of *RadCom* take reasonable precautions to protect the interests of readers by ensuring as far as practicable that advertisements in our pages are bona fide, the magazine and its publisher, The Radio Society of Great Britain, cannot accept any undertaking in respect of claims made by advertisers whether these advertisements are printed as part of the magazine, or are in the form of inserts.

The publishers make no representation, express or implied, that equipment advertised conforms with any legal requirements of the Electro Magnetic Compatiblility Regulations 1992. Readers should note that prices advertised may not be accurate due to currency exchange rate fluctuations, or tax changes. While the publishers will give whatever assistance they can to readers having complaints, under no circumstances will the magazine accept liability for non-receipt of goods ordered, late delivery, or faults in manufacture. Legal remedies are available in respect of some of these circumstances, and readers who have complaints should address them to the advertiser or should consult a local Trading Standards Office, or a Citizens Advice Bureau, or their own solicitor.

Readers are also reminded that the use of radio transmission and reception equipment (including scanning) is subject to licencing and the erection of external aerials may be subject to local authority planning regulations.

THE IDIOM PRESS ROTOR -

Dennis Andrews, G3MXJ*, reviews a kit which allows sophisticated electronic control of HAM and TailTwister rotators



THE HAM and TailTwister ranges of antenna rotators have been popular for many years. Manufacture has progressively passed from the original CDE company, through HyGain and on to the present supplier, MFJ.

The rotators have demonstrated mechanical and electrical reliability and are relatively simple to maintain and repair, with spare parts easily available. The total number in operation throughout the amateur radio world must run into hundreds of thousands.

An interesting update to these units has recently been launched by California-based Idiom Press, which also manufactures the popular Logikey range of electronic keyers. The *Rotor-EZ* is supplied as a kit of parts, including a PCB, that automates the operation of most HAM and all TailTwister rotators - that is to say, any of the units that have the three 'paddles' on the control box.

With the *Rotor-EZ* installed, there are then three options for rotating the antenna:

- The original control mode is retained.
- There is a new 'Auto-Point' facility, controlled by what was originally the calibration control. Turning the knob switches the meter reading from displaying the existing antenna heading to capturing the desired new heading. Once this is set, a momentary press of the brake paddle sets the antenna turning.
- An optional RS-232 interface allows computer control using the HyGain DCU-1 protocol. This is supported by a number of logging and contest programs and permits antenna positioning in response to country prefixes or numeric input of required headings.

FEATURES

AN INTERNAL microprocessor provides some fairly sophisticated functionality to handle the new features and to deal with some of the traditional shortcomings of the rotators. Most of these functions can be disabled by soldered jumpers, as required.

Algorithms are included that deal with any dead-spots on the potentiometer in the head unit that feeds the directional information back to the control unit. This has long been a problem with efforts to automate these rotators.

There is a programmable Unstick routine under which the rotator will be pulsed in an opposite direction for one second before moving off to the desired heading. This overcomes a common problem, particularly with the TailTwister, where the brake wedge becomes jammed.

Electronic End Point limits the range of rotation to exclude the last five degrees at each end of the scale. This prevents end-stop jamming - again, a common problem with TailTwisters

Overshoot Control cuts off power to the motor three degrees before the set point is reached. This means that the antenna coasts to the final position. This, together with a five-second delay before the brake drops in, reduces potential wear and tear on the tower top mechanics.

Jam Protection detects the situation where, for any reason, the rotor refuses to turn. After a few seconds, the rotation command is cancelled and there is a flashing LED indication of the problem.

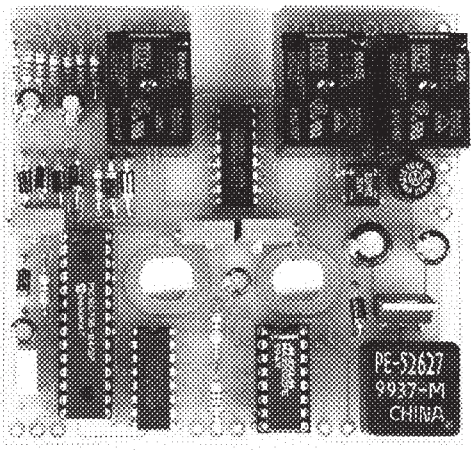
Offset Mode is provided to deal with beams that are mounted at 90 degrees to the main boom. There is a range of choices for manual or auto selection of this mode according to the beam in use.

CONSTRUCTION AND INSTALLATION

ASSEMBLING THE PCB assumes basic electronic skills and some experience with this type of construction - especially good soldering techniques. With component size always getting smaller and board densities higher, a magnifier of some kind will be useful.

The completed board mounts on the two studs of the control box meter, extending above and below the internal metal chassis. Installation involves considerable rewiring of the control box. The instructions suggest that a note is kept of changes that are made to the original wiring. But the original internal wiring is not complex and if, for some reason in the future, restoration to the initial configuration was required, it would not be at all difficult by referring to the original circuit diagram. There is a small amount of metalwork involved to make suitable holes for the four LEDs, and for the exit of the RS-232 cable. Later model control boxes already have three LEDs fitted and these are replaced using the existing holes.

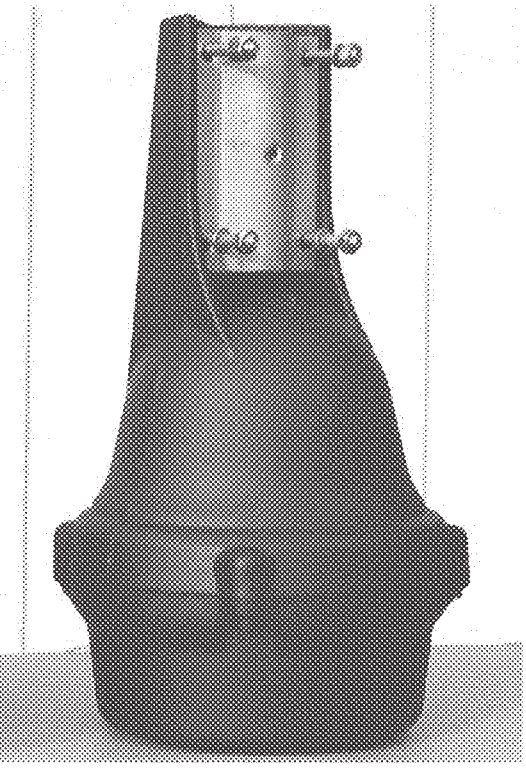
The component count is small - about 75, which includes three relays, five silicon devices, and four LEDs. The kit comes complete with all connectors, hook-up wire and cable ties. Actual assembly is straightforward with a step-by-step listing included in the instructions. It goes without saying that a sensible approach is to check carefully and identify all of the components before starting work. As assembly progresses, you should



The completed Rotor-EZ PCB.

*10 Downsview Cres, Uckfield TN22 1UB.

EZ ROTATOR CONTROLLER



make frequent reviews to ensure that all of the parts have gone into the correct places. The circuit board is of very good quality. It is plated which means that only the solder points are exposed; this considerably reduces the opportunities for solder-bridging between tracks.

Mounting the board to the back of the meter presented no difficulty. The actual wiring proved somewhat fiddly. There is a large number of connections to be made from the board to various parts of the control box plus some rearrangement of the existing wiring. Again, a good tick list is provided for a step-by-step approach. Great care was needed to ensure that all of the wires went to the correct places, particularly as many originate from closely grouped edge connections on the PCB. However, all was well and everything worked first time. Total construction and installation time was in the region of six hours.

There are no changes to the external connections between the control box and the rotator itself.

CALIBRATION AND OPERATION

THE UNIT REQUIRES initial calibration which puts the new electronics in step with the mechanics of the directional input from the potentiometer in the head unit. This calibration was straightforward and, once set, should not require any subsequent adjustment.

Initial testing showed that the original 'manual' mode had not been affected. For 'Auto-Point Mode' moving the calibration knob captures control of the meter needle so you can drive it to the precise desired heading. At the same time, the tri-colour Status LED turns from green to red. Pressing the brake button starts the antenna rotation sequence and changes this LED to orange. As the antenna rotates, it then slowly changes from orange to green, providing an indication of how close the antenna is to its final position. Three red LEDs show when the brake is released and indicate the direction of rotation.

As soon as rotation starts, the meter needle returns to indicate actual direction. As the new heading is approached, power is removed from the drive motor and the antenna coasts into position. There is then a short delay to allow things to settle before the brake drops in.

The original HAM and TailTwister configurations were completely shockproof as they contained no low voltage electronics that could potentially be affected by lightning or by RF. The inclusion of this unit changes all of that and there was some concern over possible problems. Idiom Press says that the design of the *Rotor-EZ* took these factors into account and high static or RF voltages should have no effect on performance.

However, the writer, operating from a first floor shack, found that it was possible to actuate the electronics on some bands. Investigation showed that this was due to RF being fed into the direction sensing circuits from the connections to the head unit potentiometer. This was easily resolved by the addition of 3000pF by-pass capacitors from terminals 3 and 7 of the control unit to ground.

COMPUTER INTERFACING

THE RS-232 INTERFACE connects to a spare COM port on the computer. I tested it with three options - the *DX4Win* logging program, and two contest programs - *CT* and *TR*. All of these worked perfectly although there are minor differences in the actual implementations. All three software packages have options for specifying the COM port for connection, and all three have support for the HyGain DCU-1 protocol. Alternatively, there is standalone software available from Idiom Press and from other sources that will do the same job. The protocol is relatively simple; sufficient information is supplied to allow writing of a bespoke control program.

Support for rotators has been included in *TR* since release 6.40. Options specifying the Rotator Port and the Rotator Type (DCU1) are inserted in the LOGCFG.DAT file. In operation, the required heading is automatically calculated from the prefix typed into the QSO window, plus information contained in the CTY.DAT file and knowledge of the station location. Positioning of the beam is then actuated by CTRL+P.

For the *CT* contest program, the Rotator type is specified in the Contest Information Sheet and the Comms Port information in the Comms Setup page. For *CT*, it is also necessary to run the COMTSR setup program for the specified port. Operation is similar to *TR* except that rotation is initiated by CTRL+F10.

For both contest programs, it is also possible to turn the rotator by typing an absolute heading into the callsign field of the QSO window.

Initially, the new functionality was viewed as something of a novelty. However, during a number of recent contests, the ability to move the antenna to a new direction while keeping both hands free to get on with the contest itself, was felt to be a well worthwhile improvement. Over a period of some months of use, the *Rotor-EZ* has shown itself to be a consistently useful addition to the station functionality.

AVAILABILITY

THE *ROTOR-EZ* KIT can be obtained by mail order from Idiom Press at their web site - www.idiompress.com. This site contains full information of this and other products. The price for the basic kit is $99.95 or $129.95 with the inclusion of RS-232 support. There is a shipping and handling charge of $10.00 for orders outside the USA [making a total of approximately £76, or £97 with the RS-232 support - *Ed*]. ♦

G3TUX *for* Kits - Keys - QRP

Howes Kits

DC2000 Monoband SSB + CW Receiver **£24.95**
DXR20 80/40/20 + aux. Band SSB/CW RX **£43.95**
TX2000 Monoband 5W CW Transmitter **£26.95**
AT160 160/80m DSB/AM / CW 10W TX **£44.95**
LM2000 Links TX2000 or AT160 with RX kit to form a transceiver **£17.95**
MA4 Mic. amp **£7.50**
SWB30 Dummy load/ SWR / Power indicator **£14.95**
ST2 Sidetone generator/ morse practice osc. **£11.95**
AA2 HF Active aerial kit, 150kHz – 30MHz **£9.95**
AA4 VHF Active aerial kit, 25 – 1300MHz **£20.95**
AB118 Air Band active aerial 118-137MHz **£19.95**
SPA4 4-1300 MHz RX pre-amp **£17.50**
CTU8 Receiving ATU, 500kHz-30MHz **£33.95**
RA30 Receiver attenuator, 0, 15, 30 dB steps **£4.95**
ASL5 Dual bandwidth AF filter **£17.95**
CSL4 As ASL5, but no AF amp. **£12.95**
XM1 Crystal cal. **£17.95**
DFD4 Frequency counter / digital display **£56.75**
PMB4 DFD4 matrix board to allow IF offset **£10.95**

Ten Tec T Kits

QRP Tcvr 3W monoband CW Transceiver. Superhet RX 80, 40 or 20m **£94.95**
50MHz Transverter, 8W o/p 14 or 144MHz IF **£94.95**
144MHz Transverter 8W o/p 28-30MHz IF **£134.95**
- we stock other Ten Tec kits too!

MFJ "Cub" ™
QRP Tcvr 2W monoband CW truly miniature trans-ceiver. 80,40 or 20m **£84.95**

Bencher Keys

BY1/ST1 Paddles **£79.95**
BY2/ST2 Paddles **£94.95**

Kent Keys

Pump kit **£48.50**
Twin paddle kit **£62.50**
Single paddle kit **£53.50**
EK4 Keyer **£47.50**
EK4M + memories **£73.50**

Samson Keyers

ETM9COG X3 **£109.95**
ETM9C X3 **£139.95**
ETM SQ paddle **£39.95**
Swedish Pump key **£89.95**
Schurr "Profi" the ultimate twin lever paddle **£129.95**

All prices include VAT. Carriage is charged extra. VISA/ Mastercard payments are welcome. Check our website for full product range and detailed information - sorry, no printed catalogue/data available.

www.G3TUX.com

PO Box 88 Haslemere GU27 2RF

01428 661501

COLOMOR (ELECTRONICS) LTD

Unit 5, Huffwood Trading Estate
Brookers Road, Billingshurst, West Sussex, RH14 9RZ

Tel: 01 403 786 559 Fax: 01 403 786 560

Email: sales@colomor.demon.co.uk

SEE OUR WEB PAGE AT: **http://www.colomor.demon.co.uk**

VALVES

3/500Z PENTA USA £130 EA.
6LQ6 / 6JE6C RCA & PHILIPS USA £29.30 EA.
6HF5 USA £29.30 EA.
6JS6C USA £35.25 EA.
6KD6 USA £35.25 EA.
12BY7A USA £9.90 EA.
12BY7A COLOMOR BRAND £7.35 EA.
572B £35.25 EA.
811A CHINESE £8.85 EA.
811A SVETLANA £16.45 EA.
813 £29.50 EA.
6146 USA £11.75 EA.
6164B USA £17.65
6146W PENTA USA MATCHED PAIRS £39.60 PER PAIR
EL519 £11.75 EA.
QQVO6-40A £17.65 EA.
QQVO7-50 £23.50 EA.
4CX250B BASES, AEI, USED £11.75 EA.
UX4 CERAMIC 811A BASES £2.40 EA.
UX5 CERAMIC 807 BASE £2.50 EA.

ALSO AVAILABLE

BIRD ELEMENT 1 KW; 2-30 MHz NEW £47 EA. *(other value elements available)*
50PF VARIABLE CAPACITOR £4.50 EA.
270PF 2mm SPACING WIDE SPACED VARIABLE CAPACITOR £29.40 EA.
195PF + 80PF; 2mm SPACING WIDE SPACED VARIABLE CAPACITOR £29.40 EA.
RACAL DANA FREQUENCY COUNTER 9913, 200 MHz £45
RACAL DANA FREQUENCY COUNTER 9915, 560 MHz £87
MARCONI TF1152 RF WATT METER, 10/25W, 50 OHM, £23.50 EA.

CARRIAGE **£3 PER UK** ORDER **VAT INCLUDED** IN ALL PRICES

OVER 6000 TYPES OF ELECTRONIC TUBES IN STOCK INCLUDING MANY RARE TYPES
PLEASE TELEPHONE FOR AN UP TO DATE QUOTATION

HATELY ANTENNA TECHNOLOGY GM3HAT

4, Redwood Crescent, Milton of Leys, INVERNESS IV2 6HB, Scotland U.K. Tel/fax: 01463 772169

DUAL LOOP ANTENNAS

We market a series of visually covert, yet highly efficient, radio transmitting aerials for the Amateur HF frequencies.

There are some dual conductor loops, which are monoband and are only 1% of a wavelength in diameter. There is also a Multiband loop which is only 67cm in diameter (2ft 4ins.), and yet operates on all nine HF bands.

There are also two multiband Delay-Line Radiators which require no support, as they can be laid on the roof tiles, or clipped to the balcony of an appartment.

DETAILS:- CROSSED FIELD LOOPS for 100 W

ANTENNA	Diameter	Weight	Working Bandwidth	PRICE inc
CFL 1.9	90 cm	1 kg	50 kHz	£120
CFL 3.6	67 cm	800g	120 kHz	£90
CFL 7	40 cm	500g	70 kHz	£75
CFL 14	30 cm	450g	150 kHz	£60
CFL 18	24 cm	400g	200 kHz	£60
CFL 21	18 cm	400g	250 kHz	£55
CFL 28/27	15 cm	350g	300 kHz	£50
CFL 50	12 cm	250g	400 kHz	£45

CFL1 67cm, 1.9MHz to 29 MHz with 9m feeder £280
CFL 1 67 cm, 1.9 MHz to 29 MHz with 15m feeder £290
ELECTROMAGNETIC DELAY-LINE RADIATORS for 100W
EMDR 1 8.5 m long (28ft) All HF Bands Complete £250
EMDR 2 15.5 m long (50ft) All HF Bands Complete £275

For further technical information, delivery, estimate etc. -
Tel: 01463 772169
Payment by cheque or credit card.
Maurice C Hately, M Sc FIEE (Licensed since 1950)

J.BIRKETT 25, The Strait, Lincoln LN2 1JF

(Partners: J.H Birkett, J.L. Birkett) Tel: (01522) 520767

EX-AIRCRAFT COLLINS H.F. 2 TO 30MHz SSB TRANSCEIVER No Control Box, With Mechanical Filters, R.F. Power Amplifier with 2 x 4CX250 Valves etc., No Info. @ £75 (P&P £10).
EX-AIRCRAFT VHF-UHF TRANSCEIVER TYPE PTR 175 With R.F. Power Amplifier with 4x150 Valve, Some Details @ £45 (P&P £10).
240 VOLT A.C. GROUND POWER SUPPLY For ARC52, PTR175, Output 27 Volt DC17 To 20 Amps @ £35 (P&P £10).
EX-AIRCRAFT VHF TRANSCEIVER TR1985 SERIES 10 Channel With Crystals, 21 Valves, Dynomotor etc., @ £25 (P&P £10).
EX-AIRCRAFT UHF 2 CHANNEL TRANSCEIVER With Valves, Dynomotor etc., @ £15 (P&P £8).
ARC52 CONTROL BOXES @ £15 each Post Paid.
EX-AIRCRAFT INTERCOMM AMPLIFIERS TYPE 1961 @ £5 (P&P £3), Type VA6060 @ £5 (P&P £3), Type MRD @ £10 (P&P £3).
R.F. MULTIMETER EX-MOD CT471C Up To 1500MHz, Complete with 50 ohm, 75 ohm Probes, Test Leads and Instructions. Takes 3D Type Batteries. With Serviceable Label but not Tested @ £20 (P&P £10).
ARMY MORSE KEYS @ £12, DLR5 HEADPHONES @ £5, CARBON HAND MIKE No 3 @ £4
EX-AIRCRAFT MAIN RECEIVER 110D-8704232 Nothing known about it, Approx Size $4\frac{1}{2}$x$4\frac{1}{2}$x $\frac{1}{2}$" Surface Mount Components @ £7.
EX-AIRCRAFT PRECISION ALTIMETER TRANSDUCER With Mach. Meter and Air Speed Indicator @ £35 (P&P £10).
Access, Switch, Barclay Card and American Express Cards accepted.
P&P £2 under £10, Over Free, Unless otherwise stated.

G.W.M. RADIO LTD

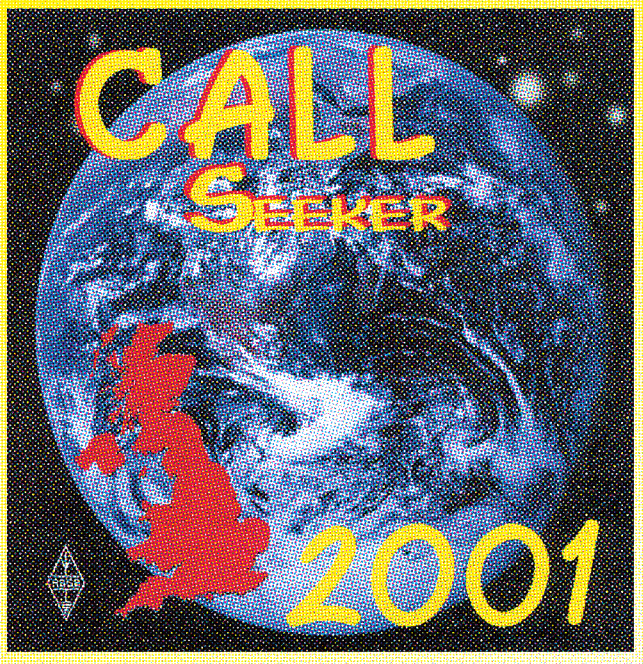
40/42 PORTLAND ROAD, WORTHING, SUSSEX, BN11 1QN
Telephone: 01903 234897 / 235913 - Fax: 01903 239050
e-mail: gwmradio@cheerful.com - website http://www.bcity.com/gwmradio/

EX-MoD Metropolitan style Police Whistles	£12
PHILIPS PM3233 dual beam oscilloscopes 10MHz bandwidth checked and in full working order	£95
MERIDAN Clinometers as new condition boxed with conversion chart Ex-bundeswehr	£25
Icom m-12 marine 12ch. Synthesised hand helds factory re-conditioned supplied in as new condition ministry packing no batt NOW WITH USED ANT and channel programming info (diode matrix)	£45
GENUINE WARTIME DATED WOODEN GAS RATTLES	£25
PHILIPS 12V. CAR STEREO AMPLIFIERS 2x19 WATTS OUTPUT NEW SUPPLIED WITH CIRCUITS ETC.	£15
EX-MoD BINOCULARS FAIR USEABLE CONDITION WARTIME DATED MADE BY ANCHOR OR REL 7x50	£75
PANEL METERS BELIEVED FOR THE WARTIME SPYSET/SUITCASE RADIOS TYPE A MK3 CHECKED & OK	£18
REDIFON R551 AERIAL FILTER UNITS AS NEW	£18
REDIFON R551 LF AND AUDIO AMPLIFIER UNITS AS NEW	£20
MARCONI TF2091B NOISE GENERATOR	£55
MARCONI TF2092C NOISE RECEIVER	£55
ICOM H2 HANDHELDS DAMAGED DIODE MATRIX BOARDS BUT OTHERWISE COMPLETE NO ANTS 2 UNITS FOR	£18
PYE MX294 (HI-BAND) 12V SYNTHESISED MOBILES 16/32 CHANNEL SUPPLIED WITH ALIGNMENT INFO AND EPROM SUPPLIER	£30

Weds. A.M. only. Ring to check availability before making a long journey to visit

All prices include VAT and UK mainland carriage.
Send S.A.E. for our current lists - Always worth giving us a ring for your particular requirements as we have many one-offs

RSGB SPRING SALE



30% OFF

CALL SEEKER 2001 - CD

THE COMPLETE CONTENTS OF THE RSGB YEARBOOK ON CD ROM.

Callseeker 2001 provides the ideal medium for rapidly searching for all or part of a callsign, post code, name, town, keyword etc.

All amateur radio information pages are available on screen or via your printer in exactly the same format as the printed yearbook.

(windows 95/98)

ONLY **£9.79** + p&p

RSGB IOTA DIRECTORY 2000

This book is an essential guide to participating in the RSGB's Islands on the Air (IOTA) awards programme. It contains everything a newcomer needs to know to enjoy collecting islands for this popular worldwide programme.

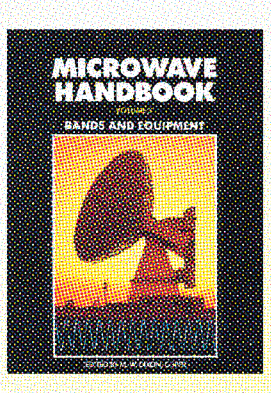
ONLY **£7.49** + p&p

25% OFF

RADIO COMMUNICATIONS HANDBOOK

The Radio Communication Handbook has been one of the world's largest and most comprehensive guides to the theory and practice of amateur radio communication since it was first published in 1938. This seventh edition has been revised, with several chapters being extensively re-written to incorporate the latest technical innovations and techniques. A new chapter has been included forming a practical guide to to becoming operational on the new 73 and 136 kHz bands.

ONLY **£22.49** + p&p



MICROWAVE BANDS & EQUIPMENT HANDBOOK

Everything you need to know about getting the best of the bands above 1GHz. Hundreds of pages about receivers, transmitters, antennas and test equipment written by the leading writers in the microwave field. Whether you are just starting on 1.3GHz or upgrading to 47GHz, this is essential reading.

40% OFF

ONLY **£11.39** + p&p

(All prices - members only)

www.rsgb.org/shop

Tel: 0870 904 7373

ML&S martin lynch & sons

Suppliers of Communications Equipment

tel: 0208 566 1120
fax: 0208 566 1207
website: www.hamradio.co.uk
email: sales@hamradio.co.uk

128, 140-142 NORTHFIELD AVENUE • EALING • LONDON W13 9SB

YAESU SUPER DEALS

YAESU
FT-1000MP MkV
+FREE
FT-50R HANDIE
(Whilst stocks last)

• WE PAY your deposit,
• FREE Yaesu Handie
• AND ONLY £19.65 p/WEEK!

New FT-1000MP MkV

• HF • Base - 234V • 200W
• All mode • DSP

with 2 year warranty

FREE FT-50R
Twin Band Handie

RRP £2899
WE PAY YOUR £100 DEPOSIT!
48 * £85.17

VL-1000

SPECIAL PURCHASE!

We have two pieces ONLY at a very, very special price. Full 2 year warranty. *Call for details.*

FT-1000 MP/AC

ML&S have purchased the VERY LAST of this famous benchmark transceiver. Retailing at over £2500, SNAP ONE UP TODAY at only £1699

RRP £2595
ML&S £1799
INTEREST FREE!
£179 DEPOSIT
12 * £135

Have a trade in? We pay TOP MONEY
– call the sales desk or EMAIL your request. sales@hamradio.co.uk

SO WHY DO MORE RADIO AMATEURS BUY THEIR HF PRODUCT FROM ML&S?

ML&S started in 1990, not as long as some we know, but Martin G4HKS has been selling UK Amateurs with kit since 1978. In that time, not only has built up an enviable customer base of over 30,000 but has gained many friends along the way.

WHY? Because Martin and his team want you to be happy with your purchase – above everything else. The comfort of a cheap deal is soon forgotten when it goes wrong. It's small wonder then, that most of the UK's Top DX'ers use our small personal company to do business with.

Haven't tried us yet? Maybe you should.

YAESU FT-847

• HF/6/4/2/70
• Base/mobile – 13.8V
• 100W
• All mode
• DSP

RRP £1699
ML&S £1199
ZERO DEPOSIT!
36 * £44.56

Two Year Warranty & microphone, leads & manual.

YAESU FT-920AF

• HF/6m
• Base – 13.8V
• 100W
• All mode
• DSP

RRP £1499
ML&S £1099
ZERO DEPOSIT!
36 * £40.84

YAESU FT-840

• HF
• Base/mobile – 13.8V
• 100W
• All mode*
• Simple to use

RRP £799
ML&S £579
ZERO DEPOSIT!
24 * £29.47

Supplied with microphone & DC Lead *optional FM board required

YAESU FT-817

NEW

NOW IN STOCK!
Full range of accessories & HF Whips available

• HF/6/2/70
• Transportable - Batteries
• 5W
• Wide Band RX
• All mode

RRP £799
ZERO DEPOSIT!
36 * £29.69

offered with nicads, charger, antenna & microphone,

YAESU FT-100

• HF/6/2/70
• Mobile – 13.8V
• 100W HF/6 50/40 2/70
• All mode
• Remote Head

RRP £1299
ML&S £849
ZERO DEPOSIT!
36 * £31.55

YAESU FT-90

• 2/70
• Handie
• 50/35W
• Remote Head
• Micro size

RRP £475
ML&S £299
ZERO DEPOSIT!
24 * £15.21

Offered with FREE YSK-90, microphone and 2-year warranty.

YAESU VX-5R

FREE SU-1
BAROMETER PRESSURE SENSOR
(Whilst stocks last)

• 6/2/70
• Handie
• 5W
• Lithium Battery

Offered with Lithium battery & charger

RRP £339
ML&S £269
ZERO DEPOSIT!
24 * £13.69

YAESU FT-50R

• 2/70
• Handie
• 2.5W
• Wide RX

Supplied with Nicads & charger, 2 year warranty

RRP £269
ML&S £150
Pay over 2 credit card payments

Martin Lynch & Sons Open Sale Week

KENWOOD TS-2000

NEW "Millennium Communicator"

IN STOCK!

- HF/6/2/70/23*
- Base – 13.8V
- 100/100/50/35/10
- All mode
- DSP

RRP £1699
ZERO DEPOSIT!
48 * £51.70

*** Also available with 23cm option at £349, or TS-2000 c/w UT-20 at £1999.**

KENWOOD TS-870S

- HF
- Base – 13.8V
- 100W
- All mode
- DSP

RRP £1999
ML&S £1399
ZERO DEPOSIT!
48 * £42.55

KENWOOD TS-570DGE

- HF
- Mobile/Base – 13.8V
- 100W
- All mode
- DSP

RRP £999
ML&S £849
ZERO DEPOSIT!
36 * £31.55

KENWOOD TMD-700E

- 2/70
- Mobile – 13.8V
- FM + APRS + Packet
- Remote Head

RRP £539
ML&S £439
ZERO DEPOSIT!
24 * £22.34

KENWOOD TH-D7E

- 2/70
- Handie
- FM + APRS + Packet
- Nicad

RRP £309.95
ML&S £269
ZERO DEPOSIT!
12 * £24.92

ICOM IC-756PRO

- HF/6m
- Base – 13.8V
- 100W
- All mode
- DSP

RRP £2199
ML&S £1849
ZERO DEPOSIT!
36 * £56.26

ICOM IC-746

- HF/6/2m
- Base – 13.8V
- 100W
- All mode
- DSP

RRP £1699
ML&S £1395
ZERO DEPOSIT!
48 * £42.44

ICOM IC-706G MKII

- HF/6/2/70
- Mobile – 13.8V
- 100/100/50/50
- All mode
- DSP
- Remote Head

RRP £1299
ML&S £1099
ZERO DEPOSIT!
36 * £40.84

ICOM IC-910H

NEW

- 2/70/23*
- Base – 13.8V
- 100/75/10
- All mode
- DSP

RRP £1399
ML&S £1299
ZERO DEPOSIT!
36 * £48.28

*** optional 23 module available**

MA5B MINI BEAM

2 ELEMENTS ON: 20m, 15m,10m
GAIN: 3.6, 4.8, 5.3dB
F/B: 10, 12, 22dB
DIPOLE: 17m & 12m (0dB)
POWER: 1.2kW (2:1SWR)
BOOM: 2.2m
ELEMENT: 5.2m
RADIUS: 2.7m

ML&S £299

CUSHCRAFT
Ham Radio Antennas

A3-S 10-15-20m 8dB 2kW 3 el 4.27m boom	£389.95
A743 10/7Mhz kit	£129.95
A4-S 10-15-20m 9dB 2kW 4 el 5.84m boom	£469.95
X7 10-15-20m 13dB 2kW 7 el 5.48m boom	£549.95
X9 10-15-20m 14dB 2kW 9 el 8.5m boom	£799.95
R-6000 6-20m vert	£299.95
R8 6-40m vert 8.7m	£399.95
TEN-3 10m 3 el	£159.95
D4 10-40m 10.92m 2kW rotary dipole	£259.95
D3 10-20m 7.86m 2kW rotary dipole	£189.95
XM240 40m 2 el	£569.95
XM520 20m 5 el	£629.95
XM515 15m 5 el	£359.95

OUT with the boys in blue.....

ML&S

IN WITH MEN IN BLACK!

our blue uniforms are gone - we're now in black & orange!

'A big thank you to all of you who came to see us at Bletchley and made it a HUGE success!'

LOOK! FT-1000 MP/AC

The radio you have always wanted at an INCREDIBLE price!

ML&S have purchased the VERY LAST of this famous benchmark transceiver. Retailing at over £2500, SNAP ONE UP TODAY at only £1799

RRP £2595
ML&S £1799
INTEREST FREE!
£179 DEPOSIT
12 * £135

FULL RANGE of MFJ TUNERS
now in stock!

end 21-22nd April call 0208 566 1120

SGC
NO COMPROMISE COMMUNICATIONS

WORLD LEADERS

What Could be Easier ?

Random Wire

Insulator

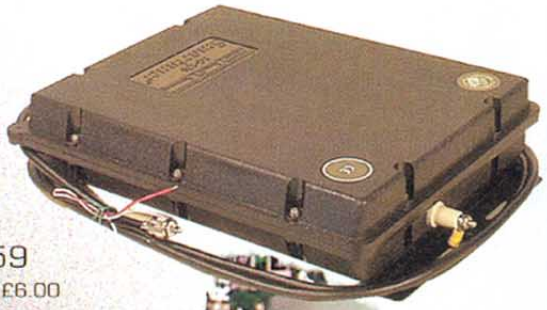
ATU

Simply attach the SGC ATU to a wall or other support, attach a long wire of not less than 2.4 metres, and enjoy all-band HF operation from 160m - 10m (6m on some models). Tuning is almost instantaneous and the memory feature makes the whole operation is transparent. To install, connect a coax cable from the ATU back to your transceiver and run a low current 12V supply to the DC input on the ATU. Then switch to any band and any frequency, press the PTT button and speak or key the transceiver. With an SWR of typically 1.5:1 or less and no traps, you can erect a wire antenna to fit any space, large or small, indoors or out. Now doesn't that make life simple?

Coax Feed To Transceiver

12V DC 750mA

HIGH-TECH



£359
carriage £6.00

SG-230 Auto ATU

1.6 - 30MHz
3- 200 Watts
Tune time: 10ms
Input: SO-239
Output: High voltage terminal
Supply: 12 - 14V 750mA approx.
Fully weatherproof
Size: 406 x 305 x 76mm

SG-2020 Compact HF Transceiver

1.8 - 29.7MHz Transceiver
0.5 - 20W SSB & CW
Tx 3 Amps average
Rx 300mA approx.
RF clipping with VOGAD
100Hz display resolution
10Hz tuning steps
Wide selectivity range
Size: 150 x 65 x 177mm
Weight 1800gr.

£599
carriage £6.00

SG-231 Auto ATU

1.0 - 60MHz
3- 100 Watts
Tune time: 10ms
Input: SO-239
Output: Terminal post
Supply: 12 - 14V 750mA approx.
Fully weatherproof
Size: 292 x 242 x 43mm

£389
carriage £6.00

SG-237 Auto ATU

1.8 - 60MHz
3- 100 Watts
Tune time: 10ms
Input: SO-239
Output: High Voltage terminal
Supply: 12 - 14V 300mA approx.
Fully weatherproof
Size: 178 x 229 x 38mm

£319
carriage £6.00

(AVAILABLE FROM ALL GOOD RADIO DEALERS)

WATERS AND STANTON PLC, SPA HOUSE, 22 MAIN ROAD, HOCKLEY, ESSEX, SS5 4QS

TELEPHONE: 01702 206835 FAX: 01702 205843 E-MAIL: SALES@WSPLC.COM WEB: WSPLC.COM

RSGB VHF NATIONAL FIELD DAY - 2001 RULES

General Rules Apply.

1. Date / Time: 1400 Saturday 7 July until 1400 Sunday 8 July 2001 ***subject to the Foot & Mouth outbreak being under control. If this is not the case, the contest will provisionally move to Saturday 1 September until Sunday 2 September.***

2. Site Notification: Each Group intending to compete must supply the following details:
Name of Club / Group
Contact name and address / telephone number in case of query
Section entered
Choice of Bands (see section 7)
Callsign for each band
Locator square
NGR of site
Site access information (maps are not required).

A suitable form is available in the RSGB *Yearbook*, from the VHFCC web site www.blacksheep.org/vhfcc or from G4XUM (VHFCC Chairman).

Post the details to: VHF Contests Committee, PO Box 40, Newport, Isle of Wight PO32 6BFor e-mail to: vhf.entry@rsgb.org.uk

The postmark of the letter or date of the e-mail must not be later than 30 June 2001.

Each group may only register one site although essential changes may be acceptable provided G4XUM is informed before the contest; tel: 0870 740 7909, evenings/weekends; e-mail: vhfcc.chairman@rsgb.org.uk

3. Bands: The chosen bands must be stated on the site registration form. See individual section rules (see section 7 of these rules) for the choice of bands during the contest.

4. Operators: Any RSGB member or group of members operating from the British Isles (excluding the Irish Republic) may enter. Also, affiliated RSGB societies may enter (operators *must* be members of the Affiliated Society (AFS), but not necessarily members of RSGB themselves). In this case, a declaration signed by an officer of the AFS that the operators are members of the society is required with the entry. RSGB members are allowed to operate in AFS groups whether or not they are actually members of that AFS group.

5. Stations: All equipment including antennas and accommodation must be installed on site not more than 24 hours before the contest. Only portable accommodation can be used to house the stations. Power for all equipment must be derived from an on-site generator, battery, wind or solar power.

6. Contest exchanges: a. On each band report, serial number and 6 character (eg IO91OJ) locator must be exchanged.

b. Additionally, on 70MHz only, QTH information must be exchanged (Special rule S2).

7. Sections

7.1 Open section (O):

(i) Maximum output power as permitted by standard licence conditions.

(ii) General rules apply

(iii) Operate on up to four bands from the following list:

50MHz (6m) 1400 to 2200 Saturday (all mode)

70MHz (4m) 0800 to 1400 Sunday (all mode)

144MHz (2m) 1400 Saturday to 1400 Sunday (all mode)

432MHz (70cm) 1400 Saturday to 1400 Sunday (all mode)

1.3GHz (23cm) 1400 Saturday to 1400 Sunday (all mode).

Single band entries for any band are also acceptable.

7.2 Restricted section (R):

(i) The power output on any band must not exceed 100W PEP at the transmitter.

(ii) The height of the antenna's driven element must not exceed 10 metres above ground level.

(iii) Only one antenna per band may be used (ie no stacked, bayed or collinear arrays or switching between two or more antennas). A slot-fed Yagi or quad antenna is permitted. Dish or backfire antennas must not exceed 2m diameter.

(iv) Operate on up to four bands from the following list:

50MHz (6m) 1400 to 2200 Saturday (all mode)

70MHz (4m) 0800 to 1400 Sunday (all mode)

144MHz (2m) 1400 Saturday to 1400 Sunday (all mode)

432MHz (70cm) 1400 Saturday to 1400 Sunday (all mode)

1.3GHz (23cm) 1400 Saturday to 1400 Sunday (all mode).

Single band entries for any band are also acceptable.

7.3 Low Power section (L):

(i) The power output on any band must not exceed 25W PEP at the transmitter.

(ii) The height of any part of the antenna's driven element must not exceed 10 metres above ground level.

(iii) Only one antenna per band may be used (ie no stacked, bayed or collinear arrays or switching between two or more antennas). A slot-fed Yagi or quad antenna is permitted. Dish or backfire antennas must not exceed 2m diameter.

(iv) Operate on up to three bands from the following list:

50MHz (6m) 1400 to 2200 Saturday (all mode)

70MHz (4m) 0800 to 1400 Sunday (all mode)

144MHz (2m) 1400 Saturday to 1400 Sunday (all mode)

432MHz (70cm) 1400 Saturday to 1400 Sunday (all mode)

1.3GHz (23cm) 1400 Saturday to 1400 Sunday (all mode).

Single band entries for any band are also acceptable.

(v) Each band may be operated for no more than 16 hours (except for 6m and 4m: see 7.3 (iv) above) during the contest period. Each rest period must last at least one hour.

7.4 Mix and Match (M):

(i) A group can elect to place different bands into Restricted, Low-Power or Open sections, eg 4m in Restricted, 2m and 70cm in Open, and 23cm in Low Power. This decision must be made at registration time and the details shown on the site registration form. At least one station must be in a different section from the other stations (eg 6m, 4m and 2m in the Open section, 70cm in the Restricted section).

(ii) Individual band entry will be tabulated in the appropriate main section, and a normalised score for the band produced on this basis.

(iii) The sum of the normalised scores will appear in a separate Mix & Match section table.

(iv) Operate on up to four bands from the following list:

50MHz (6m) 1400 to 2200 Saturday (all mode)

70MHz (4m) 0800 to 1400 Sunday (all mode)

144MHz (2m) 1400 Saturday to 1400 Sunday (all mode)

432MHz (70cm) 1400 Saturday to 1400 Sunday (all mode)

1.3GHz (23cm) 1400 Saturday to 1400 Sunday (all mode).

(v) Note that 2m, 70cm or 23cm stations entered in the Low Power section may be operated for no more than 16 hours during the contest period. Each rest period must last at least one hour.

7.5 SWL section (S): as per general rules.

8. Inspections: All stations are subject to inspection by members of the VHF Contests Committee or nominated representatives. Should the inspector be unable to locate the site due to inadequate or incorrect information, the entry may be disallowed. In the event of a last-minute site change it is the responsibility of the group to make suitable arrangements for the inspector to find the site. The inspector must be given immediate access to all parts of the site with the right to stay as long as desired, and the ability to return at any time during the contest.

9. Entries:

(a) All entries must be postmarked no later than 31 July 2001.

(b) Entries must be addressed to VHF Contests Committee, PO Box 40, Newport, Isle of Wight PO32 6BF, or sent via e-mail to: vhf.entry@rsgb.org.uk

(c) A Form 427 cover sheet or near facsimile is required for each band.

10. Awards: The Surrey, Martlesham, Arthur Watts and G5BY Trophies will be awarded to the overall winners of the Open, Restricted, Low Power and Mix & Match sections respectively. The Tartan Trophy will be awarded to the leading resident Scottish entry in the Open section, the Cockenzie Quaich to the leading Scottish station in the Restricted Section and the Scottish Trophy to the leading Scottish entry in the Low power section. Certificates will be awarded to the winners and runners-up on all bands in each section, and to the leading stations in each country. ♦

in practice

IAN WHITE, G3SEK

52, Abingdon Road, Drayton, Abingdon, OX14 4HP
Web site: www.ifwtech.com/g3sek
E-mail: g3sek@ifwtech.com

CRIMPED CONNECTIONS

CRIMPED CONNECTIONS are wonderful if they are made correctly, which is why many modern electrical safety standards insist on them and will not accept soldering for safety-critical earth connections. This is because, in a production environment, a crimped connection is much more reliable (when the tooling is set up correctly) than hand soldering. The problem for amateurs is that we don't have the expensive professional tools that are necessary to make crimped connections reliably - it needs a special tool for every different kind of crimp, and that's just not practicable. On the other hand, most of us are pretty good at soldering.

For us, therefore, the answer is to do both: crimp the connection first with an inexpensive DIY crimping tool, and then run solder into it. But you **must** do it in that order! Don't ever tin the wire with solder first, and then crimp it - the connection will be fine at first, but in time the solder is liable to 'creep' and the crimping force will be lost.

For the same reasons, always cut any tinned ends off stranded flex before connecting to a mains plug or other type of screw connector (see the January and March 1999 columns for more details).

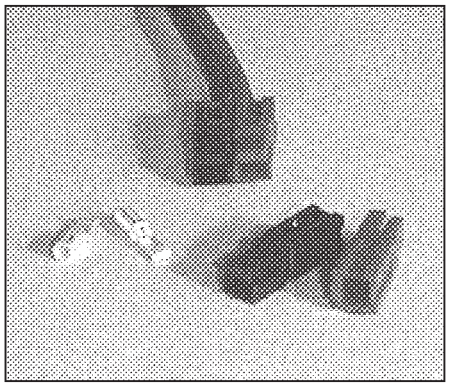
12V CONNECTORS

I'D LIKE TO standardise on a reliable 12(13.8)V connector for various transceivers, amplifiers and power supplies, rated up to at least 20A. What can you recommend?

THE FIRST THING to ask, I suppose, is: why use connectors at all? After all, the world has got along fine with screw terminals, banana plugs, croc clips, choc blocks and twisted wires. However, although these solutions do work, they start to fall apart (literally) if they have to be disconnected and re-connected frequently. Also, with non-polarised methods such as these, there is a significant risk of reversing the connections or allowing them to short - especially if you tuck your power supplies or batteries away under the bench, so you have to make the connections down on your knees in poor light. At that point you start to appreciate the virtues of a connector that can just be plugged together by feel. The same applies to contest, special-event and Raynet groups, who have to plug together their stations in quick time and be able to swap equipment easily in the event of a breakdown.

It hasn't been easy to find connectors that are (a) capable of handling at least 20A without excessive voltage drop and heating, (b) reliable for multiple connections/disconnections, (c) easy to obtain, both now and into the long term, and (d) low-cost. At one time I used the 2-pole Molex connectors that were obtainable from Radio Shack (Tandy) but the 20A versions of these no longer seem to be available, either in the shops or from any of the major component distributors. Frankly, they always were a bit marginal for 20A, being made out of very thin tin-plated steel. The other problem was that, however carefully I tried to balance the purchases of plugs versus sockets over the years, I always seemed to run out of one while still having a large surplus of the other.

What looks like a very good solution has recently appeared in both the Farnell and the RS/Electromail catalogues. These are the Anderson 'Powerpole' connectors, which are available with current ratings of 15A, 30A, 75A and even 120A. The range of connectors is based upon the principle of pairs of interlocking blades, as shown in **Fig 1**, which fit into plastic housings that can slot together in any configuration to make multi-pole configurations. Multi-pole connectors will be polarised, so positive and negative cannot be reversed, and the really clever thing is that all the parts are genderless - you don't have to buy separate parts for plugs and sockets because they are both the same. The contact inserts are made from heavily plated copper and have crimp terminals for the wire (see text box). The terminated insert then pushes into the plastic housing, and a separate spring finger provides the contact pressure and a 'snap-together' action. Live contacts are also shrouded by the housing in both directions.



A two-pole 30A 'Powerpole' connector.

Of the parts currently available in the UK catalogues, the best buys are the 30A contacts in single housings. Parts for a mating pair of two-pole connectors will cost about £1.90, and since parts are available in multiples of 5 or 10, the best buy is probably 10 contacts and 10 housings, which will make you five two-pole connectors of either gender. The part numbers are as follows. RS/Electromail (minimum order 10 each): 30A contacts 534-963; housings black 534-979, red 534-985. Farnell (minimum order 5 each): 30A contacts 345-3637; housings black 345-3595, red 345-3571. Note that the different-coloured housings would only be for show - a connector made from two housings joined together cannot be mated with the wrong polarity.

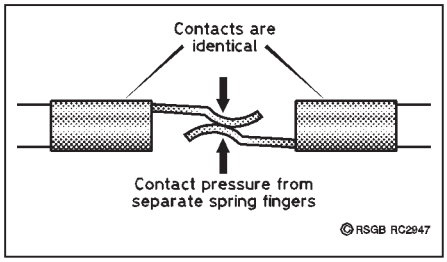


Fig 1: Principle of the Anderson 'Powerpole' connectors - the same contacts are used in both mating parts.

These connectors are not cheap compared with a choc-block, but they will do the business in a professional way. For twin low-voltage cable, Maplin XS74R rated at 25A would be a good choice, and the photograph shows what a finished two-pole connector can look like. Another very useful feature of the genderless connectors is that, when used on a battery, the same connector can serve for both charging and output. However, when every one of your '12V' connectors fits all the others, there are also a few things you could do wrong. Some are harmless (like plugging the power leads of two rigs together and wondering why neither one works) but others can be unpleasant, like plugging two mains power supplies together, output-to-output... but you wouldn't do a thing like that, would you?

DC AND RF RESISTANCE OF WIRES

WHERE CAN I find formulæ for the DC and RF resistances of copper wires? How do tinned copper wire and zinc wire differ?

DC RESISTANCES are usually given as tables for various wire diameters or gauges, but you can indeed calculate the values from a formula. In practical metric engineering units, the best way to express this is:

$$R = \frac{K \cdot L}{D^2},$$

where R is the DC resistance in ohms,
K is a resistivity factor (see below and **Table 1**),
L is the wire length in m, and
D is the wire diameter in mm.

Wire material	K-factor	Comments
Aluminium, pure	0.036	
Aluminium, alloys	0.05 - 0.1	
Brass (various)	0.08 - 0.1	Depends on the alloy
Chromium, pure	0.166	Chromium plate probably higher
Constantan	0.624	Resistance wire (55% copper, 45% nickel), zero temperature coefficient
Copper, pure	0.0215	
Copper, commercial annealed	0.022	
Copper, hard-drawn	0.0225	
Gold, pure	0.0311	
Manganin	0.573	Resistance wire (84% copper, 12% manganese, 4% nickel)
Nichrome	1.273	Resistance wire (nickel-chromium)
Silver, pure	0.0187	
Silver, electrolytic	0.0208	'Bright' silver plating often contain nickel and may have considerably higher resistivity.
Solder (60% tin, 40% lead)	0.205	
Steel, plain carbon	0.125 - 0.13	
Steel, stainless type 304	0.917	
Tin, pure	0.18	
Zinc	0.08	

Table 1: DC resistance K-factors for common metals.

K is 0.022 for standard annealed (soft-drawn) copper at 20°C - in other words, 1m of 1mm diameter copper has a resistance of 0.022Ω. The resistance is proportional to the length (L) of wire, and inversely proportional to the square of the wire diameter (D^2). For example, the DC resistance of 1.2m of 1.5mm annealed copper wire will be:

$$R = \frac{0.022 \cdot 1.2}{1.5^2} = 0.0117\Omega .$$

Table 1 gives a list of K-factors for some common metals [1]. These are all at 20°C, and each material will have its own temperature coefficient. Since most of the current flows inside the wire, the surface finish is not very important - for example, you can hardly tell the difference between tinned copper wire and bare copper of the same diameter.

RF resistance differs from DC resistance because of the *skin effect* which concentrates the RF current towards the outer surface of the conductor [2]. This makes the effective cross-section of the conductor much less than the physical cross-section. The RF resistance of an isolated round wire is given by:

$$R = 0.0560 \cdot \frac{L}{D} \cdot \sqrt{K \cdot f \cdot \mu} ,$$

where R is the RF resistance in ohms,
K is the resistivity factor of the surface material (see above and Table 1),
D is the wire diameter in mm,
L is the wire length in metres,
μ is the magnetic permeability (close to 1 for 'non-magnetic' materials), and
f is the frequency in MHz.

For example, the RF resistance of the same 1.2m of 1.5mm annealed copper wire at 30MHz will be:

$$R = 0.0560 \cdot \frac{1.2}{1.5} \cdot \sqrt{0.022 \cdot 30 \cdot 1} = 0.036\Omega .$$

This formula applies to HF and above, where the skin effect makes the skin depth very small in relation to the wire diameter. However, it applies only to a single wire in isolation; when wires are parallel and closely-spaced (as in an inductor) the same factors that cause the skin effect also tend to squeeze the current away from the adjoining wire, making the effective cross-section even smaller. This is why close-wound coils have a lower unloaded Q than space-wound. Also, the above formula takes no account of RF radiation from the wire, ie its tendency to behave as an antenna. The interaction of radiation resistance and skin resistance is quite complex, because skin losses depend on the square of the local current density, which changes along the wire; antenna modelling programs (such as NEC, MININEC and their derivatives) tackle this problem by dividing the wire into segments of length; within each segment the RF current is assumed either to be constant or to change in a simple way that allows the contribution of skin effect to be calculated.

Combining the information in Table 1 with the information about the skin effect, we can make a few other observations about RF resistance. First and most important, plain copper is hard to beat for low resistance. Second, since everything takes place at the surface, what matters is the surface conductivity. Copper-plated steel antenna wire is just as good as solid copper at HF and above, because the current flows only in the plating (in fact the magnetic properties of the steel core tend even more to expel RF current from the inside).

For VHF-UHF-microwave construction, where the skin effect makes the surface finish important, silver plating is about the same as copper, but brass is significantly poorer and tin-lead solder worse still. The main reason for silver-plating is therefore to improve the RF performance of parts made out of brass, especially if soldered. Silver-plating has few benefits compared with clean, new copper; it is mostly done to reduce the longer-term effects of tarnishing, which can affect the RF resistance of copper very badly (but it is a myth that a tarnished silver surface is a good RF conductor). Gold has a higher resistivity than either silver or copper, but it does not tarnish and thus the surface resistance does not deteriorate in the longer term (unless the gold plating is rubbed off).

The effects of tarnishing - surface corrosion - on RF performance are quite complex, because they depend on the resistivity and dielectric losses of the surface film. Clearly, a surface film that had excellent conductivity would be no problem, and neither would an excellent, low-loss insulating material such as the oxide skin that immediately forms on aluminium. But for the majority of metals, in the majority of atmospheric environments, the surface corrosion film is of a lossy material whose effects are hard to gauge. For HF applications, a thin sprayed finish of clear plastic-based varnish seems more than adequate. For VHF and above, the difficulty is to find a suitably qualified varnish [3]. ♦

REFERENCES

[1] The K-factor is related to 'textbook' resistivity ρ (rho) by:
K = ρ (ohm.cm) x 40,000 / π
[2] 'In Practice', *RadCom* April 1995.
[3] 'In Practice', *RadCom* March 1998.

If you have new questions, or any comments to add to this month's column, I'd be very pleased to hear from you by mail or e-mail. Please remember that I can only answer questions through this column, so they need to be on topics of general interest.

HAM RADIO

Europe's No.1!

26th International Amateur Radio Exhibition

29.06.-01.07.2001

Friedrichshafen/Germany

in association with the 52nd DARC
Lake Constance Meeting

..... Europe's leading ham radio event
..... Presenting the best and the latest from the world of radio, electronics and CB technology

Messe Friedrichshafen (Exhibition Centre)
Friday to Sunday 9 a.m. – 6 p.m.
www.messe-friedrichshafen.de

DARC

..with..HAMtronic..Electronics..Internet..Computer..

The SHORTWAVE Shop

18 FAIRMILE ROAD, CHRISTCHURCH, DORSET BH23 2LJ
Phone/Faz 01202 490099 SHORTWAVE HOTLINE 07000 0Q0X0Q (273927)

THE COMMUNICATION SPECIALISTS

Receivers – Scanners – Transceivers

Call & discuss which part of the radio spectrum you wish to operate and we will advise you on the most cost effective way achieving it.

- **Full range of new & secondhand equipment available.**
- **We stock all leading brands:- Airband Amateur CB, Marine Shortwave Licence-Free Family Radio**
- **Business and security radios**

NOW IN STOCK

Worldspace Digital Radios from £99

SHORT WAVE ADVICE LINE
01202 490099

ALINCO, AOR, AKD, BEARCAT, COMTEL,DRAKE, FAIRHAVEN, ICOM, KENWOOD, JRC, LOWE, MFJ, OPTO, WELLBROOK, YUPITERU, YAESU

Call for latest second-hand list or visit our website http://www.shortwave.co.uk

4 MILES FROM BOURNEMOUTH INTERNATIONAL AIRPORT ON B3073
300 YARDS FROM CHRISTCHURCH RAILWAY STATION. FORECOURT PARKING FOR DISABLED

QUARTZ CRYSTALS

CUSTOM MANUFACTURED CRYSTALS AND OSCILLATORS

FUNDAMENTALS FREQUENCY RANGE	PRICE	OVERTONES MODE	FREQUENCY RANGE	PRICE
1.5 to 2.0 MHz	£9.50	3rd OVT	21.00 to 60.00 MHz	£7.50
2.0 to 4.0 MHz	£9.00	3rd OVT	60.00 to 75.00 MHz	£8.75
4.0 to 6.0 MHz	£8.75	5th OVT	60.00 to 110.0 MHz	£8.50
6.0 to 22.0 MHz	£7.50	5th OVT	110.00 to 126.0 MHz	£10.00
22 to 26.0 MHz	£9.00	7th OVT	125.00 to 175.0 MHz	£13.50
		9th OVT	170.00 to 225.0 MHz	£13.75

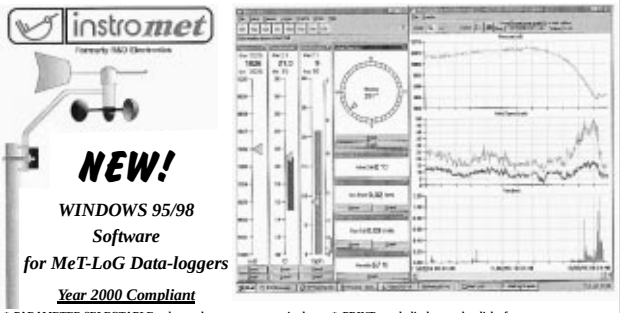
1.5 - 2.0MHz available in HC6/U or HC33/U only.
2.0 - 10.0MHz available in HC6/U HC33/U HC18/U or HC/25U only.
10.0 - 225.0MHz HC6/U HC33/U HC18/U HC18/T HC18/TT HC25/U HC25/T HC25/TT and HC45/U.
Where holders are not specified, crystals above 2.00MHz will be supplied in HC25/U.
For HC18/T and HC25/T (11.7mm ht.) add £1.00. For HC18/TT (9.6mm ht.) and HC45/U add £5.00.

Delivery approx 2 weeks. For 5 day EXPRESS service add 50% to above prices
Prices include P&P and VAT. **Minimum order charge £10.00. All major credit cards accepted.**
Unless otherwise requested fundamentals supplied for 30pF load & overtones for series resonant operation. Where applicable please state the make and model number of the equipment for which the crystals are to be used, this will assist us in providing the correct specifications.
Custom manufactured TTL and CMOS oscillators 3.5 - 85MHz £20.35 each 1 - 4 pcs

QuartSlab Marketing Ltd
PO Box 19, Erith, Kent DA8 1LH
Phone: 01322 330830 Fax: 01322 334904
e-mail sales@quartslab.com
web www.quartslab.com
SAE with enquiries please

---

instromet



NEW!

WINDOWS 95/98 Software for MeT-LoG Data-loggers

Year 2000 Compliant

- PARAMETER SELECTABLE – show only parameters required.
- Superb REAL-TIME display shows all parameters active on the screen with Min and Max tell-tales and graphs.
- Zoom in logged data for close-up view of events.
- All scales dynamic i.e. expand to suit values measured.
- All functions selectable by mouse from real-time screen.
- PRINT graph displays at the click of a mouse.
- All functions selectable by mouse from real-time screen.
- Display graphs of all parameters at the click of a mouse.
- Tag and show values of interesting events on graphs.
- EXPORT data to your SPREADSHEET or DATABASE.

R & D Instromet Ltd Percy Avenue Kingsgate Broadstairs Kent CT10 3LB
Tel: +44 (0)1843 866662 Fax+44 (0)1843 866663
e-mail – www.instromet.co.uk

WILSON VALVES

(PROP JIM FISH G4MH)

Over 2500 different types stocked, Ham Radio, Military, Audio.
6146B £19.98, **6JS6C** £30.55, **6LQ6** USA Types £29.38, **6JB6A** £29.38, **6KD6** £27.50, **12BY7A** £9.98, **6HF5** £23.50, **572B/T160L** £37.60, **3-500ZG** £185.67, **811A** £19.39. **6146W G.E (MilSpec) £17.63 ea**.

Matched pairs available * VAT included
Plus £2.35 pp & ins * Most major credit cards, Many more available.

28 Banks Avenue, Golcar, Huddersfield, West Yorkshire HD7 4LZ.
Tel: 01484 654650 Fax: 01484 655699 (send SAE for list)
Email: wilsonvalves@surflink.co.uk
For Pre & Post war domestic valve sales ring
Roger Walker on 01484 650725 Mobile: 07733 283084
OPENING TIMES: Mon-Fri 9am to 6pm, Sat 9am to 12.30pm

SPECIAL OFFER

RACAL H.F. Communications Receiver RA1792

- Fully synthesized solid state receiver as used by government departments
- 150kHz - 30MHz
- Modes LSB, USB, AM, CW & FM
- Digital AGC scan facility
- 100 channel memory

Price: £550.00 (incl. VAT @ 17.5%)
P&P £15.00 (mainland U.K.)
Callers welcome strictly by appointment

TELFORD ELECTRONICS
Old Officers Mess, Hoo Farm, Humbers Lane, Horton, Telford, Shropshire TF6 6DJ, UK
Phone: (0044) 01952 605451 - Fax: (0044) 01952 677978
E-mail: telfordelectronics@telford2.demon.co.uk
Web site: http://www.telford-electronics.com

WE NOW ACCEPT ALL MAJOR CREDIT CARDS. OVERSEAS ORDERS WELCOME. PLEASE SEND LARGE SAE FOR DETAILS

HAYDON Communications

Mail order: 01708 862524

PRICES SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE VERIFY BEFORE ORDERING. E&OE.

NEXT DAY DELIVERY TO MOST AREAS, £10.00.

Q-TEK PENETRATOR

"We've sold 100s all over Europe"

★ 1.8 - 60MHz HF vertical ★ 15 foot high ★ No ATU or ground radials required ★ (200W PEP).

ONLY **£179.95** delivery £10

SEND SAE FOR LEAFLET

Wire version now available 45ft long end fed. (1.8-60MHz) spec. as above. Price £159.95.

Q-TEK ZL SPECIALS

Delivery £10.00

2m	5ele (boom 45"/9dBd)	£49.95
2m	7ele (boom 60"/11dBd)	£54.95
2m	12ele (boom 126"/13.8dBd)	£79.95
70cm	7ele (boom 28"/11dBd)	£39.95
70cm	12ele (boom 48"/13.8dBd)	£59.95

Q-TEK YAGIS

Delivery £10.00

2m	5ele (boom 63"/9dBd)	£49.95
2m	8ele (boom 125"/11dBd)	£64.95
2m	11ele (boom 156"/12.7dBd)	£94.95
2m	5ele crossed (boom 64"/9dBd)	£79.95
2m	8ele crossed (boom 126"/11dBd)	£99.95
4m	3ele (boom 45"/7dBd)	£56.95
4m	5ele (boom 128"/9dBd)	£69.95
6m	3ele (boom 72"/7dBd)	£59.95
6m	5ele (boom 142"/9dBd)	£79.95
70cm	13ele (boom 76"/12dBd)	£46.95
70cm	13ele crossed (boom 83"/12dBd)	£79.95

Q-TEK HB9-CV

Delivery £9.00

70cm	HB9CV (boom 12")	£21.95
2mtr	HB9CV (boom 20")	£27.95
4mtr	HB9CV (boom 22.5")	£39.95
6mtr	HB9CV (boom 32.5")	£46.95
10mtr	HB9CV (boom 52")	£69.95

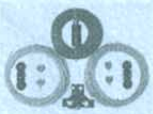
END FED HALF WAVES

Ground plane free. Made from glass fibre - no ground radials or tuning required.

4m Length 92" (SO239) vertical.....£39.95 *Del £9.00*

6m Length 126" (SO239) vertical.....£49.95 *Del £9.00*

DELUXE G5RV



Multi-stranded PVC coated heavy duty flexweave wire. All parts replaceable. Stainless steel and galvanised fittings.

Full size - 102ft. ONLY **£42.95**

Half size 51ft. Only **£36.95** *Carriage £6.00.*

Choke Balun Inline balun for G5RV.....£24.95 P&P £3

STANDARD G5RV

Full size	102ft	£24.00 P&P £6
Half size	51ft	£21.00 P&P £6

Q-TEK INDUCTORS

80mtr inductors + wire to convert ½ size G5RV into full size. (Adds 8ft either end).....£24.95 (was £22.95) P&P £2.50 (a pair)

REPLACEMENT PARTS

5m length 300Ω twin feeder h/duty .....£5.00 P&P £3

10m length 300Ω twin feeder h/duty.....£10.00 P&P £3

BALUNS & TRAPS

1:1 Balun		£24.95 P&P £2
4:1 Balun		£24.95 P&P £2
6:1 Balun		£24.95 P&P £2
40 mtrs	Traps	(a pair) £25.00 P&P £4
80 mtrs	Traps	(a pair) £25.00 P&P £4
10 mtrs	Traps	(a pair) £25.00 P&P £4
15 mtrs	Traps	(a pair) £25.00 P&P £4
20 mtrs	Traps	(a pair) £25.00 P&P £4

1kw Handling

Q-TEK COLINEARS

P&P £10.00

Glassfibre construction

QT-100 GF 144/70, 3/6dB (1.1m)	£39.95
QT-200 GF 144/70, 4.5/7.2dB (1.7m)	£54.95
QT-300 GF 144/70,6.5/9dB (3m)	£69.95
QT-500 GF 144/70, 8.5/11dB (5.4m)	£125.95
QT-627 GF 50/144/70, 2.15/6.2/8.4dBi (2.4m)	£69.95

CUSHCRAFT ANTENNAS

MA5B	Mini beam 10, 12, 15, 17, 20m	£289.95
A3S	3 ele beam 10, 15, 20m	£389.95
R-6000	Vertical 6, 10 , 12, 15, 17, 20m	£299.00
X-7	7 ele 10, 15, 20m	£549.95
X-9	9 ele 10, 15, 20m	£799.95

COPPER ANTENNA WIRE

(All 50mtr rolls)

Enamelled	£12.95 P&P £5
Hard drawn	£13.95 P&P £5
Multi-Stranded (Grey PVC)	£9.95 P&P £4
Flexweave (H/duty 50 mtes)	£30.00 P&P £5
Flexweave H/duty (20 mtrs)	£15.95 P&P £5
Flexweave (PVC coated 20 mtrs)	£18.95 P&P £5
Flexweave (PVC coated 50 mtrs)	£40.00 P&P £5
PVC coated earth wire (6mm) 15m roll	£10.00 P&P £5
Copper plated earth rod (4ft)	£13.00 P&P £6
Copper plated earth rod (4ft) + 10m wire	£18.99 P&P £6

RECHARGEABLE ALKALINE CELLS

Starter kit includes charger & 4 x AA cells. **£13.99** + £2.50 P&P.

Please note that only the special cells can be recharged with this charger.

Extra cells available @ 8 x AA pack £10.99 £1 P&P 4 x AA pack £5.99 £1 P&P 4 x AAA £6.25 £1 P&P. Rechargeable Alkaline. No memory effects. 1.5V cells. 3 x capacity of nicads.

COAX BARGAINS

100m roll of RG-213 coax ONLY **£49.95** P&P £10

100m roll of RG-58 coax ONLY **£25.00** P&P £8.50

100m roll of Mil spec RG-213 coax ONLY **£69.95** P&P £10

100m roll of Mil spec RG-58 coax ONLY **£35.00** P&P £8.50

NISSEI PWR/SWR METERS

RS-502 1.8-525MHz (200W).....£79.95 P&P £5

RS-102 1.8-150MHz (200W).....£59.95 P&P £5

RS-402 125-525MHz (200W).....£59.95 P&P £5

RS-101 1.8-60MHz (3kW).....£79.95 P&P £5

RS-40 144/430MHz Pocket PWR/SWR...£34.95 P&P £1

CAROLINA WIMDOM

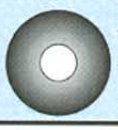
CW-160	(160-10m)	£105.95 P&P £6.50
CW-80	(80-10m)	£82.95 P&P £6.50
CW-80	Special (½ size)	£89.95 P&P £6.50
CW-40	(40-10m)	£79.95 P&P £6.50

Wimdoms are ½ or end fed.....P&P £6.50

INTERFERENCE STOP IT

Rectangular snap-fixing ferrite cores suitable for :- Radio coax/TV/mains/telephone/PC & data cables. Plastic teeth prevent it from sliding on cable. Simply snap close onto cable and job is done!

Bulk purchase hence **2 for £7.95** (P&P £2.50)



FERRITE RINGS

10 for **£10.00** *or* 20 for **£15.00** P&P £3.00

Superb quality

20ft BARGAIN MAST SET

4 x 5' lengths of approx 2" extruded (16 gauge) heavy duty aluminium, swaged at one end to give a very heavy duty mast set.

SSP ~~£60.00~~

LIMITED STOCK **£39.95** Del £10

2 sets for £70.00 Del £12.50

20ft MAST SET

4 x 5' lengths of 1⅛" swaged slot together aluminium pole. SSP £29.95.

LIMITED STOCK **£24.95** DEL £10

ALUMINIUM POLES

2" x 2.5m length	2mm wall thickness	£19.99 P&P £10
2" x 10ft collection only	2mm wall thickness	£24.99
2" x 12ft collection only	2mm wall thickness	£29.99
2" x 20ft collection only	2mm wall thickness	£39.99

ALL MEASUREMENTS ARE APPROX

FIBRE GLASS MASTS

1½" Dia	£8.50 per metre	*P&P £10*
1¾" Dia	£10.50 per metre	*P&P £10*
2" Dia	£12.50 per metre	*P&P £10*

Fibreglass available up to 5m lengths.

NB. We can only deliver up to 2.5m lengths

TELESCOPIC MASTS

6 section telescopic masts. Starting at 2½" in diameter and finishing with a top section of 1½" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and stainless steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 10 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

8 mtrs **£99.95** 12 mtrs **£139.95** *Carriage £10.00.*

Telescopic mast lengths are approx.

Tripod for telescopic masts.....£89.95

METAL WORK & BITS

MAST HEAD PULLEY

A simple to fit but very handy mast pulley with rope guides to avoid tangling. (Fits up to 2" mast).

£8.95 + P&P £2.00

2"	Mast base plate	£12.95 P&P £5
6"	Stand off	£6.95 P&P £5
9"	Stand off	£8.95 P&P £5
12"	T&K Brackets	£12.00 P&P £8
18"	T&K Brackets	£18.00 P&P £8
24"	T&K Brackets	£20.00 P&P £8
U bolts (1½" or 2")		£1.10 each
8 nut universal clamp (2" - 2")		£5.95
2" - 2" cross over plate		£10.95
3-way guy ring		£3.95
4-way guy ring		£4.95
2" mast sleeve		£9.95
1½" mast sleeve		£8.95
Standard guy kits (with wire)		£23.95 P&P £6
Heavy duty guy kits (with wire)		£26.95 P&P £6
Ground fixing spikes (3 set)		£18.00 P&P £6
30m pack nylon guy rope		£10.00 P&P £2
30m pack (3mm dia) winch wire		£16.00 P&P £4

HAYDON Communications

Mail order: 01708 862524

PRICES SUBJECT TO CHANGE WITHOUT PRIOR NOTICE. PLEASE VERIFY BEFORE ORDERING. E&OE.

NEXT DAY DELIVERY TO MOST AREAS, £10.00.

KENWOOD TS-50S

★ Superb compact HF transceiver ★ 100 watt ★ 160m-10m transceiver ★ 500kHz-30MHz gen. com. receiver

SPECIAL OFFER **£499.95**

ALINCO DX-70TH

100W HF + 6m transceiver.

SSP £699.00

LATEST UK MODEL

SAVE £100

ONLY **£599.00**

ICOM IC-706II G

Now on its 3rd generation, this classic all-band transceiver is still our No. 1 best seller.

HF + 6m + 2m + 70cm.

LATEST UK MODEL

2 year warranty

ONLY **£939.95**

KENWOOD TS-570DG

In our opinion, the best HF transceiver below £1500.

INCLUDES ATU

ONLY **£819.00**

KENWOOD TS-870S

TRUE IF DSP TRANSCEIVER

When only the best will do!

STILL OUR No1 SELLER!

OUR PRICE **£1299.00**

KENWOOD TS-2000

New all mode multibander: HF/50/144/430 optional 1200MHz.

Our first customers comments were: "This unit outperformed anything else we tried".

£1699.00

Optional UT-20 (1200MHz module).....£299.00

NISSEI PS-300

Superb 30 amp/12V power supply built to combat most needs. *Features:* ★ Over voltage protection ★ Short circuit current limited ★ Twin illuminated meters ★ Variable voltage (3-15V) latches 13.8V ★ Additional "push clip" DC power sockets at rear ★ Multiple front outlets ★ Detatchable IDC lead (supplied) for mains connection. SSP £149.00.

INTRO PRICE **£99.95** Del £10

PS-1020

New 25A switch mode PSU. ● Front panel volts adjust (9-15vdc) ● Light in weight: 2.1kg ● Automatic shutdown on load fault ● Switchable at rear - 240V or 110V ● Ultra quiet cooling fan ● Over volts protection ● Compact size 190W x 120H x 225D mm.

INTRO PRICE **£89.95**

SEC-1223 Miniature 23A switch mode PSU.....Only £89.95

YAESU FT-1000MP V

"Brick wall selectivity". Premier class HF transceiver (200W). Latest version supplied with PSU.

£PHONE

IDEAL FOR CONTEST WORK

KENWOOD TH-D7MKII

2m + 70cm handheld with built-in modem and APRS. Buy one this month and we'll give you a headset worth £25.00 FREE.

ONLY **£259.00**

Optional extended Rx available

VCH-1 camera/monitor for above.....£299.00

KENWOOD TM-D700E

2m + 70cm transceiver with built-in modem and APRS facility. Optional Rx available.

ONLY **£425.00**

A true dual-band radio suitable for the most demanding operator.

ALINCO DJ-V5

Compact 2m + 70cm handheld transceiver with optional wideband receive (76-999MHz). Up to 5W output.

ONLY **£199.95**

★ BUY BEFOR PRICE INCREASE ★

YAESU G-5500

Yaesu rotators have a quite, reliable gear reduction braking system - unlike many other makes. Azimuth - elevation combination for space communication (optional PC control available).

~~£569.00~~.

OUR PRICE **£499.95**

YAESU G-1000DXC

Heavy duty rotator for large HF arrays.

~~£599.99~~

SPECIAL OFFER **£499.95**

The ultimate in man-size rotators

YAESU G-450C

Heavy duty rotator for HF beams, etc. Supplied with circular display control box and 25m of rotator cable.

ONLY **£339.95**

P&P £10

G-650 Heavy duty rotator.....£389.95

AR300XL Lightweight rotator.....£49.95

SGC-230

200W instant auto ATU.

Tune any length of wire with this superb ATU. (Minimum length applies.) Worlds best selling smartuner!

ONLY **£319.00**

(Optional earth stake.....£13.00)

MFJ PRODUCTS

MFJ-259B

HF digital SWR analyser + 1.8-170MHz counter/resistance meter.

ONLY **£199.95** P&P £6

MFJ-269	160-70cm analyser	£269.00
MFJ-949	300W ATU + dummy load	£125.00
MFJ-969	HF + 6m ATU	£149.95
MFJ-962D	1.5kW versa tuna	£219.95
MFJ-784B	DSP filter	£189.95
MFJ-418	CW tutor	£64.95

UK VERSIONS

D-308B BLACK DELUXE DESK MIC

(with up/down). Every amateur using this mic (over 2000) has expressed extreme pleasure with it's performance.

£49.95

P&P £6.00

OPTIONAL LEADS (P&P £1.50)

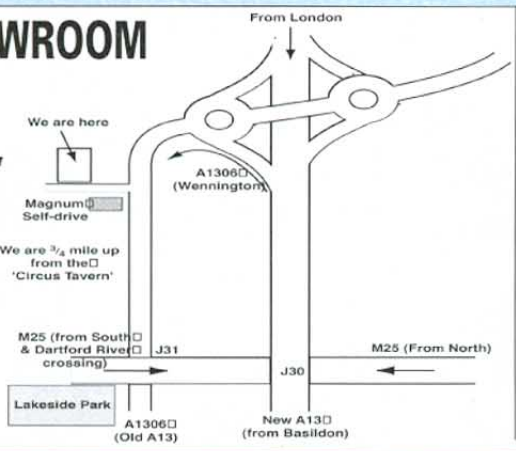
A-08	8 pin "Alinco" round	£9.95
K-08	8 pin "Kenwood" round	£9.95
I-08	8 pin "Icom" round	£9.95
AM-08	Modular phone "Alinco"	£9.95
YM-08	Modular phone "Yaesu"	£9.95
IM-08	Modular phone "Icom"	£9.95

THURROCK, ESSEX SHOWROOM & MAIL ORDER:

Unit 1, Thurrock Commercial Park,
Purfleet Ind. Est., London Rd,
Nr. Aveley, Essex RM15 4YD
TEL: 01708 862524
FAX: 01708 868441
Open Mon - Fri 8am - 4.30pm.
Sat 8am - 1.00pm.

5 mins from Lakeside

E&OE



W. MIDLANDS SHOWROOM

Unit 1, Canal View Ind. Est.,
Brettel Lane,
Brierley Hill
W. Mids. DY5 3LQ

5 mins from Merryhill Centre

Open Mon-Fri 9.30-5pm.
Sat 9.30-1pm

NO MAIL ORDER TO MIDLANDS BRANCH

VISIT OUR THURROCK SHOWROOM "THE LARGEST AMATEUR SHOWROOM IN THE UK"

WORLDSPACE HITACHI KH-WS1

Over 40 channels of crystal-clear, fade-free programming direct from satellite to your portable digital radio. Original RRP £249.00.

OUR PRICE **£99.95** Incl. post

Outdoor Yagi antenna kit.....£50.00

HEAR SIGNALS FROM OUTER SPACE

Sanyo WS-1000 now in stock.....£99.95

SANGEAN ATS 909

A superb performance portable/base synthesized world receiver with true SSB and 40Hz tunning for ultra clean reception. The same radio is sold under the Roberts name at nearly twice the price. Other features include RDS facility, 306 memories and FM stereo through headphones. The ATS-909 represents superb value for money.

SPECIAL OFFER **£139.00** P&P £10

Optional deluxe stereo/mono headphones for short wave portables.....only £7.99 P&P £2

SONY SW-100E

★ Miniature portable all mode SW receiver ★ Station presets for 50 frequencies ★ Single side band system ★ Synchronous detector ★ Tuning in 100Hz + 1kHz steps ★ Includes compact antenna/stereo earphones/carrying case. RRP £229.95

SPECIAL OFFER **£139.95** P&P £10

SW30.....SPECIAL OFFER £39.95 . P&P £7.00

ICOM IC-8500

FREE PSU

Next generation wideband receiver. 0.1-2GHz. (All mode)

SPECIAL OFFER

Latest model includes 2 year guarantee.

£1199.95

BEARCAT UBC-9000XLT

25-1300MHz wideband desktop scanner with turbo scan (AM/FM/WFM). Alpha-numeric memory fully selectable mode & tuning steps.

SPECIAL OFFER **£249.00** P&P £10.00

REALISTIC DX-394

★ Superb performance SW receiver ★ 0.2-30MHz (all mode) ★ Selectable tuning steps (down to 100Hz) ★ 240 or 12V ★ Digital S-meter ★ Attenuator ★ Key pad entry ★ 160 memories ★ Clock/timer ★ Noise blanker ★ Limit scan ★ Tape output. Was £199.00.

SPECIAL OFFER **£149.95**

MVT-7300

- Compact wideband hand-held receiver
- Covers 521kHz-1300MHz (all mode)
- 8.33kHz steps
- De-scrambler & bug detctor

~~£289.00~~.

SPECIAL OFFER **£259.00**

Nicads and charger option.....£19.95

MVT-7100EU

Wideband hand-held scanner covers 500kHz-1650MHz. (All mode). Includes nicad/car charger/charger/antenna. Extremely user-friendly hand-held reciever with outstanding performance unmatched by its rivals.

SPECIAL OFFER **£199.95**

MVT-9000 MkII.....£329.95

Soft case for 7100EU/9000 - specify £19.99

AR8200 SERIES-2

Never before has one hand portable offered so much.
★ Covers 530kHz-2040MHz (all mode) ★ Computer control caperbility ★ 8-33kHz steps for the new airband spacing ★ Reaction tune caperbility ★ Includes nicads/charger/antenna and car lead.

SALE PRICE **£389.00**

Soft case for AR8200.....£19.99

GARMIN GPS12

Powerful 12 channel GPS 500 way points with graphic symbols. Simple one-hand operation. Waterproof construction. (Ideal for APRS use!).

£129.95

GPS-12 refurb - brand new models.....£99.95

GARMIN GPSIII+ "SPECIAL"

Powered by AA cells or 13.8V, this compact navigational system gives detailed maps of the UK & Europe. Supplied with data lead and free on-board maps.

SALE PRICE **£349.95**

STREET PILOT COLOUR KIT

Package includes UK metro guide mapsource CD, 8 megabyte datacard, PC interface cable, cigarette lighter adaptor, portable antenna + dashboard mount.

SPECIAL OFFER **£649.00**

Garmin Street Pilot colour.....£549.00
Garmin Street Pilot mono kit.....£499.95

GARMIN ETREX SUMMIT

First combination GPS, altimeter and electronic compass in one small box.

SALE PRICE

£189.95

Etrex	Special offer	£109.95
Emap	Special offer	£199.95
GPS12	Special offer	£129.95

JM-838

JUMBO WALL/DESK CLOCK.

- Wide screen/2" digit time display
- Barometer
- Calender
- Temp
- Auto RF synch clock from Rugby.

OUR PRICE **£59.99** P&P £4.50

RM-913

RADIO CONTROLLED CLOCK.

- 12/24hr alarm function
- Auto clock from "Rugby" RF signal
- Alarm function
- Backlight & more
- Incl's batteries

SPECIAL OFFER **£11.99** P&P £2.00

OUT & ABOUT WITH YAESU

RUGGED COMPACT HANDHELDS

VX-5R

- 50 - 52, 144 - 146, 430 - 440MHz Tx
- 0.5-16, 48-59, 59-108, 108-137, 137-174MHz
- 174-222, 222-420, 420-470, 470-729, 800-999MHz Rx
- 5W RF output @ 13.8V ext. 50/144/430MHz
- 5W @ 7.2V 50/144MHz
- 4.5W @ 7.2V 430MHz
- 300mW
- Freq. deviation: ±5kHz
- NFM, WFM, AM
- AM Air-band receive
- 10 channel steps incl. 5/9kHz AM
- 220 memories, home channels, band limits
- Programmable memory scan
- Alphanumeric display
- Built-in CTCSS & DCS encode/decode
- Dual watch
- Spectra-ScopeTM 5 channels above and below
- Automatic Range Transponder (ARTSTM)
- Optional barometric pressure/altimeter unit
- Lithium-Ion battery (FNB-58LI) standard
- NC-72 AC adaptor (supplied)
- Battery saver
- Automatic power off (APO)
- Visual low battery monitor
- 58 x 87 x 28mm
- 255g

VX-1R

- 76 - 999MHz Rx
- 144 - 146, 430 - 450MHz Tx
- AM/FM/TV broadcast receive
- AM Airband
- 500mW to 1W RF output
- Freq. deviation: ±5kHz
- 290 memories in 9 groups
- Alphanumeric display
- Built-in CTCSS encode/decode
- Dual watch
- Smart search
- Auto Range Transpond System (ARTSTM)
- Priority channel alarm feature
- Lithium-Ion battery
- 80 minute rapid charger included
- 81 x 47 x 25mm
- 125g

VX-5R

+FREE CASE & SU1

(BAROMETRIC PRESSURE SENSOR)

VX-1R

+FREE CASE & CN3

(ADAPTOR SMA-BNC)

PLUS A FREE SPEAKER MICROPHONE

THESE OFFERS ONLY FROM....

Waters & Stanton PLC, Spa House, 22 Main Rd, Hockley, Essex SS5 4QS

Tel: 01702 206835 E-mail: sales@wsplc.com Web: wsplc.com

Technical Topics

PAT HAWKER, G3VA
37 Dovercourt Road, London SE22 8SS

G3OGW'S 4-PATH POLYPHASE D-C RECEIVER

THE APRIL 'TT' revealed the pioneering work of Harold Wilson, G3OGW, in developing a polyphase SSB/CW detector for use in an experimental direct-conversion receiver, reviewing the background to this form of four-path phasing detector originally invented by Michael Gingell (STL) in 1973. It also discussed the advantages of this approach compared with the conventional two-phase phasing detector, as described by Dr RCV Macario, GW8SRW, in 1980. It further reported that G3OGW was planning an improved polyphase D-C zero-IF receiver using the latest IC devices in the front-end.

Even before the publication of the April issue, a further report arrived from G3OGW that underlines that this approach opens the way to a high-performance, low-cost receiver (and potentially to a four-path HF transceiver) . He writes: "I have now taken the further step I proposed by combining the Tayloe quadrature switching mixer, using the FST3253, with the four-path audio phasing system, as shown in **Fig 1**.

"The results show all the advantages I expected and hoped for. No RF phasing adjustment is possible or necessary and simple gain equalisation of the four amplifiers is the only adjustment required to give sideband suppression approaching 50dB (at the limits of my measurement facilities). The front-end, built initially for 3.5MHz reception (14MHz VFO), preceded by a simple band-pass filter, seems to bear out all the claims made by Dan Tayloe, N7VE ('TT' February 1999), although I have not the instrumentation available to check the performance in such detail. It has since been tried successfully on 14MHz (56MHz VFO).

"No problems arose in using four low-noise transistor amplifiers, feeding the polyphase network via op-amp voltage followers. The biasing of the RF signal for switching purposes through the demultiplex chip was employed at a suitable level to bias the bases of the amplifiers, thus saving four sets of bias components. There is no trace

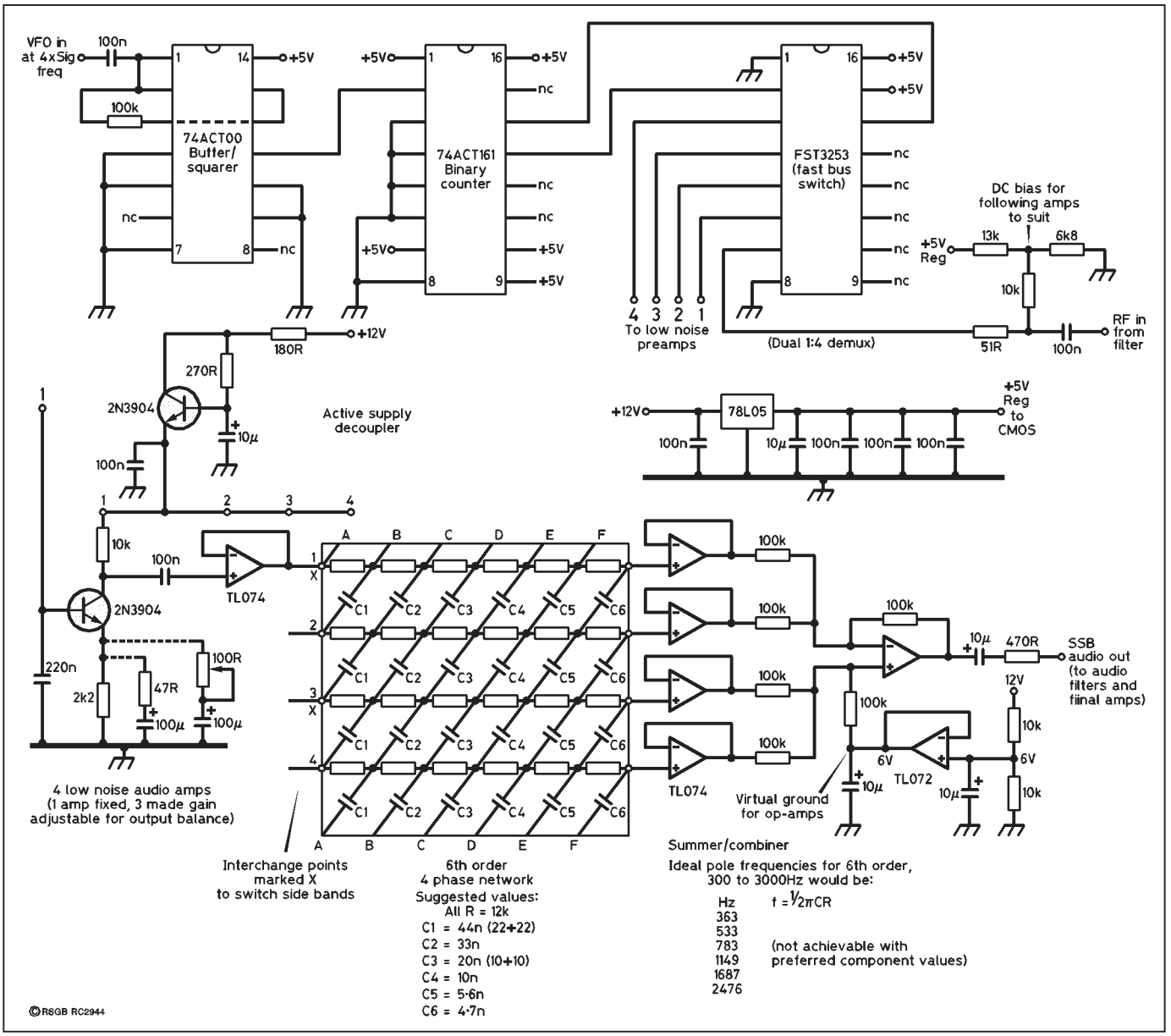


Fig 1: Heart of G3OGW's improved experimental 3.5MHz and 14MHz four-path (polyphase) direct-conversion receiver as implemented in experimental form in March 2001, with a modernised front-end and quadrature switching mixer. It is providing the anticipated high performance with sideband suppression of the order of 50dB, and underlines the advantages of the polyphase system compared with the conventional two-path quadrature system. The block diagram of this highly-linear receiver concept was given in Fig 5 of 'TT' in April 2001.

of AM demodulation of strong broadcast signals and no hum problems. Altogether, it gives all the benefits of a D-C receiver built in linear hi-fi mode as suggested by Rick Campbell, KK7B, for his R2 two-path (quadrature) phasing receiver (*QST*, January 1993), with sideband suppression of the same order as a good crystal filter (and better than a cheap one). Oscillator noise should not be a problem as its function, after signal squaring through the buffers, is to clock the binary counter to operate the switches [with the phase noise reduced by a factor of four – G3VA].

"As a very economical and relatively simple answer to the design requirements for a high quality receiver, it seems to show great promise. In use it sounds pleasant and the individual character of all transmissions, CW or SSB, is very evident. Tayloe has proved the use of this mixer at 7MHz and my next step was to try it out at 14MHz. Considering the typical rise time for the FST3253 is 2.5ns with a switching period of 18ns (56MHz), 14MHz operation with this configuration is feasible.

"My polyphase filter was built in a rather casual fashion and I am sure there is room for improvement. I hope my efforts will encourage our 'professional' amateur colleagues to pursue this promising subject. Perhaps the original invention by Michael Gingell (*Electrical Communication,* Vol 48, No 1-2, combined issue, 1973) and the subsequent, illuminating paper by Dr Macario (*EBU Review,* No 181, June 1980) - setting out the comparisons between two-path and four-path networks - are not as well known as they should be, particularly in the USA."

I would stress that these two articles (5 + 7 pages) are theoretical rather than constructional papers. Although not anxious to undertake the work involved, I might be persuaded to provide copies to a few 'professional-level' readers for the cost of photocopying and postage (say £2 for UK, £3 overseas, including pages of the December 1973 and May 1975 'TT').

Peter Martinez, G3PLX, developed a 10.7MHz polyphase SSB generator used on 144MHz ('TT', May 1975). An RCA engineer showed that Peter's component values ('TT', April 2001, Fig 3) were not optimum for 300 - 3000Hz. The values used by G3OGW in Fig 1 are those advocated by HA5WH (*Radio Communication*, January 1976).

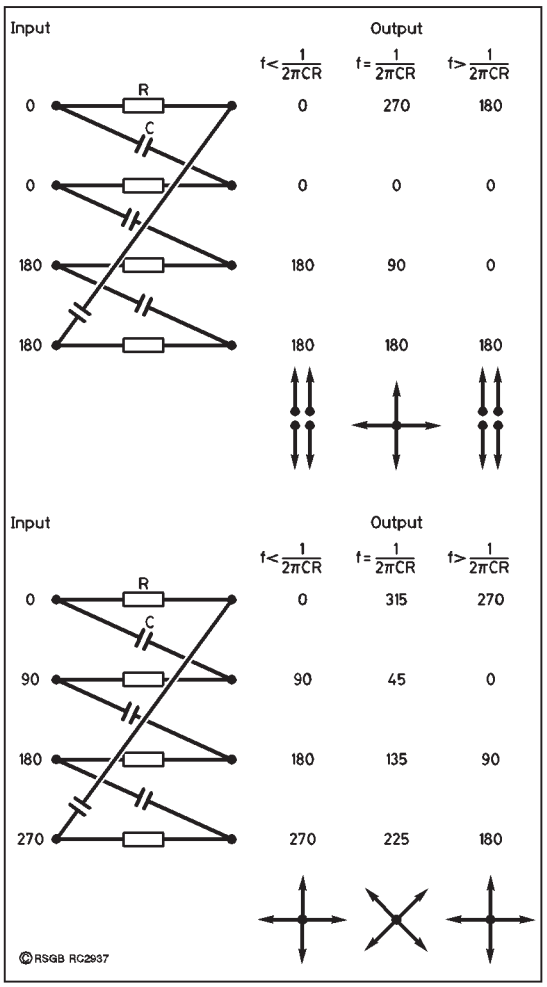


Fig 2: Diagram reproduced from Peter Martinez's December 1973 'TT' item. It shows how a polyphase network creates the right phase relationships at various audio frequencies. In practice about six stages of the network are used to accommodate frequencies between about 300 to 3000Hz. The frequency range and sideband suppression could be increased by adding extra stages.

Fig 2 is the G3PLX diagram from the 1973 'TT', and shows how the polyphase network creates the right phase relationships at various audio frequencies.

Another approach was described by Rob Frohne, KL7NA, in 'A high performance single-signal (quadrature), direct-conversion receiver with DSP filtering' (*QST* April 1998, pp40-45) based on the DSP56002EVM device. It would be possible to use DSP audio filtering in place of the LC audio filters in the G3OGW design. However, the G3OGW design with LC filters is based on retaining high dynamic range and excellent linearity throughout the receiver.

MORE ON REGULATING TRANSFORMERS

REACTION TO the March 2001 'TT' item on ferroresonant transformers that can provide near constant voltage or load output from varying mains inputs showed that these and other types of self-regulating transformers are quite widely used in the UK. Apart from microwave ovens, they are quite widely used for laboratory instruments etc and for some professional broadcast relay transmitters. But several readers have warned that ferroresonant transformers are designed for use only at a specific mains frequency. This means that transformers intended for use on 60Hz mains supplies require a different value of capacitor when used on 50Hz supplies.

Malcolm Perry, G8AKX, for example writes: "Some of the Advance oscilloscopes (the DS2100 and DS2200 and probably others) are adjustable for 110- or 250-volt AC mains. However, they are not interchangeable for UK 50Hz and USA 60Hz supplies, but need to be supplied for one or other frequency. The specification gives ±2% frequency tolerance, but allows respective voltage spreads of 190-260 and 95-130. This needs to be borne in mind since, with most 'surplus' equipment, the 50Hz/60Hz difference is immaterial. [Conventional 60Hz transformers tend to overheat slightly when run on 50Hz supplies – G3VA.]

"This also raises a question of using such equipment 'in the field' when powered from a portable generator where the output would need to be set and maintained within the frequency limits, in this example 50Hz ±1Hz. Or where a stand-alone regulating transformer (also available from Advance) was to be used to provide a regulated supply from [the usual] not-too-well regulated field generator. It also needs to be stressed that the output from a regulating transformer is not a sine wave but often virtually a square wave. This again is relevant when measuring outputs with AC ranges on a meter calibrated for a sine wave."

Kevin Jones, GW0KIR, states that ferroresonant transformers are still commercially available and are well known in professional laboratories as constant voltage power supplies, usually at voltages of about 240V (or 400V three-phase). A well-known American brand is Zenith, available in the UK from Claude Lyons, which also supplies its own line of regulators that use motorised autotransformers in a buck/boost configuration driven from a voltage sensing circuit. He adds: "Output wave shape is sometimes a problem, because of the forced operation in non-linear parts of the magnetic circuit. However, the output waveform can be improved if necessary by filtering. The Zenith transformers (and other brands) used to be offered both with and without filters. I have used both types for many years in a commercial laboratory for lamp testing where constant-voltage is essential."

Tim Norris, G6FKY, recalls using ferroresonant transformers in the 1970s while working for Data 100 (a CDC subsidiary) with PSUs delivering about 40A at 5V plus, with two 12V outputs for a large line printer. There were two types of American-manufactured transformers, but both bore the same part numbers and it was assumed

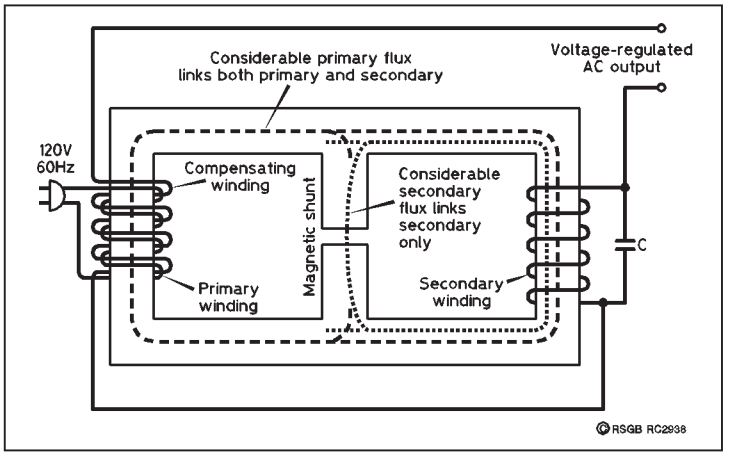


Fig 3: The magnetic circuit of the improved form of ferroresonant transformer incorporating a compensating winding (source *Regulated Power Supplies* by I M Gottlieb, 3rd edition, published by Sams).

there was no difference, only to find that some transformers hummed madly and had to be changed. Clearly, these were the ones intended for 60Hz, presumably fitted with capacitors of different value. The large transformers were virtually bomb-proof in construction, with the output from the rectifiers going straight to quite large capacitors with only a choke needed to reduce ripple to about 30mV. There were two multi-pole wafer switches to set up the output voltage whilst under load for 12V and 5V."

Sebastian Linfoot, G0CPP, sent a photocopy of two pages from *Regulated Power Supplies* (3rd edition) by I M Gottlieb (published in the USA by Sams). These provide a useful section on "The Ferroresonant Constant-Voltage Transformer" which apparently is also known as a *static-magnetic regulating transformer*.

To quote briefly: "In this transformer, the flux in the primary magnetic circuit is accommodated by unsaturated core material, as in a conventional transformer. The secondary flux, however, encounters *saturated* iron; therefore a change in primary flux produces far less than a proportionate change in secondary flux. Thus the secondary induced voltage remains relatively independent of the voltage impressed upon the primary winding. This may be seen in **Fig 3**. A magnetic shunt between the two windings enables much of the secondary flux to be decoupled from the primary winding. C causes a large reactive current in the secondary magnetic circuit, increasing the magnetic isolation between the two windings... complete decoupling would leave the secondary isolated. However as the transition from unsaturated to saturated core region is rather gradual, the regulating action is less than perfect. Considerable improvement results from adding a compensating winding as shown in the diagram..."

The ferroresonant transformer also limits dissipation from over-current or a short-circuit load. C does not resonate the inductance of the secondary winding: "Rather the secondary voltage is higher than would be indicated by the secondary-primary turns ratio because of the increased secondary flux caused by the capacitor current – thus the term 'ferro-resonant'. Typically, they provide a ten-to-one improvement over variations in raw mains voltage, and also produce surprisingly good load regulation, ±2% typical. They are, however, considerably larger and heavier than a conventional transformer of the same power capacity and response time is slow (2 to 5 cycles of AC). Rectifying elements receive less stress from peak voltages than from a sine-wave source. A more recent development is the 'Paraformer' transformer."

PULLING VXO CRYSTALS BOTH WAYS

IAN Braithwaite, G4COL, believes that, even in an era of direct digital synthesis (DDS), there is still a place in relatively simple home-brew gear for the variable crystal oscillator. He writes: "The main challenge is obtaining as wide a pulling range as possible [without resorting to ceramic resonators normally available on only a few frequencies – G3VA]. It is often overlooked that the pulling range of a single crystal can be extended by using two basic oscillator circuits, with a given crystal transferred from one to the other.

"Most variable crystal oscillator (VXO) or voltage-controlled crystal oscillator (VCXO) circuits use the crystal as a series device in a single transistor circuit. Good behaviour and pulling range can both be obtained quite easily, though the pulling range depends crucially on the parameters of the crystal itself. Criteria for good behaviour are:

- The circuit should not oscillate without the crystal in circuit.
- The crystal should always control the oscillation. Badly-behaved oscillators tend to become free-running (losing stability) or to oscillate at some remote unwanted frequency.
- The circuit should oscillate over the whole of the control range.

"My favourite circuit is shown in **Fig 4**. The crystal is a series device with insufficient gain for oscillation without the crystal in circuit. A low-Q collector-tuned circuit prevents oscillation at remote frequencies, while giving sufficient gain at the crystal frequency to keep oscillating over a reasonable pulling

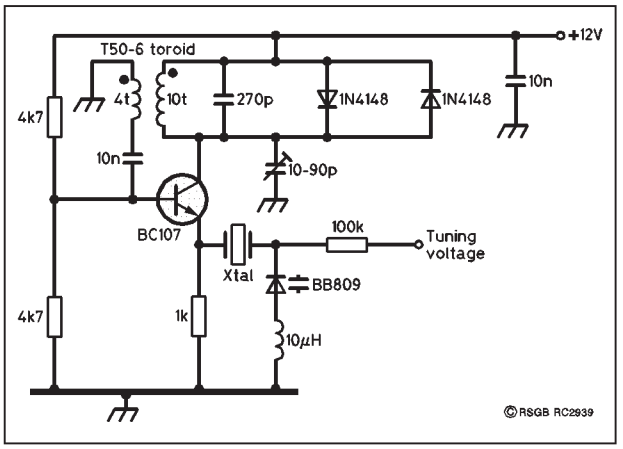


Fig 4: G4COL's preferred VCXO circuit using the crystal as a series device.

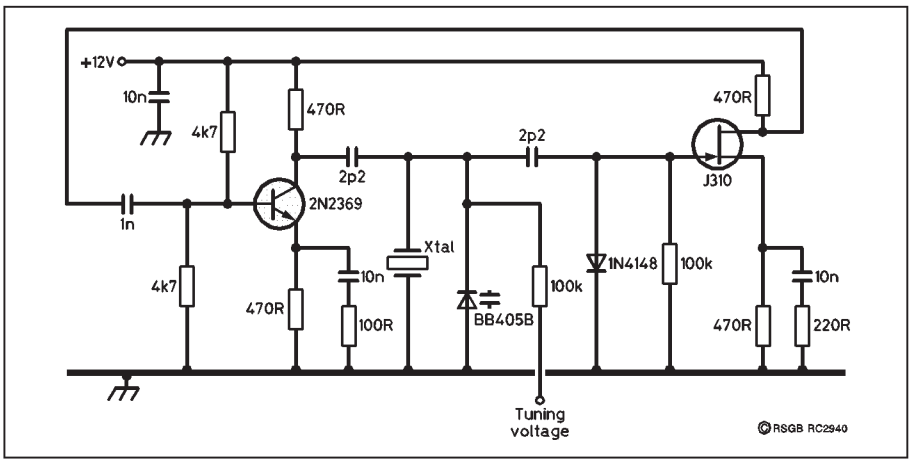


Fig 5: G4COL's two-device VCXO with the crystal as a parallel resonant device. A combination of the two VCXOs provides him with an extended pulling range of some 12kHz with 10MHz crystals not designed for frequency pulling.

range. Using a series inductor, the frequency can be pulled both below and above the series resonance of the crystal.

"However, as the frequency is pulled upwards (towards parallel resonance) by means of a very small capacitance in series with the crystal, the oscillator loop-gain falls and oscillation ceases. This means that there is still 'unexplored territory' around the parallel resonance. Access to this can be gained in a second oscillator using the crystal as a parallel element.

"A suitable circuit is shown in **Fig 5**. Two transistors are used to give the gain and phase-shift required for oscillation, with very small (2.2pF) coupling capacitors. The aim should be to keep capacitance in parallel with the crystal to a minimum in order to reach as high a maximum frequency as possible. The gain of the circuit, which can be set by the emitter and source feedback resistors, must not be made too large, or the circuit will oscillate without the crystal, risking the loss of crystal control. I modelled the circuit using *TINA* circuit-analysis software, based on a representative crystal equivalent circuit. When built the arrangement worked perfectly, first time.

"With a 10.106MHz (QRP frequency) crystal, the series oscillator gave a range of 10.09910 to 10.10940MHz (10.3kHz range). The parallel oscillator covered 10.10842 to 10.11208MHz (3.66kHz range). Both used a tuning voltage control range of 0 to 13 volts. There is no point in using a greater voltage range since there is an overlap. The total in-band coverage from the two oscillators is thus over 12kHz, a very satisfactory pulling range for a crystal not specially selected or designed for pulling.

"In theory, the crystal could alternatively have been pulled above its parallel resonance frequency by using an inductor in parallel with the crystal. However, this runs the risk of oscillation without the crystal in circuit and I have not tried it. Clearly, to make full use in practice of this technique, the crystal must be swapped between the two circuits. This could be done by physically transferring it between sockets, or by using a switch or relay. The choice is left to your ingenuity. Note that the variable capacitance diodes can share a common control voltage." [The exact pulling ranges will, of course, depend on the precise characteristics of the crystal, but the results achieved by G4COL representing rather more than one part in a thousand without any loss of stability are probably representative of most crystals used as indicated – G3VA.]

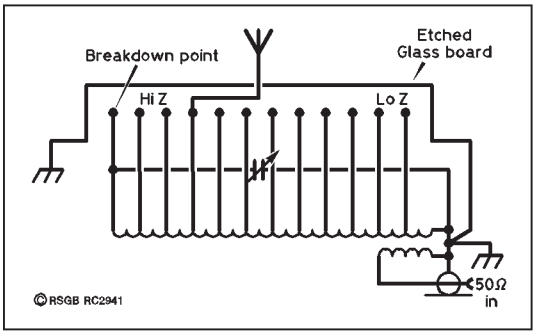


Fig 6: G3OUC's 7MHz ATU used with an end-fed three-eighths-wave antenna, in which the inductor set in fibre-glass had 12 tapping points in the form of 12 x 6BA studs further secured by Araldite. After about three weeks, the SWR began to rise and then went haywire as the Araldite at the hi-Z end broke down and became conductive – a warning that the dielectric loss factor of this material is very high at frequencies of the order of 10MHz and above.

WATCH HOW YOU USE ARALDITE

PAT PAINTING, G3OUC, following recent problems with a home-made ATU, warns against the use of Araldite epoxy resin in circumstances where it is subject to high RF voltages. His ATU inductor has 12 tapping points set in etched fibreglass, with the taps comprising 6BA brass bolts: **Fig 6**. The row of tapping points was further secured by Araldite. This was hardened with a hot-air paint-stripper gun, the final (Hi-Z) tap terminal being about 0.5in from the earthed metal enclosure box.

The ATU, fed with some 60W of RF from a TS-520, worked well on 7MHz with a three-eighths-wave end-fed antenna for about three weeks. Then the SWR began to rise gradually and could not be corrected by changing the tapping point. G3OUC continued operating on 7MHz until there came a sudden loud crack and the SWR meter went haywire, reading equally on forward and reflected power. Checking the ATU showed that the last tapping point had short-circuited to ground as a result of the Araldite insulation breaking down, and forming a conductive path to the earthed metal enclosure.

G3OUC was much surprised at this failure of Araldite as a RF insulator. But subsequent checking with *The Physical Laboratory Handbook* (Pitmans, 1966) revealed that Araldite is unsuitable for use at high frequencies, having a dielectric loss factor of 270 (x1000) at 10MHz (compared with 0.3 for polystyrene and 0.2 for mica). The *Handbook* also showed that other well-known substances and plastics are likewise unsatisfactory above 10MHz with PVC, cellulose and ebonite specifically noted.

However, I seem to recall that a reader once pointed out that some PVC pipes are, in fact, much better RF insulators than others, and can be used at HF as large coil formers etc. Any plastic can be checked using the 'microwave oven test', in which a small piece is cooked briefly (remember always to place also a bowl of water in the oven). RF-resistant plastic will remain hard and cool. Poor RF performance will be indicated by the plastic heating and softening.

HERE & THERE

JACK BELROSE, VE2CV has sent along a copy of his 13-page article 'Compact Loops Revisited' (*Antennex*, March 2001) which provides an extensive survey of the controversies surrounding the use and performance of compact magnetic loop transmitting antennas. This includes in detail many of the ideas etc presented by G3LHZ/G4VRN, G3NOQ and G0GSF either in correspondence or at the July 2000 IEE Conference (see 'TT' February 2001), and many of his views and opinions are not dissimilar from those I drew in 'TT'. Among the other points he makes is that NEC *can* predict adequately the performance of small loops and also that the claims often still made of high radiation efficiency (comparable to a half-wave dipole) are not valid. Dr Belrose quotes a radiation efficiency of 4.7% measured on an AMA-11 loop at 3.85MHz compared with 5.5% calculated with EZNEC-Pro. He concludes, however: "If you do not have the space to put up wire antennas (particularly for the lower bands) or neighbours object to towers and beams, a loop antenna, inconspicuously located (if all else fails in the attic) will [at least] put you on-the-air".

SEVERAL READERS have expressed the view that Arch Doty, W7ACD, was unduly critical ('TT' March 2001) of my original surmise that a 30ft 1.8MHz meander-line monopole might prove a rewarding project. They seem to have felt that Arch was making a personal attack on me or on 'TT'! Maybe I am dim or thick-skinned, but I found his letter not only interesting technically as the report of a major (and expensive) project willingly undertaken as a contribution to our knowledge of antennas, but also a humorous and tolerant account of time that might have been better spent! I certainly did not regard it as a personal attack by a much-valued contributor!

Incidentally, Peter Dodd, G3LDO, felt that W7ACD's project underlined the advantages of modelling an experimental LF/HF antenna at VHF, rather than going straight into a full-size version. This technique is described in Peter's book *The Antenna Experimenter's Guide* (RSGB). While this is good advice for many experimental HF antennas, I feel it would have been difficult to follow in the case of this complex meander-line structure (in effect, the reduced size model was the original one developed for 14MHz). For, say 144MHz, the height would be less than six inches and the meander wires would need to be extremely thin! ♦

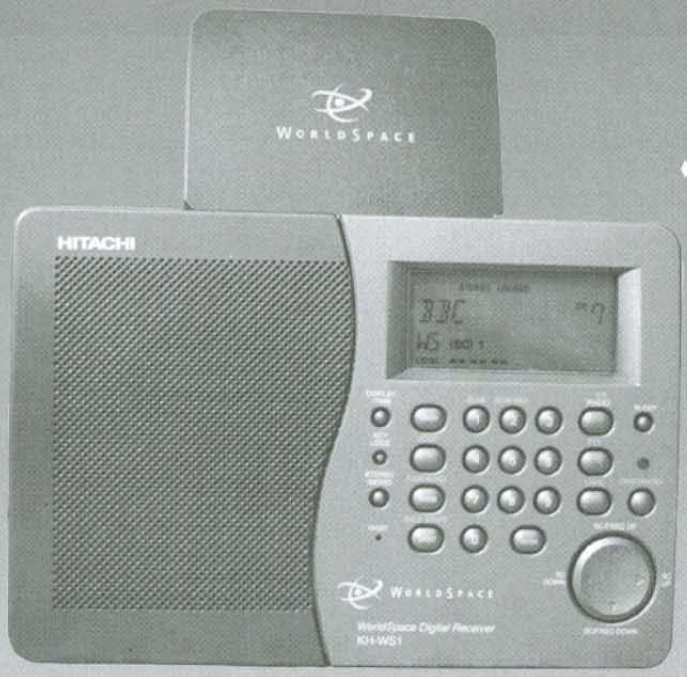
FURTHER READING

Technical Topics Scrapbook 1995 - 1999, G3VA (RSGB).

HITACHI WORLDSPACE

The birthplace of a new medium
Signals received from outer space

The WorldSpace system combines two of the most powerful technologies of the information age – satellites and digital transmission



WorldSpace satellites are located more than 35,000 kilometers above the equator. It's a tremendous perspective using powerful spot beams, each of which can support more than 50 services of music, news, and education. The satellites transmit to three overlapping coverage areas approx 14 million square kilometers each.

Hitachi KH-WS1 (Superhet receiver).

★ *FM (broadcast) 89.5-108MHz* ★ *MW (broadcast) 520=1620kHz*
★ *SW (broadcast) 2.3MHz-7.3MHz/9.5-26.1MHz*
★ *+ Satellite channels (1453.384-1490.644MHz)*
★ *Audio output 3W* ★ *AC 240 ro DC6V (or 4 x 'D' cell)*
★ *AC lead + indoor dish antenna supplied*
★ *Line out (stereo)* ★ *Weight 1.5kg*

£99.95 incl post

HAYDON COMMUNICATIONS

THURROCK, ESSEX SHOWROOM & MAIL ORDER:
Unit 1, Thurrock Commercial Park, Purfleet Ind. Est.
London Rd, Nr. Aveley, Essex RM15 4YD
TEL: 01708 862524 FAX: 01708 868441
Open Mon - Fri 8am - 4.30pm. Sat 8am - 1.00pm.

E&OE

W. MIDS BRANCH
Unit 1, Canal View Ind. Est.,
Brettel Lane
Brierley Hill
W. Mids. DY5 3LQ
Open Mon-Fri 9.30-5pm. Sat 9.30-1pm
NO MAIL ORDER TO MIDS BRANCH

TELEPHONE SALES ON:
01922 414796

Ask for Dave (G1LBE)

Open Mon-Fri 9.30 - 6.00pm. Sat 9.30 - 4.00pm

WEB SITE: http://www.radioworld.co.uk
E-mail: sales@radioworld.co.uk

There is NO CHARGE for using credit cards

VISA · E · DELTA · MasterCard · SWITCH

E&OE

RA
42 BR
WALSAL
Tel sa

Main dealers for Alinco, Icom, Yaesu & Kenwood

Manufacturers warranty on all new equipment

- About Us
- Map
- Adonis
- Alinco
- AOR
- Bearcat
- Comet
- Cushcraft
- Daiwa
- Diamond
- Garmin
- Icom
- Kent
- Kenwood
- MFJ
- Roberts
- Sirio
- Sony
- Tokyo
- Watson
- Yaesu
- Yupiteru

YAESU

ROTATORS

G-1000DXC Rotator 1100kg/cm CE c/w control box & 25m cable RRP £599 .....**RWP £509.00**

G-2800SDX Rotator HD 0.2 degree CE c/w control box & 40m cable RRP £1229 .....**RWP £999.00**

ROTATORS IN STOCK

G-450C Rotator light duty CE c/w control box & 25m cable RRP £379 .....**RWP £325.00**

G-650C Rotator medium duty CE c/w control box & 25m cable RRP £499 .....**RWP £425.00**

OPTIONS

GC-038B Mast clamp (brown) .....**RWP £25.00**
GC-038G Mast clamp (green) .....**RWP £25.00**
GC-048 Mast clamp for G-2800SDX ....**RWP £39.00**
GS-050 Stay bearing (small type).....**RWP £29.00**
GS-065 Stay bearing (medium type)...**RWP £45.00**

ICOM

IC-756 PRO

Icom's flagship. Colour screen, 32 bit prosessor. Absolutly fabulous.
£1895

IC-746

HF/VHF all mode transceiver, 6m/2m, 100W with tuner built in. 2 years warranty.
£1299.00

IC-706 MKII G

Smallest DSP radio on the market. HF, 6m/2m/70cm. Detachable front. **£959.00**

IC-R8500

Probably the best wide band receiver available, coverage from 0.1-2GHz. Many 'top-end' features, 2 years warranty. **£1199.00**

IC-821

2m, 70cm base flexible main/sub band operation. Advanced CW features, seperate VFO & 10 memory channels for satellite operation & connection for 9600 packet operation. Limited stock.
£999.00

IC-2800

Dual band mobile, colour display. Full duplex, inc. CTCSS, 50W output. Detachable front. List price £449.00. OUR PRICE **£395.00**

KENWOOD

TS-870S

Kenwood's top HF radio, DSP & IF. No need for filters, transmit Tx audio, fully adjustable, broadcast audio on SSB. A CW's operators dream. Plus Rx antenna tuner.
BARGAIN AT **£1299.00**

TS-50S

The first and still one of the best little mobile radios, dedicated for HF users. Don't miss out! Brand new with UK warranty. **£599.00**

TS-570DG

Still the only HF monoband mobile radio with DSP and ATU built in for under £1000.00.
RADIOWORLD PRICE **£829.00**

TM-D700E

The latest dual bander, dual display, built-in TNC, APRS locating system, alpha-numeric. List price £519.00.
OUR PRICE **£429.00**

TM-V7E

Cool blue display, dualband, packet ready, detachable front. List price £419.00. OUR PRICE **£379.00**

TM-G707

Dual band, detachable front, clear display. No squinting! Bullet proof front end. List price £319.00.
OUR PRICE **£279.00**

TH-D7E

The world's first handie with built-in TNC, plus APRS, CTCSS searching system, metallic silver finish. List price £309.95.
OUR PRICE **£279.00**

TH-G71E

Dualband handie, reliable and rugged. List price £279.00.
OUR PRICE **£210.00**
while stocks last

STAR BUY

Rotator G-2800SDX
Heavy duty limited stock.
£995.00

★★★★★★★★★★★★★★★

WANTED
USED EQUIPMENT
PX WELCOME
BEST PRICES PAID!

PRICE MATCH

Up to 5% extra discount may be available on selected items.

DIO WORLD

OOK LANE GREAT WYRLEY, L, WEST MIDLANDS WS6 6BQ

E&OE

les & service: 01922 414796 Fax: 01922 417829

YAESU FT1000 MkV

200W output comes with external supply.

£2799.00

FT-1000MP £1795.00

YAESU FT-847

Best selling multiband. 160-6m/100W, 2-70cm/50W, 4m/10W. All mode satellite operation. Base/mobile.

£1199.00

YAESU FT-100

Yaesu's latest mobile transceiver. HF, VHF, UHF, DSP, TX, RX. For that tailored transmit audio derived from the FT-1000MP.

£799.00

YAESU VX-5R

Tri-band transmission. Short wave to microwave reception. 5W output off the lythium battery, spectrum scope, dot matrix, LCD, CTCSS, optional barometric pressure sensor.

£265.00

FINANCE NOW AVAILABLE. PHONE DAVE FOR DETAILS!!

USED EQUIPMENT PRICE LIST

MAKE	MODEL	PRICE
AEA	PIC 88 TNC	£80.00
ALINCO	ADI-446 70cm MOBILE 35w	£189.00
ALINCO	DJ-G1 HANDY 2M WIDE RECEIVER	£129.00
ALINCO	DJ-G5EY 2/70/ WIDE BAND TRANSCEIVER	£200.00
ALINCO	DR-590 DUAL BAND MOBILE	£175.00
ALINCO	DR-605 DUAL BAND MOBILE TRANSCEIVER	£230.00
ALINCO	DX-70T 100W MOBILE / HF	£399.00
ALINCO	DX-70TH TRANSCEIVER	£475.00
ALPHA	87A FULLY AUTOMATIC AMP	£3,350.00
AMERITRON	QSK-5 2.5kw QSK SWITCH	£199.00
AOR	AR-2002 BASE SCANNER	£199.00
AOR	AR-3000A RECEIVER	£495.00
AOR	AR-5000 RECEIVER	£1,199.00
AOR	AR-7030 REMOTE CONTROL RECEIVER	£595.00
AOR	AR-8000 HANDY RECIEVER	£199.00
AOR	AR-8200 MK1 HANDY RECEIVER	£260.00
DAIWA	PS-120MK11 10amp PSU	£50.00
DAIWA	PS-304M11 20amp POWER SUPPLY	£85.00
DATONG	FL2 FILTER	£60.00
DIAMOND	GSV-3000 PSU	£100.00
DIAWA	CNW-518 2KW CROSS METER ATU	£199.00
DIAWA	ROTATOR MR-750U HEAVY DUTY	£250.00
DRAKE	DRAKE 2700 ATU 2.5KW (MINT CONDITION!)	£295.00
DRAKE	DRAKE L7 LINEAR AMP (MINT CONDITION!)	£899.00
DRAKE	R-8 RECEIVER (MINT!)	£550.00
HEATHERLITE	2M EXPLORER 2m AMPLIFIER	£399.00
ICOM	IC-207 DUAL BAND MOBILE	£210.00
ICOM	IC-229H 2M MOBILE	£120.00
ICOM	IC-251E AC 2M Mulit-mode	£325.00
ICOM	IC-275H 2M 100W BASE TRANSCEIVER	£550.00
ICOM	IC-3J UHF MINI HANDY	£89.00
ICOM	IC-475E AC 25W MULTIMODE 70CM BASE	£525.00
ICOM	IC-706MK1 TRANSCEIVER	£499.00
ICOM	IC-706MK11 DSP TRANSCEIVER	£599.00
ICOM	IC-706MK11G (AS NEW!)	£799.00
ICOM	IC-725 HF MOBILE 100w	£400.00
ICOM	IC-728 HF MOBILE 100w	£425.00
ICOM	IC-729 TRANSCEIVER HF/ 50MHz	£425.00
ICOM	IC-735 HF 100W	£450.00
ICOM	IC-746 HF/50/2M 100w	£999.00
ICOM	IC-756 HF/6M BASE TRANSCEIVER	£1,050.00
ICOM	IC-W31E DUAL BAND HANDY	£175.00
ICOM	PCR-1000 PC RECEIVER SSB/FM/AM	£200.00
ICOM	PS-15 POWER SUPPLY	£100.00
ICOM	PS-55 PSU 20 amp	£120.00
ICOM	PS-85 POWER SUPPLY	£175.00
ICOM	R10 HANDY SCANNER	£199.00
ICOM	R2 HANDY RECEIVER	£110.00
ICOM	R-7000 25-2000MHz ALL MODE RECEIVER	£575.00
ICOM	R-72 RECEIVER AC	£450.00
ICOM	R-72 RECEIVER DC	£400.00
ICOM	R-75 RECEIVER	£450.00
ICOM	SP-21 EXTENTION SPEAKER FOR IC-706 etc	£45.00
ICOM	T8E HANDY 2/70/6m	£195.00
ICOM	W-21E DUAL BAND HANDY	£199.00
JRC	JR-535 RECEIVER	£675.00
JRC	JR-545 DSP RECEIVER	£999.00
KANTRONICS	KAM PLUS TNC	£220.00
KENWOOD	AT-200 ATU	£125.00
KENWOOD	AT-230 ATU	£140.00
KENWOOD	AT-300 ATU	£225.00
KENWOOD	BC-15 RAPID CHARGER	£40.00
KENWOOD	DFC-230 FREQUENCY CONTROLLER	£89.00
KENWOOD	PS-50 PSU	£130.00
KENWOOD	PS-52 HEAVY DUTY POWER SUPPLY	£175.00
KENWOOD	R-5000 RECEIVER Inc Converter	£595.00
KENWOOD	SP-950 SPEAKER	£90.00
KENWOOD	TH-22E HANDY 2M	£89.00
KENWOOD	TH-46 UHF HANDY	£100.00
KENWOOD	TL-922 LAST SERIAL No. (MINT!)	£999.00
KENWOOD	TM-455E 70CM MOBILE MULTI MODE TRANS	£495.00
KENWOOD	TM-751E 2M 25W MULTI MODE	£325.00
KENWOOD	TM-V7E DUAL BAND TRANSCEIVER	£250.00
KENWOOD	TR-851E 70cm Mulit-Mode	£325.00
KENWOOD	TS-140S HF 100W BASE/MOBILE	£399.00
KENWOOD	TS-680 HF 6M BASE/MOBILE	£395.00
KENWOOD	TS-690 SAT TRANSCEIVER HF/6M	£695.00
KENWOOD	TS-811E 70cm MULTI MODE TRANSCEIVER	£400.00
KENWOOD	TS-850 SAT 100w HF BASE TRANSCEIVER	£850.00
KENWOOD	TS-870 DSP HF/BASE TRANSCEIVER	£999.00
KENWOOD	TS-940SAT HF BUILT IN ATU BASE	£750.00
KENWOOD	TS-950 SD DIGITAL 150W TRANSCEIVER	£1,250.00
KENWOOD	TS-950S HF 150W BASE BUILT IN ATU	£999.00
KENWOOD	TS-950SDX HF 150w TRANS (FLAG SHIP!)	£1,799.00
KENWOOD	VFO-180 VFO	£80.00
LINEAR AMP	EXPLORER AMP	£999.00
LOWE	HF-225 RECEIVER	£225.00
MAYCOM	AR-108 AIRBAND HANDY	£50.00
MFJ	1278 TNC Incl SSTV	£225.00
MFJ	MFJ-259B ANTENNA ANALIZER	£175.00
MFJ	MFJ-784B DSP FILTER	£150.00
MFJ	MFJ-952 1.5KW ATU	£175.00
MFJ	MFJ-989 ATU 3KW INPUT	£220.00
MICRO MOD	Microwave mod's 144/100 100w 2m	£120.00
MIRAGE	D3010 430-450MHz AMPLIFIER 100W	£200.00
NAG	144XL 2M BASE AMPLIFIER 400W	£325.00
PACCOM	320 TNC	£99.00
PACCOM	TINY II PACKET TNC	£99.00
PAKRATT	PK-232 MODEM	£140.00
REALISTIC	PRO-2005 25-1300MHz BASE SCANNER	£110.00
REALISTIC	PRO-2026 SCANNER	£99.00
S.E.M	TRANSMATCH	£90.00
SONY	CRF-V21 World band radio built-in printer MINT!	£999.00
SSB ELECTRON	LT 23/S 23CM TRANSVERTER	£499.00
SUMMERKAMP	FT-690MK1 6M MULTIMODE	£210.00
TARGET	0-30MHz HF RECEIVER	£100.00
TIMEWAVE	DSP-59+ DSP FILTER	£150.00
TOKYO	HT 180 80m HF SSB TRANSCEIVER	£200.00
TOKYO	HY-POWER HL 166V 6m 180w	£195.00
TRIO	TR-9130 25 Multi-mode 2m	£225.00
WATSON	DPS 2012 PSU	£70.00
YAESU	SP-6 SPEAKER	£85.00
YAESU	FL-110 AMP 100w HF	£120.00
YAESU	FL-2025 25AMP FOR FT-290R MK11	£100.00
YAESU	FP-107 PSU	£120.00
YAESU	FP-757GX Power Supply (Heavy Duty)	£140.00
YAESU	FP-757GX SWITCH MODE	£95.00
YAESU	FRG-100	£295.00
YAESU	FRG-7700 RECEIVER	£250.00
YAESU	FRG-9600	£199.00
YAESU	FT-100 HF/6M/2M/70CM MOBILE DSP	£675.00
YAESU	FT-1000 D 200watt TRANSCEIVER	£1,499.00
YAESU	FT-1000MP AC LATEST SERIAL No.!	£1,399.00
YAESU	FT-101ZD HF TRANSCEIVER	£275.00
YAESU	FT-101ZD MK111 FM HF TRANSCEIVER	£325.00
YAESU	FT-225RD 2M BASE MULTIMODE	£325.00
YAESU	FT-2500M 50w 2m MOBILE	£200.00
YAESU	FT-290MK1 2M Multi-mode	£195.00
YAESU	FT-290R MK11	£275.00
YAESU	FT-3000M 70w 2m MOBILE TRANS	£225.00
YAESU	FT-480R 2M MULTIMODE	£220.00
YAESU	FT-530 2/70cm HANDY	£175.00
YAESU	FT-690MK11 6M MULTI-MODE TRANSCEIVER	£295.00
YAESU	FT-726R 2/70/6M TRANSCEIVER	£599.00
YAESU	FT-736R AC 2M/6M/70CM BASE	£799.00
YAESU	FT-736R AC 2M/70CM BASE	£599.00
YAESU	FT-757GX	£395.00
YAESU	FT-757GX11	£425.00
YAESU	FT-840 HF MOBILE-BASE TRANSCEIVER	£450.00
YAESU	FT-847 HF/6M/2M/70cm/4m	£999.00
YAESU	FT-8500 DUAL BAND MOBILE TRANS 50w	£295.00
YAESU	FT-900 HF MOBILE/BASE FACE OFF	£525.00
YAESU	FT-900AT BOXED	£695.00
YAESU	FT-901 Delux model Transceiver	£800.00
YAESU	FT-902 Delux model Transceiver	£800.00
YAESU	FT-920 AF HF- 50 MHz BASE TRANSCEIVER	£899.00
YAESU	FT-990 TRANSCEIVER AC HF BASE	£795.00
YAESU	FT-990 TRANSCEIVER DC HF BASE	£695.00
YAESU	FT-ONE BASE HF	£425.00
YAESU	FV-707DM DIGITAL VFO + MEMORIES	£99.00
YAESU	MD-1 DESK MICROPHONE (MINT!)	£80.00
YAESU	MD-100 DESK MICROPHONE	£70.00
YAESU	QUADRA AMPLIFIER HF/6M 1KW	£2,999.00
YAESU	SP-980 EXT SPEAKER	£75.00
YAESU	VX-1R MICRO 2/70 WIDE RECEIVER	£109.00
YUPITERU	MVT-125MK11 AIRBAND SCANNER	£125.00
YUPITERU	MVT-8000 BASE	£240.00

SRP TRADING

1686 Bristol Road South, Rednal, Birmingham B45 9TZ

****EXPORT AND TRADE ENQUIRIES WELCOME****

SANGEAN ATS-909

Quality portable shortwave receiver
153kHz to 30MHz (AM / SSB)
87.5MHz to 108MHz (FM)
Includes free Headset and Shortwave Antennas

FEATURES (RDS)
RADIO DATA SYSTEM

£139.95 + p&p

ALBRECHT AE 485S

10MTR Transceiver
28 - 30MHz
AM / FM / SSB
25 Watts Output Power

~~£199.95~~ **£179.95 + p&p**

LIMITED STOCK AT THIS PRICE!!

SANGEAN ATS 505

AM / FM /S SB

FM-STEREO / MW / LW / SW
PLL SYNTHESIZED RECEIVER

Professional digital multi-band world
Receiver Continuous coverage
150-29999 kHz

£99.00 + p&p

MAGNUM DELTAFORCE

10MTR Transceiver
28.000 - 29.699 MHz
30 Watts PEP
AM / FM / USB / LSB / CW

Microprocessor Controlled, Variable RF output, 5 Digit LCD Frequency Display, S/RF and SWR Meter, Scanning Micro-phone, Off set (Split) Frequencies ETC

£225.95 + p&p

225 BASE SCANNER

500 Channel Programmable Scanner.

Continuous Coverage
Range: 25-1300MHz
'NO GAPS'
Modes AM FM WFM

~~£299.00~~ **£249.95**
+ £10 p&p

PRESIDENT LINCOLN

10MTR Transceiver
28.000 - 29.7 MHz
AM / FM / SSB / CW
Microprocessor Controlled Amateur Radio

Switchable RF gain, RF / MODULATION / SWR Meter, Variable RF Output, Variable (Clarifier) RIT, 10kHz, 1kHz and 100Hz Steps, Frequency Lock, Frequency Change on Microphone, ETC.

£208.95 + p&p

YUPITERU MVT 7300

THE SCANNER OF THE YEAR

The MVT 7300 scanning receiver incorporates the new 8.33kHz frequency steps used by Civil Aircraft
Frequency coverage 531kHz to 1320MHz

SPECIAL INTRODUCTORY PRICE!!
~~£289.95~~ **£259.95 + p&p SAVE £30**

WIDEBAND PRE-AMP

100MHz to 1 GHz
With adjustable amplifications level of up to 20db

£39.95 + p&p

ROTATOR AR3000XL

Max Load 60kg (with support bearing)
360 deg. Rotation in approx 6.5 sec.

£49.95 + p&p

WM918 ELECTRONIC WEATHER STATION

Allows measurement and display of weather data

£199.95 + p&p

Includes PC software and lead

RADIO SHACK REALISTIC

LARGE STOCK OF A & B GRADE HAND-HELD SCANNERS AT VERY LOW PRICES. RING FOR DETAILS, TODAY!!

MAYCOM AR108

COMPACT CIVIL AIRBAND SCANNER

Frequency coverage
108MHz - 137MHz (AM).
136MHz - 180MHz (FM).

£59.95 + p&p

DC-AC INVERTERS

12V DC IN 240V AC OUT

150W version 12V only (for notebook computers etc.) **£49.95 + £5 p&p**
300W version 12/24 Volt (for small power tools etc.) **£69.95 + £5 p&p**
600W version 12/24 Volt (for medium power tools etc.) **£119.95 + £10 p&p**
1000W version 12/24 Volt (for large power tools etc.) **£149.95 + £10 p&p**

RECHARGEABLE N1-MH BATTERIES

"No memory effect"
Over twice the capacity of Nicads.

AA cell	1500mAh @ 1.2V	£2.00 each
AAA cell	550mAh @ 12V	£2.40 each
C cell	2200mAh @ 1.2V	£3.99 each
D cell	2200mAh @ 1.2V	£3.99 each
PP3 cell	150mAh @ 1.2V	£3.99 each

CHARGERS FOR ALL SIZES AVAILABLE

VISA MasterCard SWITCH

Opening Times: Mon-Sat 9.30am to 5.15 pm.
Call Mary (M0BMH) or Dave on

TEL: 0121 460 1581, 0121 457 7788 - FAX: 0121 457 9009

Members' Advertisements

RSGB Members wishing to place an advertisement in this section must use the official form incorporated on the label carrier of Radio Communication. This will prove membership and must be for the current month. No acknowledgment will be sent. Ads not clearly worded, or which do not comply with these conditions will be returned. If an ad is cancelled no refund will be due. An advertisement longer than 60 words will be charged pro rata. Trade or business ads, even from members, will not be accepted. Traders who wish to use this facility must send a signed declaration that the items for sale are part of, or intended for, their own personal amateur station. The RSGB reserves the right to refuse ads, and accepts no responsibility for errors or omissions, or for the quality of goods for sale or exchange. Each advertisement must be accompanied by the correct remittance, as a 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 callsigns and QTHR, provided that their addresses in the current edition of the RSGB Yearbook are correct. RS members will have to provide their names and addresses or telephone numbers. Please include your town and phone number in the free boxes provided to assist readers. Advertisements will be placed in the first available edition of *RadCom*.

The closing date for copy is the first day of the month prior to publication, eg the deadline for the March issue is 1 February.

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.*

FOR SALE

160-80m Codar AT-5 transmitter, with power unit plus T-28 rcvr, recently overhauled. Set of replacement valves. Daytime range 30 miles plus. Beautiful cond, £25 ono. 01634 379 140 (Gillingham, Kent).

ADMITTANCE bridge B801, £30. Admittance bridge B901, £30. General Radio impedance bridge, £99. Vintage transmitter, Admiralty Patent No M335C, £49. Drake R4C xtals for WARC bands, Sherwood filters 1.5, 500Hz, 100Hz, transmitter TX4C both + man, £390. IC-737A mint cond, £650, carriage extra. G3LDO, QTHR. 01903 770 804 (Littlehampton).
E-mail: g3ldo@ukonline.co.uk

ALPHA 91b linear, new September 98, mint, original packing £1,700. Henry 2006A linear, 1kW 50MHz, new May 1999, £1000! Yaesu FT-920, £650. Cushcraft Ten-3 28MHz 3-ele Yagi, £50. NJR-10 noise reduction unit, £50. Bob, G3NSM. 01865 556 321 (Oxford).
E-mail: mchenrymsn@msn.com

COMPLETE station, perfect wo, £1650. Separately: Icom 746, £825. Kenwood PSU, £65. Ameritron 811, 600W, £495, spare valves, £15. MFJ-962C 500W tuner, £175. Butternut H8X vertical, £175. Ill health forces reluctant sale. Collect (½ mile to M2 J4) or carriage extra. 01634 379 140 (Gillingham)

ICOM IC-756 (not PRO), HF/50MHz base tcvr, mint, boxed with narrow SSB filters, high-stability crystal unit and voice synthesizer, with h/mic, built-in auto HF/50MHz ATU, £800. Icom PS-85 PSU, £150. Icom IC-SP21 external speaker, £50. Icom SM-20 desk mic, £50 or £900 for all together. All mint and boxed. Richard, G8ITB, QTHR. 01689 602 948 (Bromley, Kent).

NEW QTH Cambridgeshire, ideal for amateur radio, located on farm, 1 acre plot. Built 1999, advanced design specification, quality workmanship, four bedrooms with over 2000 square feet accommodation. Attractive rural views, has double garage with purpose-built radio shack. Site has full planning consent for 60ft tower and large barn. Access via council-adopted road 2 miles from A1M. For more information please e-mail. (Peterborough).
E-mail: farmhouse2001@hotmail.com

TS-940S, modulation circuit intermittent, otherwise fully working. H/book, boxed, £375. Lenco L75 professional stereo 30-80RPM, record deck, 2 stylus heads, £50. Sony TC35 four-track three-head stereo reel-to-reel tape deck, all mans, £50. Buyer collects or carriage at cost extra. 01672 810 148 (Nr Marlborough).
E-mail: g3mfl@aol.com

VHF/UHF equipment disposal. A complete revision of my amateur radio objectives has left the following equipment surplus to my requirements and for disposal. Yaesu 736R VHF/UHF all mode tcvr fitted 6m 2m 70cm 23cm modules. Tokyo Hy-power 6m-60W RF power amplifier with GaAsFET pre-amplifier. SCS 2m solid state 100W linear amplifier, Drake microwave down-converter model 2880 for conversion to 13cm. Price the lot, £899. Other surplus equipment KAM multimode including PacTOR, £99. Headphones YH-77STA Yaesu, unwanted prize, £25. Hi-Mound Morse paddle key with heavy base, £25. Footswitch, £4. Tennamast Adapta-mast, £150. Carriage extra all items. 01527 541 502 (Redditch).

YAESU FT-101ZD HF tcvr, £150. FC-901 ATU, £80. FV-101Z external VFO, £150. Telereader CWR 685E CW/baudot/ASCII, £60. 20A PSU, £20. Leader in-line SWR/wattmeter, £30. 1kW dummy-load, £40. Kenwood TM-231E 2m 5/10/50W FM mobile, £175. Antenna package comprising: Mosley 'Mustang' 3-ele HF beam, Tonna 9-ele 2m beam, CDE controller and HamII rotator, £145 total (buyer dismantles) all vgc, postage extra. 023 8047 2929 (Southampton).
E-mail: geoffthomas2@compuserve.com

YAESU FT-736R 50/144/ 432/1200MHz base station tcvr with CW filter. Electronic keyer, CTCSS decode, voice synthesizer, MD-1 desk mic and h/mic. Also YH-55 headset, SP-767 external speaker, CAT interface and FMP-1 message display. All vgc and boxed, £750, no haggling. Icom IC-290D 144MHz FM/SSB/CW mobile tcvr, tatty but works, £125. Richard, G8ITB, QTHR. 01689 602 948 (Bromley, Kent).

YAESU FT-900AT mint cond, boxed, £450. AEA magnetic loop, £150. Manson 30A PSU, £50. timewave DSP599ZX mint, boxed, £179. IC-W31E dual-band h/held, boxed, as new, £139. G4ZPY high-speed paddle key, £45. Cushcraft 15-ele beam + 15m Westflex, £50. Dave, G0MXH. 01942 813 485 (Bolton).
E-mail: dave.kay1@virgin.net

940SAT, £800 ono. 811A unused, £600. TL-922 pair new 3-500Z, £800. All mint. 01788 833 148 (Brinklow, nr Rugby).

CLEAROUT G450C rotator, new, £225. Yaesu F2600M 60W 2m new, £100. Yaesu FT-900AT + filters, £500 ono. Yaesu FT-5100 dualband, £150. Alinco DX-70TH HF+6 as new, £350. 900ft Westflex 103 new, £40. AFL 2m cavities, £50 each. Loads more radios. Phone or e-mail for list. 01754 830 745 (Spilsby).
E-mail: monza6c@aol.com

DELIVERED magnetic loop antenna AMA3, power supply and controller, £100. 01407 832 841 (Anglesey).

DRAKE TR7; accessories SB2000; UPS280; HTX/xcvr 25w SSB/CW; FT-23R; noise bridge (Palomar); SWR 25 3.5-150MHz; DSP9 Plus (Timewave) noise filter. 01245 223 494 (Chelmsford).
E-mail: glmills@g3edm.freeserve.co.uk

EDDYSTONE 830**/7 +** man, mint cond, £250. Labgear LG300 + literature, £100. Marconi LCR bridge type TF868B + man, £35. G8KOV. 01453 546 971 (Dursley, Glos).

EDDYSTONE EA12, h/book, vgc, buyer collects, £150. Bencher BY-1 paddle, boxed as new, £40. G3TSS, QTHR. 01434 633 125 (Corbridge).

FT-101E mint cond, one owner, Bird Thruline 50ohm wattmeter, case. Bird Termaline 50ohm 500W load. Coutant 1000/24 24V PSU. Quel 12V 45A SM-PSU. Jaybeam 8Y2m, unused. Sayrosa automatic modulation meter. Farnell L30B 0-30V bench PSU. BC221 with charts. Offers? 01803 296 879 (Torquay).

FT-23 2m, needs battery, no charger, £75 ono. Computer 486/66DX, Elonex CD-ROM, mouse, monitor, gwo, £75 ono. Will deliver 25 miles radius. 01992 763 051 (Waltham Abbey).

FT-747 £250. TS-700G, £100. MFJ-949E deluxe Versatuner, £65. Watson W50 2m/70cm vertical, not used outdoors, £25. 5-ele 2m ZL-special, not used outdoors, £15. No offers please. Buyers collect or arrange carriage. 01909 560 308 (Dinnington, S Yorks).
E-mail: keithp@g4jvx.screaming..net

IC-725 complete working station, includes Icom 100W HF tcvr, Revox 30A PSU, Ventronics VC-300DLP ATU, Watson ½G5RV, all for £350. Alan, G3WNS, QTHR. 01494 713 770 (High Wycombe).
E-mail: alba@btinternet.com

ICOM IC-756, £875. IC-746, £850 both as new warranty. FT-8100R unused, new, £250. IC-751 + SM-6 desk mic, £350. Icom 735, CW filter, subtone board, elec keyer, £375. MFJ-969 ATU as new, £95. Tokyo HF amp 1.2kW input, £450. Drae 24A PSU, £70. Target HF-3 rcvr, as new, £85. TS-940S voice synth, £20. Front panel, £20. Possible exchange IC-781, IC-775, FT-1000MP, TS-950, any trial welcome, collect or pay carriage. 01953 884 305 or 07970 214 039 (Norfolk).

ICOM PCR1000 computer-driven rcvr 0.5-1300 MHz includes SSB, boxed, still under guarantee, £180. G7IKM, QTHR. 0151 525 8914 (Merseyside).

KENWOOD 850SAT c/w voice filters mic, boxed with h/book. This rig has hardly been used. Beautiful, £595. 01306 887 057 (Dorking).

KENWOOD 850SAT exc cond, not marked, Checked by Castle Electronics, original box, man, mic, leads, little used second rig, £650. Ivor, G4YIT. 01733 840 268 (Peterborough).

KENWOOD TS-530SP WARC bands, narrow CW filter, man, full wo, exc cond, £200. FT-290R Mk1 carry case, charger, boxed, man, £150. Chrome Bencher plus Dewsbury memory keyer, £70. Buyer collects or pays carriage. 0121 605 2377 (Birmingham).
E-mail: colin@drof96.freeserve.co.uk

KENWOOD TS-530SP, fitted 350Hz CW and 1.8 SSB filters. Matching Kenwood ext VFO plus Kenwood h/mic, all boxed and in gc with mans. Datong FL3 outboard filters. First £360 secures. Prefer buyer inspects and collects or pays half carriage. JRC NRD-345 HF general coverage rcvr, boxed with man, cost £399, first £275 secures. Buyer pays carriage. 01670 822 172 (Northumberland).
E-mail: tomfurnessg4wng@aol.com

KENWOOD TS-850SAT HF tcvr, internal ATU. No added filters, not boxed, little used, showroom cond, £775. 07790 497 444 (Birmingham).

KENWOOD TS-870S HF tcvr mint cond, minimal use 4½ yr warranty, 100% comp, £1000 inc delivery. May PX cheaper tcvr + cash. WHY? Offers? GW4RLP, QTHR. 01286 675 264 (Caernarfon).

MAST plus rotator plus control, £100, been dismantled, buyer collects. 01621 868 347 (Colchester).
E-mail: g0ibn@ikersey.freeserve.co.uk

MFJ-989C 3kW roller-inductor antenna tuner, boxed, little used, £210 ovno. 01239 654 880 (Cardigan).
E-mail: mw5zzr@aol.com

MICROWAVE Modules MML-144/200S 200W 2m linear, £150. Icom IC-706 vgc, £395. 706 service man, as new, £10. Alinco DX-70TH c/w mobile mount and unused remote cable kit, unwanted present, as new boxed, with man, £450. Schlumberger Stabilock 4011 radio test set c/w 4920 Selcal and 4050 CTCSS test sets, £650, all gwo. Tait T-375 rcvr, £80. 01354 741 168 (March, Cambs).

P60 tower with ground post, rotator cage, bearing, winches and cable. Dismantled, space needed! Bargain, £350. CDR rotator, £30. 2-ele quad antenna with boom, £50. G4FCA. 01886 880 332 (nr Worcester).

PALSTAR wattmeter 1.8-150MHz 300W-3kW, brand new, boxed, £45. Boomless quad spider + 80 glass fibre spreaders, £175. G4SGV. 01527 545 304 (Redditch).

ROTATOR az/el commercial Emoto EV700DX. Dare to compare with Yaesu! 'As new' c/w 25m cables, az/el computer tracking & rcvr control hardware & PC software. Use as assembly or separate rotors. Package cost $2000 US, offered at £409. Specs and details from G4EZG, QTHR. Fax 604 936 1740 (Canada).
E-mail: mmacgregor@asttbc.org

SHACK clearance IC-251E 2m multimode, £200. IC-207H 2m/70cm 50W mobile, £150. 6m-gear: Mutek TVVF-50A transverter, £150. Teletec 180W-PA, £120. 6-ele ZX Yagi, £70. SSB Electronics masthead preamp, unused, £100. Trio AT-250 auto HF ATU, £100. Mosely TW33 WARC tribander 12-17-30m, £120. KLM-KT34XA 6-ele tribander 10-15-20m, £120. 2m/70cm 9.5dB/13.2dB supergain vertical, unused, £100. PacComm Tiny-2 TNC, £50. Pye-A200 amplifiers 2m/6m, £30 each. RCA-7213 valves, 1kW 70cm - offers? 01777 248 080 (Retford, Notts).
E-mail:mausoptik.ltd@ntlworld.com

SHACK clearance see www.nn14.co.uk for details. FT-101ZD, £275. FRG-7, £75. IC-725, £375. TS-700S plus external VFO, £300. TR-7200G, £50. KW107, £80. Galaxy counter 250MHz, £20. Hewlett-Packard A4 plotter, £15. A3 plotter, £20. Heathkit signal generator IG5280, £20. Impedance bridge T28, £20. Dip meter HD1250, £20. South Western Bell cordless phones: answerphone FF890, £25; base FF888, £20; extension FF889, £10. 01536 711 625 (Kettering).
E-mail: john@nn14.co.uk

SHACK clearout. FT-1000MP filters included, as new, boxed, £1299 ono. FT-1000D, SP-5 ext speaker, MD-1 as new, boxed, will split, £1450 ono. Icom 706 Mk1, boxed, £375 ono. Various other items, ring or e-mail for details. Richard, M0AUW. Evenings only. 01242 239 196 (Cheltenham).
E-mail: dickiedoodah@btinternet.com

SILENT key GM1YTF. 2m and CB equipment plus sundries. Four page list available. Send SAE to Ken, GM3ENJ, QTHR. 01383 625 623 (Dunfermline).
E-mail: ken@gm3enj.freeserve.co.uk

SILENT key sale (G0FLH). FDK 6 ch h/held, £50. Kenwood TR-7850 2m FM, £125. 10m FM, converted CB, £35. Yaesu FT-757 HF, £425. Yaesu FT-707 PSU, £75. Yaesu MD-1 desk mic, £20. MFJ ATU Versatuner deluxe, £70. Hi-Mound twin paddle, £25. Hi-Mound pump handle key, £10. Grid dip oscillator, £5. 01347 810 066 (Easingwold).
E-mail: malcolm@newsome.com

SUBSTANTIAL QTH for sale. Beautiful 5-bedroom 15/16th century traditional Welsh farmhouse with yard & buildings, one partially converted to dwelling in approx

SILENT KEYS

WE REGRET to record the passing of the following radio amateurs:

G0GOC	Mr A G McGregor	07/03/01
G0PRB	Mr R K Kingston	08/00
G1MSH	Mr A R Johns	15/03/01
G1OOX	Mr A T Harding	4/00
G3BDD	Mr D Hudson	11/02/01
G3CZO	Mr H Buckley	25/03/01
G3EBG	Mr W Reckitt	01/03/01
G3FHG	Mr K S Martin	28/02/01
G3GWU	Mr A Stenhouse	
G3HDQ	Mr W Baker	19/02/01
G3HUT	Mr M Doubleday	14/02/01
G3IPL	Mr D A Winters	11/03/01
G3NTV	Mr B Gillingwater	16/03/01
G3UOB	Mr A A Mayers	23/02/01
G4EZS	Mr H Foster	01/03/01
G4NIO	Mr W M Towers-Perkins	
G4PKB / EA7GUQ		
	Mr A D Trevethick	15/03/01
G4TQQ	Mr R Phillips	/03/01
G4VSU	Mr H G Jones	26/02/01
G4ZGS	Mr E F Morgan	12/08/00
G8GTP	Mr J M Horrocks	07/03/01
G8QZ	M H O Sills	29/03/01
G8UN	Mr P Harrad	26/02/01
GI4ALM	Mr J B Cairns	27/10/00
GI4VJC	Mr J S McIlroy	
M1ASQ	Mr J Stevens	24/02/01
RS179788		
	Rev W Rowan	23/01/01
ZL4LR	Mr F G Hunt	13/02/01

15 acres, incl 4 acres bluebell wood. Further 40 acres available near fast-growing town of Carmarthen 1½hrs to Severn Bridge. Right of access to trig point on adjoining land; possible employment opportunities in the electrical/generator field. Offers around £235,000. Estate Agents Bob Jones, Carmarthen SA32 7ER – 01267 236 363. 01267 222 445 (Carmarthen).

TAIT T-375 base rcvr, ideal 144MHz repeater rcvr, £80.Tait T-198 PMR mobile, OK 2m packet, £20. Bird 6154 Termaline power meter c/w man, 25-1000MHz, 5/15/50/150W, £120. Tait T-535 mobile FM, hi-band, £50. T-508 desk PSU, £25. Racal 9915 counter, 10Hz to 520MHz, £50. MFJ-945C ATU, £30. AVO Model 8 Mk5, vgc c/w leads & case, £50. Tait T-275 remote base unit, £25. 01354 741 168 (March, Cambs).

TCVR Kenwood TS-530S, exc cond, 100W, Kenwood mic, man, circuits, any trial, buyer collects, bargain, all bands, £185. 01789 552 456 (Stratford on Avon).
E-mail: dex.g4abs@ntlworld.com

TEN-TEC Paragon fitted with all filters and Ten-Tec desk mic included, £350. Yaesu FL-2100Z linear amplifier, gc, £350, buyer collects or pays postage. 0151 678 7807 (Moreton, Wirral).
E-mail: g4wua@aol.com

TRIO R-600 0-30MHz, gc, boxed, bargain, £96. Ten-Tec Corsair tcvr (fault), £150. Phone for details. Bargain Lowe SRX30, £30. G4PDV. 01732 457 820 (Sevenoaks).

TRIO TS-120V 10W 10-80m tcvr, £150 ono. G3NAS. 0860 119 210 or 01543 255 992 (Lichfield).

TS-130V, TL-120 and EP-925 PU with mic. Fitted both filters and 130 has new bands, £450. GM3PLO, QTHR.

TS-430S, £240. TS-770E, £200. Shure 444, £20. Large quantity of valves - offers? Yaesu tuner FC-301, £50. HC-1400, £30. Yaesu tuner, £50. All above in gwo with mans, ono. 01536 790 094 (Broughton).
E-mail: tomcatdt@btinternet.com

TS-930S HF tcvr with h/mic CW filters, auto ATU, mans, boxed, vgc, £400. Nigel, G0BNR. 01487 832 147 (Peterborough).
E-mail: g0bnr@hotmail.com

VERTICAL antenna, Morse keys, Morse tutor, WWII US Army Signal Corps frequency meter, oscillosope, headsets, mics, offers? 01271 860 942 (Barnstaple).

WOOD and Douglas 144PK packet tcvr, 8W output, £65. Tiny-2 Mk2 TNC, £65. G4FAS, QTHR. 0161 437 7784 (Cheadle, Cheshire).
E-mail: geoff.royle@lineone.net

YAESU FRG-8800 HF rcvr, vgc, £250. 01707 320 271 (Herts).

YAESU FT-101ZD Mk3, FM, £325. FTV-107R tvtr with modules for 2m and 70cm, can be used with FT-101ZD, £150. FRG-7 rcvr, digital readout, £50, all with instruction mans. 01453 883 090 (Stroud).
E-mail: michael.gwilliam@virgin.net

YAESU FT-225RD 2m 25W tcvr, 240V with man, all mode, buyer to collect, £100. 01772 335 049 (Preston).
E-mail: jackjolly@lineone.net

YAESU FT-707, FV-707, FC-707 boxed, immaculate, owned 15 years including all mans, £300 ono. Yaesu VX-1R, boxed, immaculate, £100 ono. 01234 708 301 (Bedford).
E-mail: koenraadr@hotmail.com

YAESU FT-736R VHF/UHF tcvr including MD-1 desk mic, 144MHz, 432MHz, 50MHz modules, immac cond, £700. Navico AMR 1000s 2m mobile, £90. Can deliver up to 100 miles. 01763 262 443 (Royston, Herts).
E-mail: alan.florence@tinyonline.co.uk

YAESU FT-736R, 2m 70cm, CTCSS, good cond, £550. Kenwood TS-50 HF mobile, £300, both items boxed with mans. 01526 353 093 (Woodhall Spa).

YAESU FT-900CAT, has all Collins filters + FP-800 PSU that matches the FT-900. Have a speaker as well. All boxed. Ten-Tec Pegasus DSP 100W tcvr, computer control, very easy to control, all boxed. G0UUT. 01603 742 733 (Norfolk).
E-mail: g0uut@arrl.net

YAESU FTV-901R tvtr with modules for 6m, 2m and 70cm, with all leads and man, vgc, sensible offers please. 01202 460 174 (Poole, Dorset).
E-mail: g0faj@freenet.co.uk

YAESU PT-650 tcvr 100W 24-60MHz, 6, 10, 12m bands SSB, CW, AM, FM, mint cond, little use, £375. GW7LXI, QTHR. 01691 659 615. (Oswestry).

WANTED

B2 SUITCASE radio or any other suitcase/spy-type radio. Any cond or incomplete welcome. Bill, G8PUJ, QTHR. 020 8505 0838 (East London).

CONGRATULATIONS

To the following whom our records show as having reached fifty or sixty years' continuous RSGB membership this month:

50 years

G2XV	Cambridge & DARC
G3HYH	Mr S P Hay
GW3KFE	Mr E P Essery
VK2BE	Mr L W Louttit

60 years

G2FXQ Mr S W Saddington

AMSTRAD used diskettes for PCW 9512. Also one good quality start-of-day disc. Maurice, GM3HAT. 01463 772 169 (Inverness).

ANY 70cm SSB tvtr or tcvr for Novice. Reasonable price. Phone after 5pm or e-mail. 01656 653 342 (Bridgend).
E-mail: rf740@hotmail.com

DISABLED fan of old days seeks QSL cards log books etc; also can you help complete my magazine archive? RSGB *Bulletins* pre-1950, *QST* pre-1951 and 1960 to 1975, *CQ* 1945 to 1970. Your price paid. Mike, 8 Windsor Road, Reydon, Southwold, Suffolk, IP18 6PQ.

FOR model 1155/54 wiring harness to include ground supply and DF loop. Will settle for set of plugs, all expenses paid. 01572 722 470 (Oakham).

G2DYM half-size (54ft) trap dipole with 75-ohm feeder, also G2DYM 1:1 balun. Both must be vgc, sensible price please. 07980 137 617 or 0191 389 2822 (Durham).

ICOM 706 MkIIG, cash waiting for good one, can collect. Also Icom IC-228 working or not. Icom AH3 or AH4 ATU. 01354 741 168 (March, Cambs).

IMR54. I am looking for one of these ship's main rcvrs. Very large and recognisable by its white, star-shaped knobs. Can anyone help please? I am prepared to travel (nearly)

Rallies & Events

5/6 MAY 2001

KEIGHLEY ARS Field Event has been cancelled following advice from the Ministry of Agriculture following the outbreak of foot and mouth disease.

6 MAY 2001

BRITISH AMATEUR TELEVISION CLUB 2001 Convention & Rally - Bletchley Park Museum, Bletchley Park. OT 10am, £1, under-16s free. TS on ground floor of Mansion, C in Hut 4, CBS on the Faulkner House car park. Tours of the Cryptology Trail £1 extra. Bi-annual General Meeting of the Club is at 2pm. Dave, G4NJU, QTHR, 01908 378 277.

7 MAY 2001

DARTMOOR RC Rally – Pannier Market, Tavistock, Devon. OT 10.15/10.30am. TI on S22, CP free, DF, TS, B&B, C, FAM. Ron, G7LLG, 01822 852 586.

MID-CHESHIRE ARS Rally - Civic Hall, Winsford. OT 10.30/11am. C, CP. David, G4XUV, 01606 777 87.

11 MAY 2001

BLACKWOOD & DISTRICT ARS Radio Car Boot Sale - Oakdale Community College car park near Blackwood, Gwent. OT 7pm. John, GW8ITI, 01495 225 178 or Steve, GW4BLE, 01442 297 738.

13 MAY 2001

MAIDSTONE YMCA ARS Mobile Rally 2001 - CANCELLED. Colin, G0VAR, 01622 736 636.

RADIO AMATEURS NETHERLANDS RAILWAYS - Steam Train Mobile Day, on the air from 10.30 local time, from a four-axle passenger coach, f26 for a two-way ticket, concessions apply. Wil, PA0WBS, awbrinkman@freeler.nl

THREE COUNTIES Radio & Computer Rally – Perdiswell Leisure Centre, Bilford Road, Worcester. OT 10am, £2. CP free, TI on S22, TS, FM, SIG, LB, C, WIN. John, G8MGK, 01527 545 823 or 07808 272 080 or www.qsl.net/gb2tcr

20 MAY 2001

DRAYTON MANOR Radio & Computer Rally - Drayton Manor Park, Tamworth, Staffs, on the A4091 close to jns 9 and 10, M42. OT 10am. TS, FM, B&B, SIG. Peter, G6DRN, 0121 443 1189 (eve).

MID-ULSTER ARC Rally - Silverwood Hotel, Lurgan, Co Armagh. OT 12 noon. TS, B&B, TI on S22. Jim, GI0OND, 028 3885 1179.

26 MAY 2001

HMS HOOD SINKING 60th Anniversary - GB2HA on 80m, 40m, 20m and 2m from the home of Malcolm, G0LMD, East Stratton, Winchester, 01962 774 550. HMS Hood Association web site www.hmshood.com

3 JUNE 2001

MID-LANARK ARS Ham Radio Tram Ride - Summerlee Heritage Park, Heritage Road, Coatbridge. OT 10am, free. RSGB, LEC, TS, B&B, FAM, TI on S22, C, CP, etc. John, GM0XFK, 01698 822 860.

SPALDING & DARS Spalding Radio Rally - Springfields Gardens, accessible from the A16/A151 roundabout. TI on S22. OT 10am, £2. CBS, C, CS by prior arrangement

WEST MANCHESTER RC Red Rose QRP Festival - Formby Hall, Alder Street, Atherton, Manchester. OT 11am, £1. CP, DF, C, LB, TS, SIG, RSGB, G QRP, FISTS, B&B. Les, G4HZJ, 01942 870 634.

10 JUNE 2001

NUNSFIELD HOUSE ARG Elvaston Castle National Radio Rally - Elvaston Castle Country Park, Elvaston, Derby, on the B5010 between the A6 and the A52, five miles SW of Derby. £3 per car (car park opens 9am), TS, SIG, FM, B&B, FAM, C, MT (two photos required). Les, G4CWD, 01332 559 965 or e-mail rally@g4cwd.demon.co.uk

WINDERMERE STEAMBOAT MUSEUM ARS Mobile Radio Meeting - Windermere Steamboat Centre, Rayrigg Road, Windermere. OT 10am. A new event centred on the uses of mobile radio in the Lake District. Exhibits by the Army, RAF, Police, Fire, Mountain Rescue Teams and Park Wardens on land and on the lake, all set against the attractions of the museum's exhibits of working steam launches. A great family event. Roy, g0tak@thersgb.net

17 JUNE 2001

EAST SUFFOLK WIRELESS REVIVAL - The Hollies, Bucklesham, Ipswich. CBS, B&B, TI on 2m (GB4SWR), SIG, RSGB, C. Jason Flynn, 01473 606 060.

LEEDS & DARS Outdoor Rally & Car Boot Sale - Yarnbury Rugby Club, Brownberrie Lane, Hosforth, Leeds. CP free. J A Mortimer, M0JAM, 01943 874 650.

NEWBURY & DARS 15th Annual Boot Sale - Acland Hall & Recreation Field, Cold Ash, Newbury. OT 9am, TI on S22. George, 01488 682 814 or www.nadars.org.uk

23 JUNE 2001

RADIO VEHICLE WEEKEND - Blandford Forum, Dorset. Displays of modern equipment and working radios using amateur and cadet frequencies. White Helmets motor cycle display team, pipes and drums of Scottish Signal Regiment and the Corps Band. The museum will also be open. Mike Buckley, 020 8654 2582.

24 JUNE 2001

BANGOR & DARS Summer Radio Rally - Crawfordsburn Country Club, near Bangor, County Down. OT 12 noon, £2. TS, B&B. Club website http://welcome.to/bdars or Norman, GI3YMY, 028 9146 6557 or email normannewell@beeb.net

CITY OF BRISTOL RSGB GROUP Longleat Amateur Radio & Computer Rally - Longleat House, Warminster, Wiltshire. Ron, G4GTD, 0117 9856 253 or www.longleatrally.co.uk

29 JUNE - 1 JULY 2001

HAM RADIO 2001 EXHIBITION - Friedrichshafen, Germany. Coach trip organised by Ernie, G4LUE, 01226 716 339 or 07787 546 515, or www.syrg.co.uk

1 JULY 2001

YORK RADIO CLUB 11th Radio Rally - Knavesmire Building, York Racecourse. OT 10.30am, £2 under 14s free. CP, TI on S22, SIG, LB, C, MT (two photos required). Pat, G0DRF, 01904 628 036 or pat.trask@lineone.net

5 - 8 JULY 2001

FINNISH RADIO AMATEUR LEAGUE Annual Summer Camp - 'Hietahami 2001', hosted by the University of Oulu Radio Club, OH8TA. The camp site is located close to the centre of Oulu, which can be reached by train, plane or bus. http://oh8ta.oulu.fi/hietahami/en/ or e-mail hietahami@sik.oulu.fi

8 JULY 2001

SUSSEX Amateur Radio & Computer Fair – Brighton Racecourse, East Sussex. OT 10.30am. Ron, G8VEH, 01903 763 978 or 01273 417 756 (office hours).

14 JULY 2001

CORNISH RAC Radio Rally & Computer Fair - Penair School, Truro. OT 10.30am. B&B, TI, CP. Robin, 01209 820 118.

15 JULY 2001

HULL & DARS 8th Humber Bridge Radio Rally - Hessle High School, Hessle. OT 10.30. TS, C, MT (two photos required), TI on S22. Phil, M1BLO, 01482 879 396 or John, M1ESA, 01482 838 560.

KEY

Rallies & Events

TI - Talk-In; **CP** - Car Park; **£** - admission; **OT** - Opening Time - time for disabled visitors appears first, eg (10.30/11am); **TS** - Trade Stands; **FM** - Flea Market; **CBS** - Car Boot Sale; **B&B** - Bring and Buy; **A** - Auction; **SIG** - Special Interest Groups; **MT** - Morse Tests; **LB** - Licensed Bar; **C** - Catering; **DF** - Disabled Facilities; **WIN** - prize draw, raffle; **LEC** - LECtures / seminars; **FAM** - FAMily attractions; **CS** - Camp Site.

McMICHAEL RALLY & CAR BOOT SALE - Reading Rugby Football Club, Sonning Lane (B4446, just off A4) near Reading, Berkshire. OT 9.30am, £1.50, under-18s free. CP, CBS, C, LB, TS, TI on S22, First Aid post. Dave, G4XDU, 01628 625 720 or g4xdu@amsat.org Web site http://go.to/mcmichaelrally

27 - 29 JULY 2001

AMSAT-UK COLLOQUIUM - University of Surrey, Guildford. www.uk.amsat.org/colloquium.htm

29 JULY 2001

COLCHESTER AMATEUR RADIO SOCIETY 33rd Annual Radio Rally & Computer Fair - St Helena School, Sheepen Road, Colchester. OT 10am. TI, TS, CBS, C, LB, CP free, DF, B&B. Richard, 01376 571 239 (evenings) or www.g3co.ccom.co.uk

RUGBY ATS Annual Rally - BP truckstop on A5, 3 miles east of Rugby, 2 miles from M1 jn 18. OT 10am, £1. CP free, TI on S22 (GB1RRR), C, DF. Peter, G0JEW, 01455 552 449 (eve) or e-mail rally@g0jew.fsnet.co.uk

5 - 10 AUGUST 2001

NORTH WALES RRC DXpedition to Bardsey Island - Edward, GW0DSJ, 01745 336 939. Web page www.nwrrcw.org.uk

10 AUGUST 2001

COCKENZIE & PORT SETON ARC 8th Annual Radio Junk Night - Bob, GM4UYZ, 01875 811 723 or GM4UYZ@GB7EDN or e-mail bob.gm4uyz@btinternet.com

12 AUGUST 2001

KING'S LYNN ARC 12th Great Eastern Radio & Computer Fair - Derk, G0MQL, 01553 841 189, e-mail Derk.Fraklin@tesco.net or Fred, G0KZI, 01760 440 570.

19 AUGUST 2001

LEEDS & DARS Outdoor Rally & Car Boot Sale - J A Mortimer, M0JAM, 01943 874 650.

26 AUGUST 2001

TORBAY ARS Mobile Rally - John, G4VUD, 01626 205 514 or e-mail rally@tars.org.uk

2 SEPTEMBER 2001

TELFORD ARRG Telford Radio Rally - Dave, M0VZT, 01952 222101. Web site www.TelfordRally.org.uk or e-mail bob@somrob.u-net.com

9 SEPTEMBER 2001

LINCOLN SWC Hamfest - John, G8VGF, 01522 525 760 or 07968 050 318.

21/22 SEPTEMBER 2001

LEICESTER Amateur Radio Show - Geoff, G4AFJ, 01455 823 344, fax 01455 828 273 or e-mail g4afj@argonet.co.uk

12 - 14 OCTOBER 2001

RSGB International HF and IOTA Convention HFC 2001 - RSGB, 0780 904 7373.

WACRAL 2001 Conference - G4EZU, QTHR or 01474 533 686.

13 OCTOBER 2001

THE G QRP CLUB MINI-CONVENTION - George, G3RJV, g3rjv@gqrp.com

14 OCTOBER 2001

NORTH WAKEFIELD RC 18th Amateur Radio & Computer Rally - 01924 824 451 or www.nwrc.mcmail.com

21 OCTOBER 2001

BLACKWOOD & DARS Radio, Computer and Electronics Rally - Dave, GW4HBK, 01495 228 516 (eve).

28 OCTOBER 2001

GALASHIELS & DARS Annual Rally - Jim, GM7LUN, 01896 850 245 or e-mail jimk@gm7lun.freeserve.co.uk

3/4 NOVEMBER 2001

NORTH WALES RRC Rally 2001 - Muriel, GW7NFY, 01745 591 704 or www.nwrrcw.org.uk

6/7 NOVEMBER 2001

LOW POWER RADIO ASSOCIATION Radio Solutions 2001 - 01422 886 463 or www.lpra.org or e-mail info@lpra.org

18 NOVEMBER 2001

MIDLAND AMATEUR RADIO SOCIETY 12th Radio & Computer Rally - Peter, G6DRN, 0121 443 1189.

WEST MANCHESTER RC Red Rose Rally - Don, G3BSA, phone/fax 01942 871 620 or e-mail don@g3bsa.freeserve.co.uk

25 NOVEMBER 2001

BISHOP AUCKLAND RAC Rally - Mark, G0GFG, 01388 745 353 or Brian, G7OCK, 01388 762 678.

GB calls

These callsigns are valid for use from the date given, but the period of operation may vary from 1 – 28 days before or after the event date. Operating details are provided in an abbreviated form as follows:
T = 160m; L = 80 or 40m; H = HF bands (30 – 10m); V = 6 and / or 4m; 2 = 2m; 7 = 70cm; S = satellite and P = packet. Please send operational details of your special event station to the *RadCom* office at least five weeks before publication.

1 May GB4FUN: RSGB For Fun. TLHV27PS (G3VHF)

5 May GB2MAS: Montrose Air Station. Montrose, Angus. LHV2 (MM5BRI)

11 May GB0LRW: Landrover World. West Wycombe, Bucks. TLH27 (G4KZT)
GB2FFL: Flight For Life. Bromsgrove. LHV2 (G0RMG)

12 May GB0AA: Air Ambulance. Kingswinford, West Midlands. L2 (M0BPT)
GB0AAS: Air Ambulance Service. Wythall, Birmingham. LHV27 (G0ICJ)
GB0ARM: Co. Armagh. Hamilton's Bawn, Co. Armagh. L (GI4SRQ)
GB0ATM: Antrim MTS. Carrickfergus. LH2 (GI3YRL)
GB0BFD: Beds Morse Team. Sharnbrook, Beds. (G4CEO)
GB0BRK: Berkshire MTS. Thatcham, Berks. LH (G0ORH)
GB0CAA: County Air Ambulance. Wolverhampton. LH2 (G0KRK)
GB0CAA: County Air Ambulance. Essington, Wolverhampton. LH2 (G0KRK)
GB0CWF: Clwyd & Flintshire MTS. Cheshire. L (GW0EDC)
GB0DVN: Devon MTS Team. Plymouth. LH2 (G3VNG)
GB0ESX: Essex MTS. Chelmsford, Essex. LH (M0CQK)
GB0ETM: Eling Tide Mill. Southampton, Hants. LH2P (G0LKG)
GB0FFL: Flight For Life. Warley, West Midlands. LH2 (M0BTO)
GB0GDD: Gwynedd MTS. Ynys Mon, Gwynedd. L (GW3VVC)
GB0GRN: Grampian. Aberdeen. TLH2 (GM3WIJ)
GB0HUM: Humberside. Bridlington, E Yorks. LH2 (G4XBU)
GB0HWR: Hereford & Worcester MTS. Malvern, Worcs. TL (G4BVY)
GB0IOW: Isle of Wight. Bembridge, Isle of Wight. L (G3LWI)
GB0LCN: Lincolnshire MTS. Lincoln. L (G4OSB)
GB0LDN: North London MTS. Ealing, London. TLH (G3NOH)
GB0LNH: Lancashire MTS. Accrington, Lancs. LH (G0JWB)
GB0MTS: Morse Test Service. Thatcham, Berks. (G3RVM)
GB0NOR: Norfolk. King's Lynn, Norfolk. LH2 (G3DKO)
GB0PEM: Pembrokeshire Morse Tests. Neyland, Pembrokeshire. L (GW4XQK)
GB0SFD: Staffordshire MTS Team. Stafford. L (G0BYA)
GB0TAU: Taunton Morse Tests. Ilminster, Somerset. L (G4KJD)
GB0WLT: Wiltshire Morse Tests. Bradford on Avon. LH (G3GKC)
GB0YSE: Yorkshire East. Hull, East Yorkshire. LH (G4VHM)
GB0YSN: Yorkshire North. Scarborough, N Yorks. LH27 (G4ZGP)
GB0YSW: Yorkshire West. Wakefield. TLV27 (G0DYS)
GB2AA: Air Ambulance. Sutton Coldfield, Birmingham. LV27 (G0LLP)
GB2HBF: Horsington Beer Festival. Horsington, Somerset. LH (G0ENW)
GB2WMS: Water Mill Shepshed. Loughborough, Leics. TLH (G4JCH)
GB4AAS: Air Ambulance Service. Swadlincote, Derbys. (G4CRT)
GB4CAA: County Air Ambulance. LV27 (G0KNM)

13 May GB0ATM: Antrim MTS. Newtownabbey. LH2 (GI4BTG)
GB0BRK: Berkshire MTS. Newbury, Berks. TLH27 (G3ZGC)
GB0CW: Chief Morse Examiner. Reading, Berks. (G4HNF)
GB0FMH: Co Fermanagh MTS Team. Co Fermanagh. L (GI4PCY)
GB0HLD: Highland MTS Team. Dingwall, Ross & Cromarty. (GM3WED)
GB0KLM: Killhope Lead Mine. Upper Weardale. TLHV2P (M0ACV)
GB0LCN: Lincolnshire MTS. Grantham, Lincs. LH (G4HVC)
GB0LEC: Leicestershire MTS Team. Woodhouse, Leics. TLH (G4KGG)
GB2TCR: Three Counties Rally. Worcester. 2 (G3EVT)
GB2WBM: West Blatchington Mill. Hove, East Sussex. LH2 (G4BWJ)
GB2WTM: Woodbridge Tide Mill. Woodbridge, Suffolk. LH2 (G4YQC)

19 May GB0NFN: New Forest North. New Forest, Hampshire. L2 (G4ICD)

21 May GB4YOU: Youlbury Scout & Guide Radio. Boars Hill, Oxford. TLH27P (G0REL)
GB4YOU: Youlbury Scout & Guide Radio. Boars Hill, Oxford. TLH27P (G0RJX)

23 May GB0HI: Hilbre Island. Hilbre Island. LH (G0VBD)

26 May GB0CHD: Chatham Historic Dockyard. Chatham Kent. TLHV27 (G3UXH)

26 May GB2HA: Hood Association. Winchester, Hants. LH27P (G0LMD)

28 May GB0NTC: National Trust Charlecote. Warwick. LH2 (G0MRH)

Helplines FOR MEMBERS

● Steve, G3ZVW, is looking for a copy of the circuit diagram and any modification details for the **Neve Radiotelephones model 1995-3**. G3ZVW, QTHR. Tel: 020 8882 5125.

● Don, G8AYK, would like to thank the amateur known only as 'Mike', who kindly rang him with information on the **Icom IC-505** which he requested in the January 2001 *RadCom*.

● Steve, G4UHM, needs a tuning control switch for a **Kenwood TM-241/441**, or perhaps a scrap unit. He will refund all expenses incurred. G4UHM, QTHR. Tel: 01277 355 731 or e-mail g4uhm_g0aol@lineone.co.uk

● Gill, G0AOL, is looking for a copy of the manual for a **Maspro ST-8** analogue satellite receiver, and will refund all expenses. G0AOL, QTHR. Tel: 01277 355 731 or e-mail g4uhm_g0aol@lineone.co.uk

● Peter, G3FYP, is looking for software, RTTY, digimodes, logging etc, for an **Acorn Archimedes 3010** computer. Costs willingly covered. G3FYP, QTHR. Tel: 01751 474 862.

● Colin, G3TSS, needs an **SL1612** IC to repair his homebrew **20m G3OGQ CW transceiver** built from the September 1988 *RadCom* article. Can you help? G3TSS, QTHR. Tel: 01434 633 125.

● Tony, G7JAV, needs to identify a **Badger Boards PCB** with the following markings: JVFAX/HAMCOMM, RX/TX, 1994. Other markings are mic, ptt and L/S. It has a 9-way serial port and an 8-pin DIN plug. Can anyone please identify this board? G7JAV, Tel: 01536 710 110 or e-mail tony.g7jav@thersgb.net

● Dick, M0CGN, seeks data on the **Farnell AP20-80 switch-mode regulated power suply**. A circuit diagram, a layout diagram or even instructions on how to remove the case would be helpful. All expenses covered. M0CGN, QTHR. Tel: 020 8399 8787 or e-mail biddulph@intonet.co.uk

● Richard, G0XVC, needs a manual or instructions for the **Uher 4000 Report** IC portable reel-to-reel tape recorder, and will pay all postage and photocopying costs. G0XVC, QTHR. Tel: 01207 591 094.

● Pierre, ON4IV, is looking for information on the **LNA Dressler VV200 VOX** and its interface. ON4IV, E-mail dehez@econ.ucl.ac.be

● G2HOS urgently needs the **Maplin *Best of Projects Book 6***, which he is willing to buy or borrow. G2HOS, QTHR. Tel: 0121 445 1397.

The RSGB Old Timers' Honour Roll

The RSGB has subscription concessions to reward loyal service of many years - at the end of May 2001, the following had been members of the Society for 50 years or more.

75 YEARS

G5YN	Sir E Nepean

74 YEARS

RS2627	Mr W S Eadie

73 YEARS

GM6FT	Mr R T Frost

72 YEARS

G3AZ	Mr J J Hunter
G2BY	Mr H E Whatley

70 YEARS

HB9T	Dr R Stuber
G2JL	Mr R V Allbright
G5VQ	E W Taylor
GI5SJ	Mr S N Johnson

69 YEARS

G8SC	Mr C Collins
G6QY	Cdr W B Brown RN
G5VO	Mr J H Hargreaves
G6NA	Mr H C Spencer
G3CJ	Mr E H Heaton-Jones
G6XM	Mr W James
G5IJ	Mr IJP James
G5WW	Mr P M Carment MBE

68 YEARS

G0BXB	Mr R E Wilkinson
G2QT	Mr F H Cooper
G3RQJ	Mr P Woollett
G5RL	Mr B K Rowell
G5LG	Mr A W Lister
G2NJ	Mr W Carter

67 YEARS

G8DV	Mr A P Morgan
G2PT	Mr J Piggott
G2HW	Mr H Whalley
G3AWA	Dr A J Woiwod
G6LJ	Mr S K Lewer
G5KW	Major KES Ellis
G3MA	Mr EA Perkins
G5KM	Mr H H Eyre
G6HY	Mr R Healey
G8PO	Cdr J E Ironmonger
G3KSH	W/Cdr A R Gilding
G2ASF	Coventry ARS
G2FBU	Mr JCM Greig

66 YEARS

G2KU	Mr R M Herbert
G4LX	L G Spencer
G6AG	Mr C J McClelland
G6CS	PTW Castle
G8PX	Mr F A Jefferies
GM5NU	Mr WBH Lord CB
G2DFP	Mr J M Lowe
G5ZK	Mr R N Lawson
G8FF	Mr S Southgate
G8JM	Mr W G Hall
G6RJ	Mr A Robinson CBE
G2DYM	Mr R Benham-Holman
G8GP	Mr E V Neal
G3ADZ	Maj DWJ Haylock
G8DR	Mr D R Aston
G2AVV	Mr G E Evans
G8CXL	Mr N K Read
G6DP	Mr D E Palin
VE3XE	Mr E C Ilott

65 YEARS

G2CIL	Mr G A Hook
G6LX	Mr R L Glaisher
G8KW	Mr R G Shears BEM
G7EEU	Mr H W Skinner
G3WP	Mr J H Brazzill
G8QM	Mr V J Flowers
G8QZ	Mr H O Sills
G2HV	Mr J Dickson
G6JJ	Mr W N Craig
EA6ZY	S Ingram
G3LX	Mr H P Arnfield
G8VF	Mr A A Moss
G5BM	Mr F H Watts
G5QK	Southend & DRC
G3LD	Mr F W Foster
ZL1AH	Mr J D Wightman

64 YEARS

G8VL	Mr J I Sinclair
GM3GG	Mr G Mortimer
G8FC	RAFARS
G4BU	Mr R H Draper
G3HN	Col JWW Cock
G2ARU	Mr R A Loveland
GW3SB	Mr T C Bryant
G8GD	Mr H E Ward
RS2692	Mr E M Frost
G2BNI	Mr D B Drage
G3VA	Mr J P Hawker
G8JR	Mr N P Haskins
G8RW	Mr R W Standley
G2QA	Mr T Simkins MBE
G8GEA	Mr K T Warriner
G2BMI	Mr J Bramhill
G2HJP	Mr I A Hennell
G4CM	Mr C G Middle
G5DQ	Mr P J Broom
GI3VQ	Mr J K Thompson
GM3UU	Mr A S McNicol

63 YEARS

G2BTO	Mr G Openshaw
G3CCH	Mr J H Stace
G6GN	Mr H J Gratton
G8SH	Dr P N Nield
G2CVV	Mr F C Ward
G3DFA	Mr D B Gaggs
G3FD	Mr H T Brock
G3OEP	Mr D J Buddery
G2CDT	Mr F H Martin
G2DSP	Mr R Allen
G3BR	Mr S T Hall
G3ZTF	Mr G T Sparkes
G4AL	Mr G R Cox
G3CU	Mr H F Knott
LA6A	Col L R Heyerdahl MBE
G8UN	Mr P Harrad
GM2AOL	Mr W S Hall
G2DTQ	Mr A Goode
G4FB	Mr F Barnard
G8FW	Mr K E Walters
G3BOB	Mr G M Ward
G3ENI	Cdr AJR Pegler
5B4AGP	Dr T A Appleby
GW3QN	Mr J S Owen
G3CQ	Mr A J Hallett
RS3271	Mr D Armstrong
GW2DH	Mr W D Andrews
G2HKS	Mr RPB Udall

62 YEARS

G2CXT	Mr A R Richardson
G3NL	Mr G W Parkes
G4DR	Mr D P Urquhart
G3FP	Mr B R Arnold
G2CPM	Mr W B Mansell
G3QX	Mr T R Barlow
GM3AW	Mr W S Murray
GM3UM	Mr G P Millar
G8CK	Mr W E Bartholomew
GM3CFK	Mr P Harrison
G3QD	Mr J G Treece
G3AQM	Mr F J Gregory BEM
G3DEQ	Mr H N Woodnutt
G3YY	Mr C T Fairchild
GM3AKM	Mr L R Richardson
GW3CF	Mr FGH Jones
G2HHV	Mr J Spivey
G3ANI	Mr J R Senior
RS3580	Mr I M Gaye
G2ART	Mr FHP Cawson
G3APN	Mr D Rabbage
G4GD	Mr NGV Anslow
GW3ZV	Mr J Banner
G6QI	Mr R Walker

61 YEARS

G2BGU	Mr K Gasson
GW2HC	Mr R C Taylor
RS37399	Mr D H Tomlin
G2FSI	Mr LW Smith
G4DC	Mr P W Winsford
G3AOS	Mr J G Barnes
G3AIK	Mr K N Watkins
G3BWV	Mr F E Springate
GW2FLZ	Mr B H Green
G2CVO	Mr F H Osborn
G3SZ	Mr A Chilvers
GM3AVA	Mr W W Peat
G3DKR	Mr K E Roberts
G2BLA	Mr M A Pyle
G3AJP	Mr J D Baker
GD0GBA	Mr J G Carroll

60 YEARS

GW3AR	Mr J Sagar
G3DVV	Mr J O Brown
G2AMG	H W Mitchell
GW2HIY	Mr E M Davies
G2BDV	Mr I D Brotherton
GU4GG	Mr CDS Wintle
GW2HF	Mr A Ellis
EI4L	Mr J E Scanlon
G2BPW	Mr IWK Smith
G2FQR	Mr N W Austin
G4IOF	Mr M East FSVA
G2FXQ	Mr S W Saddington

59 YEARS

G2HIX	Mr GGP Holden
G3CLL	Mr J Willy
G3VW	Mr R H Newland
G2HAX	Mr S P Shackleford
G3AEZ	Mr J Greenwell
G3DAM	Mr H Barnett
GJ3EML	Mr JHE Watson
GM2FVV	Mr W Girvan
G2FUU	Mr T Knight
G2HDU	Mr C W Cragg
RS4430	Mr W Telfer
AB4SW	Mr I T Haynes
G2DKI	Mr P N Ridout
G8XXV	Mr G L Clarke
VK2FFF	Mr S J Hutchison
G3FVD	Mr R K Mildren
GM3CIX	Mr L J McDougall
G2FWZ	Mr S I Biggs
G2FXZ	Mr J B Hodgetts
G3AKX	Mr R G Lascelles
G3ASE	Mr H S King
G3LCZ	Mr T W Hickinbottom
G2HKU	Mr E H Trowell
G3BWX	Maj A L Fayerman
G3DRN	Mr E G Allen
G3GYE	Mr P T Pitts
G3HYJ	Mr O F Simkin
G8LOK	Mr L E Currington
G2DBA	PMS Hedgeland
G3BAP	Mr R Cordingley
G3GJX	Mr EB Grist
G3AQX	Mr S Roberts

58 YEARS

G2FRI	Mr T J Swain
G4LW	Mr L Huntley
G6NB	Mr D N Biltcliffe
RS5272	Mr C L Chappell
G3ALK	Mr E J Holmes
GM0IJA	Mr B C Skinner
G2ATM	Mr S Read
G3GBN	Mr S H Feldman
G2AOY	Mr J R Muddell
G4QK	Mr J B Roscoe
GM3BCL	Mr A G Anderson
GM3DO	Mr A M Murray
G3AIN	Mr D Withers
G3BPM	Mr PJH Matthews
G3CXP	Mr R A Gill
RS6181	Mr R P Hope
G3AKU	Mr R A Harding
G3IGM	Mr R G Hindes
G3CAQ	Mr W Moorwood
RS6464	Mr E Valentine

57 YEARS

G3DKO	Mr J W Stevenson
G3ENB	Mr W E Gates
G3CBW	Mr H Walker
G3GHS	Mr J G Holland
G3LIA	Mr R J Rogers
VK5ZO	Mr D Clift
G3AAZ	Mr G G Gibbs
G3HKJ	Mr CF Page
G3BEG	Mr P C Bond
G3ANG	Mr J W Emmott
G3NOF	Mr D McLean
G3AAJ	Mr RJC Broadbent
G3CJD	Mr LFL Allen
G3CWW	Mr AWW Timme
G3IRM	Mr P Lumb
G2FUD	Mr A W Owen
G3EKL	Maj R A Webb
G3FDG	Mr R G Morris
GI5TK	Mr A R Irwin
G2DW	Dr B F Wickham
G3BVU	C J Beanland
G3HKT	Mr A R Partner
G4KID	Mr B C Partridge
G2DQX	Mr R J Woodroffe
G3ADQ	Mr A W Walmsley

56 YEARS

G2DGB	Mr A G Short
G2AAN	Mr J H Clarke
G2CAZ	Mr M S Ellis
G2FQP	Mr L J Avory
RS8618	Mr A R Cameron
G3ATH	Mr H Pain
G3YLR	Mr F R Blake
RS558	Mr R D Thomas
RS8896	Mr J Crabtree
G0RVQ	Mr AJW Harrison
GW3HG	Mr B Clark
G3FZR	Mr M W Capewell
G3EPK	Mr RLS Harrison
ZL1AOA	Mr J R Whitney
G3FPN	Mr J R Davey
G2ADR	Mr E Parvin
GW3CZ	Mr P J Williams
RS9475	Mr J Smith
G0TTK	Mr M A Chatfield
G3DNJ	Mr G F Weller
G3TXT	Mr R T Laing
RS10128	Mr A C Lees

55 YEARS

G3BPG	Mr J H Richards
G3CRJ	Mr B J Shaw
G3EBH	Mr G C Newby
G3JON	Mr J Bell
G5GC	Mr GAH Eckles
G2FQS	Mr R L Barrett
G3IJS	Mr J F Stratfull
G2FSS	Mr J A Caley
G3BVB	Mr DRJ Adair
G3FOO	Mr A Seed
RS10548	Mr J B Gurney
RS10817	Mr R J Baker
W2CIH	Mr N A Champness
G3AMF	Mr K G Thompson
G3BJC	Mr R E Sparry
G3BYW	Mr W M Dunell
G4IOT	Mr A T Hunt-Duke
G4YK	Mr B M Morrisey
G6RO	Mr R C Kaye
G8GF	Mr W A Higgins
GM2BMJ	Mr T D Jardine
GM2FHH	Mr L Hardie
RS20428	Mr ARA Bunnage
RS9710	Mr F W Adderley
G2AOZ	Mr GWF Ashford
G3CSC	Mr S J Roddan
G3DWQ	Mr G Lancefield
G4AQ	Mr E G Filby
G8PG	Mr A D Taylor
G2HCG	Mr B Sykes
G3BNE	Mr G W Alderman
G3INN	Mr N S Lilley
GW3JG	Mr JET Lawrence
G0AEW	Mr D T Arlette
G2BRR	Mr R G Rugg
G3AUB	Mr N R Paul
G3BZB	Mr R T Cunliffe
G3EFS	Mr W H Borland
GW2FY	Mr M Arthur
VK5CE	Mr C Taylor
G0BFI	Mr V E Heard
G3CLK	Mr K J Vickery
G3CXI	Mr P J Cooper
G3ENG	Mr J D Mathews
G3FJN	Mr J A Barson
G8BFS	Mr J F Dudeney
G2FKZ	Mr C E Newton
G2FTK	Mr F A Noakes
G3CRH	Mr HHA Sanders
G3EEQ	Mr K C Gill
G3ESY	Mr PWF Jones
G3FEX	Mr B C Oddy
G3PFJ	Mr J D Harris
G0TTG	Mr M Warriner
G2CQX	Mr P V Pugh
G3DIT	S Hampshire ITS
G3FNJ	Mr N F Joly
G3FRN	Mr G N Myatt
G2FCA	Mr A E Burnard
G2FSA	Mr R L Harvey
G3AIU	Mr KAH Rogers
G3BHF	Mr E C Hasted
G3DXB	Mr R Gladwell
G3ESA	Mr J H Oakes
G5SD	Mr D E Campbell
RS12233	Mr H W Sennett
G2DXK	Mr L Knight
G3BJB	Mr E Dandy
G3BKN	Mr E W Batten
G3FKJ	Mr W F Jeffery
G3IDG	Mr F A Herridge
RS12415	Mr H J Wood

54 YEARS

G2CHI	Mr W G Bailey
G2CKQ	Mr R S Trevelyan
G3BHW	Mr E J Hancock
G3CHD	Mr S R Barker
G3COJ	Mr AHB Bower
G3CRR	Mr A E Glozier
G3CTQ	Mr H Westwell
G3DII	Mr J Bell
G3EOO	Mr J Hamlett
G3EUS	Mr J G Fitzgerald
GM3DSD	Mr A Trayler
GM3JOA	Mr H E Stanway
RS12840	Mr J L Butcher
RS644	Mr H J Darling
5Z4DV	Mr T H Hutchinson
G3AGF	Mr R L Edginton
G3EAT	Mr W H Burden
G3EUE	Mr E F Jones
G3EUK	Mr R W Curtis
G8ACR	Mr RW Yates
GM3ACL	Mr D Robb
G3ABA	Mr L J Kennard
G3AIO	Mr S Fenwick
G3BGA	Dr D Finlay-Maxwell
G3BOC	Mr H M Synge
G3CGQ	Mr F W Tyler
G3CTR	Mr R L Whorwell
G3CVI	Mr B H Thwaites
G3EDW	Mr PR Golledge
G3FEV	Mr J R Platt
G3HCO	Mr G A Errock
G4HSA	Mr V C Whitchurch
G5DS	Mr J L Danks
G2ACZ	Mr G Whitehead
G2DQW	Mr A Williams
G2FUM	Mr H Hunt
G2HFW	Mr E G Anthoney
G3AJX	Mr G Stanton
G3ASH	Mr R A Jackson
G3BXS	Mr A G Stacey
G3EPO	Mr K I Procter
G3JMG	Mr J M Gale
G3YCN	Mr W E Kent
G4FM	Mr R H Kelsall
G6XN	Mr L Moxon
GD3AHV	Mr G W Ripley
RS13129	Mr E Chester
G2ALN	Mr E W Taylor
G2CXR	Mr E M Challons
G3AXI	Mr R J Boal
G3JSB	Mr S B Jeffrey
G4KEE	Mr V A Tomkins
G8MVD	Mr K Wilks
GM3DPL	Mr E G Morgan
GW3EP	Mr PJ Curtis
G2AHC	Mr R W Bishop
GW3AT	Mr D Nasey
G3BNF	A G Embleton
G3BTM	Mr N Shires
G3HJS	Mr R V Woodford
G3ODH	Mr S B Smythe
GD8COH	Mr S T Dimmock
GW3JBH	Mr J S Hammond
G2AFV	Mr P Carbutt
G2DZF	Mr J H English
G2MJ	Mr R T Hunt CEng MIEE
G3AQF	Mr H F Weston
G3BHK	Mr L R Mitchell
G3EBP	Mr PER Courcoux
G3FNM	Mr W R Parkinson
G3GAW	Mr D J Redshaw
RS14170	Mr D H Clements

Regional and Club News

Club NEWS

Scotland West and the Islands Region

PAISLEY (YMCA) ARC

2, Wire VHF aerials; 16, Ham test gear and how to use it; 30, Annual General Meeting. Jim, GM3UWX, 01505 862 817.

STIRLING & DARS

27, Annual junk sale - Jaycee Electronics will be in attendance. Neil, GM0HZI, neilmclaren@aol.com

Scotland East and the Highlands Region

BANFF AND DARC

25, 'Simple Radio Construction', by Jim, MM0CAE. George, 01346 518 251.

COCKENZIE & PORT SETON ARC

18, 144MHz DF Hunt. Bob, GM4UYZ, 01875 811 723.

North West Region

FYLDE ARS

24, Amateur radio-related video show. George, M0CKD, 01253 725 274.

MID CHESHIRE ARS

2, Winsford Rally preparation evening; 7, Winsford Rally at Civic Hall; 9, Activity Night; 23, HF on-the-air night; 30, Antenna mast working party. Niall, G0VOK, 01606 871 413.

STOCKPORT RS

23, 'Radio Amateurs do it with frequency!', by Gary, G0HJQ. David, M1ANT, 0161 456 7832.

THORNTON CLEVELEYS ARS

14, Talk 'How I got into Amateur Radio'; 21, Computer Evening. Jack, G4BFH, jack@jduddington.fsnet.co.uk

North East Region

GOOLE RES

4, Fund-raising night at the *Barnes Wallis*; 11, VHF direction finding competition at the *Barnes Wallis* - 7.45pm; 18, Contest planning night at the QTH of Ken, G6YYN; 25, Talk at the *Courtyard Centre*. Richard, G0GLZ, 07867 862 169.

GRIMSBY ARS

3, Treasure hunt; 17, Table top sale. Brian, G4DXB.

HALIFAX & DARS

15, Talk 'Sun, Earth & Aurora', by Neil, G0CAS. Ray, G0PMU, 01274 600 297.

HAMBLETON ARS

2, Night on the air; 16, Talk; 30, Night on the air. John, G0VXH, 01845 537 547.

KEIGHLEY ARS

3, Night on the air; 14, Monday RAE Exam; 17, Pool, darts, dominoes for Children in Need; 21, Monday RAE debrief and start of construction nights; 24, Quiz Night with prizes - two teams required. Ian, M1BGY, 01274 723 951.

NORTH WAKEFIELD RC

9, 'On demand' Morse tests.

VK6PZ	Mr P Zeid OBE FISP
G2FYY	Mr M B Rowles
G3AVE	Mr FCP Flanner
G3EDS	Mr K G Perkins
G5MS	Manchester & DARS
VK6RV	Mr RGB Vaughan
G3BDH	Mr R R Flaum
G3EFP	Mr J C Pennell
G3GIQ	Mr H F Lewis
GW3ITT	Mr J Cairns
G3BRQ	Mr K B Tackley
G3EZZ	Mr J Eaton
G3HCT	Mr J Bazley
G3IJE	Mr M J Powell
GM3EDZ	Mr T P Hughes
G2CYN	Dr M Hely
G2DUS	Mr I B Howard
G3BFP	Mr J N Headland
G3EKD	Mr A A Sparrow
G3GFG	Mr D R Payne
G3JIZ	Mr J M Read
G4LKX	Mr D C Hepworth
RS17044	Mr M Woodfield
RS19877	Mr H J George
G3BZS	Mr C J Whistlecroft
G3VHP	CBH Bradshaw
RS15448	Mr A S Kitching
VK2BPN	Mr P J Naish

53 YEARS

G3BDQ	Mr J D Heys
G3BYY	Mr E W Elliott
G3DSV	Mr RWP Wilson
G3EVT	Mr R J Mutton
G3NTA	Mr G A Couzens
G3SKI	Mr R A Bravery
G8TB	Mr B W Wynn
G3BMI	Mr A Bolton
W8PR	Mr D R Hearsum
ZB1AH	Mr F Hague
G3BUF	Mr B J Fost
G3CDE	Dr G A Jackson
G3DOJ	Mr W J Omer
G3EDM	Mr G L Mills
G3FIB	Mr G A Livesey
G3GGG	Mr R A Bishop
G3HCY	Mr H W Cross
G3HHU	Dr JCW Ickringill
G3HPP	Kynoch R & TVS
G3HTP	Mr E G Drackley
G3IVF	Mr H E Smith
G3NHU	Mr A D Besford
G3BRW	Mr R G Wyatt
VK2AYD	Mr D A Pilley
G3BOK	Mr W G Rennison
G3FDS	Mr C F Ford
RS15845	Mr L Grout
RS15851	Mr K J Edwards
VK7LZ	Mr C P Wright
G3ECM	Mr P W Bowles
G3GGL	Mr G Wormald
G3GOT	Mr B W Legrys
GW3HC	Mr DEC Lockyer
G3BNG	Mr R S Andrews
G3CMH	Yeovil & DARC
G3DJK	Mr K Rosier
G3DUL	Mr H H Pickering
G3FMT	Mr D W Robinson
G3GIH	Mr J C Bird
G3HGM	Mr J A Ewen
G3IIV	Mr A Davies
G4CCA	Mr MJL Fadil
G8NJF	Mr A J Cox
HB9ALV	Mr K J Marley
G2CBC	Mr WEG Smith
G2XP	Sutton & Cheam RS
G3AYZ	Mr J F Turner
G3BPE	Mr R G Holland
G3BRT	Mr GOJ Parfitt
G3CEG	Mr B King
G3COY	Mr V J Reynolds
G3DPW	Mr R L Knight
RS16324	Mr WGH Lee
G3DWW	Mr G Cripps
G3EFK	Mr W T Clegg
G3IIY	Mr E C Clayson
G3MUI	Mr D J Durrant
GW3FP	Mr J W Hayes
EA7FSF	Mr F Pilkington
G3FHL	Mr G C Bagley
G3FIA	Mr A D Lowden
G3FKI	Mr E C Lambert
G3GWD	Mr M C Pavely
G3OFK	Mr N P Henry
GM3HAT	Mr M C Hately
ZL1HV	Mr A G Godfrey
G2HBA	Mr C H Spencer
G3BON	Mr W J Rawlings
GM3CO	Mr D Oswald
G3CXT	Mr G H Clarke
G3DCZ	Mr R G McDonald
G3DEB	Mr T A Bennett
G3EFY	Mr TWA Smith
G3FIJ	Mr F R Howe
G3FVC	Mr E C Palmer
G3GUD	Mr A Bosworth
G3HBN	Mr J R Bolton
G3ISD	Mr E J Hatch
G3IWT	J P Hewitt
G3YLJ	Mr J Boraston
GD3FXN	Mr A D Radcliffe
RS16822	Mr G F Oliver
G3DDA	Mr K W Dyson
G3HRP	Mr T J Wright
RS17032	Mr B M Collings
RS4190	Mr FJW Trollope
G3DIC	Mr C H Bullivant
G3EWY	Mr P F Walder
G3FYP	Mr P S Robson
G3KXE	Mr E W Bettles
GD3FLH	Isle of Man ARS
GM3DEE	Mr R P Russell
RS17058	AMC Macklow-Smith
VK6HD	Mr M E Bazley
G2ACN	Mr B J Bale
G3BSU	Mr A F Cleall
G3DOV	Mr D C Dove
G3EVC	Mr D J Pye
G3FBN	Mr W J Bolton
G3FNZ	J A Lambert
G3NOX	Mr JRT Royle
G4LU	Mr S F Brown
RS17229	Mr E G Blachford

52 YEARS

G3BYG	Mr NLH Williams
G3DVQ	Mr R H Pounder
G3ELF	Mr F W Malpass
G3NWR	Wirral ARS
G6IPU	Mr G A Edwards
G3GBU	Stoke-on-Trent ARS
G4RD	Mr F Briggs
G3FFY	Mr M H Stedman
GM3GVD	Mr J A Dunlop
GW3EJR	Mr J B Armstrong
G3HPM	Mr P J Mullock
G3JXG	Mr F T Hodgson
GW3EMI	Mr M P Hopkins
RS17624	Mr F J Shepherd
7Q7RM	Mr R Macfarlane
G3DQY	Mr J Vaughan
G3DSK	Mr R A Lord
G3DZT	Mr J H Beamand
G3EDD	Mr B A Armstrong
G3EHZ	Mr A H Wreford
G3FWB	Mr P L Hunt
G3FZL	Mr GMC Stone
G3JHI	Mr RLS Hathaway
G3ORC	Mr RRJ Caines
GM3HOQ	Mr D D Stobie
VK3XX	Mr G S Bracewell
G3FZW	Mr E A Matthews
G3HVH	Mr E Basilio
G3HZJ	Mr W J Walsh
G3HZW	Mr D C Mainhood
G3NEO	Mr P Bagshaw
G3WUZ	Mr P H Brown
GM3ENJ	Mr K Street
GM3HO	Mr J Reilly
VE3EAB	Mr W A Cheek
G3DGW	Mr D Early
G3EGV	Mr R Staniforth
G3EOQ	Mr M Flinn
G3HTA	Mr J D Forward
G3IGI	Mr LER Hall
G3KKD	Mr I M Waters
DJ0OS	Mr F C Hartles
G3EPV	Mr R D Emes
G3ERR	Mr JAW Edwards
G3HTC	Mr G E Storey
G4CDB	Mr G Lindsay
G3GZJ	Mr F J Crisp
GM3OBC	Mr R Thomson
G3FFH	Mr J Frings
G3ETH	Mr J L Goldberg
GW3GK	Mr M D Fowler

51 YEARS

G3GVV	Mr R J Hughes
G3HZT	Mr P S Fraser
G3LMR	Mr J K Eley
GI3FJX	Mr J Davidson
GM3EW	Mr R B Irvine
G3FOP	Mr R G Barrell
G3JNW	Mr H L Fleming
GM3JIJ	Mr J D Hague
G3FPK	Mr NAS Fitch
G3BVW	Mr C P Townley
G3FRX	Mr J A Wilkes
G3SOL	Mr JBG Parker
G3SVC	Spen Valley ARS
G3FTQ	Mr A Frost
G3FVL	Mr H J Hudson
G3ESF	Mr A R Harrower
G8CDW	Mr E H Double
GW3GE	Mr C F Cole
G3GXW	Mr JGA Lamb
G3KQF	Mr J Anthony
GU3HKV	Mr E H Page
RS18567	Mr A H Turner
G1KEP	Mr J G Houghton
G3GEJ	Mr L M Airey
G3GGS	Mr W E Waring
G3YJJ	Mr R T Palmer
VK6PG	Mr A J Gibbs
G3GJW	Mr T I Lundegard
G3GKI	Mr F V Kershaw
G3HEA	Mr J U Burke
G3WKS	West Kent ARS
G3HJK	Mr B J Mitchell
G3HMF	Mr G G Kenyon
RS20443	Mr M B Greenberg
G2DOT	Mr K Clark
G3GLB	J E Lacey
G3IAS	Mr A M Smith
G3MVV	Mr N Miller
G3ORW	Mr E J Gregory
G3PMW	Mr K W Dews
G4IER	C D Colbeck
G3KDP	Mr A G Bounds

50 YEARS

G3GLL	Mr T N Green
G3GNQ	Mr G C Cutting
G3KGW	Mr J D Smith
G3OEG	Mr E F Harverson
RS19063	Mr F H Brindley
G3RQS	Mr R A Rimmer
GM3IBU	Mr A W Wright
G3GMY	Mr FEA Green
G3GRV	Mr G Halse
G3GVM	Mr F Robins
G3HZM	Mr M Barnsley
G3MGW	Mr R Wheeler
G3JJA	Mr E F Steventon
G3OCA	Mr K Frankcom
G6BZ	M C Bunting
G6JY	Mr F T Farmer
GM3GRG	Mr D R Rollo
GM3IQL	Mr A Lawrence
G3DNH	Mr J A Spicer
G3KPU	Mr E Prince
GM3DDL	Mr J Jackson
GW3IGG	Mr JPG Jones
RS18978	Mr R G Clement
G3HQX	Mr J Brodzky
G3IVZ	Mr W E Stephen
RS18994	Mr H T Mason
G3DXJ	Mr T H Holbert
G3GRO	Mr D Atter
G3GWR	Mr A G Stormont
G3HES	Mr K G Pugh
G3JTI	Mr FWJ Broomfield
GD3HDL	Dr S E Kelly
G3GYF	Mr AJF Powell
G3IGW	Mr M G Whitaker
G3JLH	Mr I L Hampton
G3GGO	Mr C N Wridgway
G3IJA	Mr J Allan
G3KXT	Mr R I Richardson
G3VRB	Mr J D Nias
G3HIA	Mr H C Young
GI3HXH	Dr J J Cosgrove
G2HLL	Mr F H Pickard
G3FJE	Shefford & DARS
G3GMM	Mr E McFarland
G3IUZ	Canon H R Davis
G2XV	Cambridge & DARC
G3HYH	Mr S P Hay
GW3KFE	Mr E P Essery
VK2BE	Mr L W Louttit

Brian, G4OOC, 01977 790 396.

WAKEFIELD & DARS

1, On-the-air night; 8, Annual General Meeting; 15, Visit (TBA); 22, On-the-air night; 29, Video evening. John, G7JTH, 01924 251 822.

Midlands Region

BROMSGROVE ARS

8, The 18th Annual General Meeting. Hand out details of DF Hunt 2; 22, DF Hunt 2 - A bit more of a challenge this time. Angus, G8DEC, 01257 875 573.

COVENTRY ARS

4, Homebrew evening; 11, Night on the air, Novice class, Morse practice; 18, Walkie-talkie portable evening; 25, Night on the air, Novice class, Morse practice. John, G8SEQ, 024 7627 3190.

DUDLEY ARS

Talk 'Genealogy - 750 Years of it' by Bill Moorwood. Bill, 01902 843 873.

DUNSTABLE DOWNS RC

13, Annual National Radio Car Boot Sale. Phil, 01525 384 419.

GLOUCESTER AR & ES

7, VHF on the air - /P from escarpment site; 14, Talk and slide show - Gloucestershire Repeater Group; 21, Night on the air - 160/80m; 28, VHF on the air /P from escarpment site. Tony, 01452 618 930 (office hours).

KIDDERMINSTER & DARS

1, Talk 'Ham Radio in the USA', by Hank, K1HBJ/G0GKU. Phil, G4SPZ, 01299 403 025.

LEICESTER RS AND COMPUTER CLUB

7, Activities HF, VHF and computers; 14, Activities HF, VHF and computers; 21, Club Birthday Party; 28, Activities HF, VHF and computers. Stan, G3HYH, 0116 224 2598.

LINCOLN SW CLUB

2, Surplus equipment sale; 6/7, Special Event - RAF Metheringham (wartime); 30, Video 'Guiding Lights'. John, G1TSL, 01522 793 751.

LOUGHBOROUGH & DARC

1, Night on the air; 8, Talk 'The Other Man's Shack Revisited', by Ian, G8SNF; 15, 'Back to Basics - Circuit Building Blocks of Electronics'; 22, Talk 'Measurement & Threads', by Albert, G1KSC; 29, 2nd DF hunt of the year on 160m. Chris, G1ETZ, 01509 504 319.

Region	RSGB Regional Manager
Scotland West & the Islands Region	John Martindale, GM4VPA
Scotland East & the Highlands Region	Tommy Menzies, GM1GEQ
North West Region	Kath Wilson, M1CNY
North East Region	Peter R Sheppard, G4EJP
Midlands Region	John Layton, G4AAL
North Wales Region	Vacant
South Wales Region	Simon Lloyd Hughes, GW0NVN
Northern Ireland Region	Jeff Smith, MI0AEX
London & Central Region	Roger Piper, G3MEH
South & South East Region	Ivan Rosevear, G3GKC
South West & Channel Islands Region	Richard Atterbury, G4NQI
East & East Anglia Region	Vacant

RSGB Regional Managers (as of 6 April).

MAXPAK

14, A talk and discussion about the latest MaxPak LAN. Ron Taylor, M0LRD, 01922 684 496.

MELTON MOWBRAY ARS

18, Annual Construction Contest - G6KQP to be awarded to the winner. G A Griffiths, G3STG, 01664 480 733.

MID-WARWICKSHIRE ARS

8, Video Night, presented by Rod, G0FBY; 22, Talk 'Antenna Basics', by Terry, G3MXH. Bernard, M1AUK, 01926 420 913.

RAF WADDINGTON ARC

3, RAE Course starts - there are still vacancies; 10, Talk 'ARDF', by Bob, G3SET. Bob, G3VCA / G0RAF, 01522 528 708.

SHEFFORD & DARS

10, Waters & Stanton talk. Will bring along new goodies. Mike, G8BEG, 01438 342 013.

SOUTH NORMANTON, ALFRETON & DARC

7, Club Shack - night on the air; 14, High Oredish - Night on the air; 21, Club shack - junk sale; 28, Club shack - night on the air. Dave Warren, M5RST.

SPALDING & DARS

27, Coach trip to the Science Museum, Victoria and Albert and Natural History Museums. Mick, 07976 271 796.

STOURBRIDGE & DARS

21, Main meeting. Tom, M1ESN, 01384 374 902.

STRATFORD UPON AVON & DRS

14, 'Ask the Experts'; 28 , Special Event Station at National Trust, Charlecote. David, G6FEO, 07970 148 204.

TELFORD & DARS

2, Night on the air; 16, 1st DF Hunt on 2m and 70cm. All welcome; 30, Car boot sale in club car park. Mike, G3JKX, 01952 299 677.

North Wales Region

DRAGON ARC

7, Discussion on the Anglesey IOTA problem; 21, Talk/demonstration '6m DX in 2001 Compared With 1999', by GW0GEI. Stewart, GW0ETF, 01248 362 229.

South Wales Region

BLACKWOOD & DARS

11, Radio car boot sale. Steve, GW4BLE, 01442 297 738.

Northern Ireland Region

BANGOR & DARS

2, Talk 'Six Metres - the Magic Band', by Peter, GI7JYK. Mike, GI4XSF, 028 4277 2383.

London and Central Region

CHESHAM & DARS

2, General Meeting and car boot sale planning; 9, Night on the air; 16, Technical Topic; 23, Treasure Hunt with G3XZG. Phil, G8BLB, 01494 784 811.

CHESHUNT & DARC

2, Talk 'New digital modes for the PC', by Dennis, G3TIK; 16, Members' Forum; 23, Open air meeting on Bass Hill Common, Broxbourne. John, G3WFM, 01707 651 532.

COULSDON ATS

14, Talk 'Packet Radio', by Mike, G8AAI. Steve, G7SYO, 01737 354 271.

CRYSTAL PALACE & DRS

2, Testing and Aligning your GDO, Construction Class, Computing and Internet; 18, 'Project BACAR', with Quentin Gee (note - change of day to Friday for this meeting). Bob, G3OOU, 01737 552 170 or Victor, 020 8653 2946.

DORKING & DISTRICT RS

22, 'Prelude to Radar', a lecture by Brian, G3GDU. John, G8SEQ, 024 7627 3190.

ECHELFORD ARS

10, Bring & Buy sale; 24, Esoteric talk by Ed Gowler. Robin, G3TDR, 01784 456 513.

EDGWARE & DARS

10, Talk 'Social Entrepreneuring', by Terry, G3WUX; 24, 'Constructors' Cup' - competition and NFD briefing. David, G5HY, 01923 655 284 (day) or 020 8954 9180 (eve).

HODDESDON RC

8, Open Forum and Morse practice to 5WPM; 22, Visit to Hertford Fire and Rescue HQ. Don, G3JNJ, 020 8292 3678.

RADIO SOCIETY OF HARROW

11, Talk 'From Stone Age to New Age' - a history of herbal medicines and remedies by Linda, G7RJL; 18, Club Dinner; 25, Talk 'Demystifying Sky Digital Broadcasts', by John, G4UBB. Jim, G0AOT, 01895 476 933 or 020 7278 6421.

SILVERTHORN RC

6, Junk sale; 25, On-the-air night. David, G0KHC, 020 8504 2831.

STEVENAGE & DARS

1, Talk 'An Introduction to the Internet', by Gary, G0ETA; 8, HF on-the-air night; 15, Talk 'Web Design', by Gary, G0ETA; 22, Talk & demonstration 'Terminating Coax Cables', by Les, G7THT; 29, Video night. Peter, 2E1CRK, 01462 637 404.

SURREY RADIO CONTACT CLUB

14, Construction evening - Nicad charger. Berni, G8TB, 020 8660 7517.

VERULAM ARC

21, Talk 'Comoros DXpedition 2001', by Mark, M0DXR. Walter, G3PMF, 01923 262 180.

WELWYN-HATFIELD ARC

7, The Lemsford Fete - on site from 9.30am; 21, The UK Radio Society will present an explanation of their work and support for UK Radio Hams; 28, Construction evening at Lakeside school. dean@g3wgc.freeserve.co.uk

South and South East Region

ANDOVER RC

1, Talk 'What Went Wrong (or Avoiding the Big Bang)', by Jim, G4NWJ; 15, The Club Project - an Over-Voltage Protector. Terry, M0BVO, 01980 629 346 (eve).

CRAWLEY ARC

13, LF Forum - a gathering of LF enthusiasts (to be confirmed); 30, Talk 'PIC the Bones out of

This' - an introduction to the PIC by Stewart, G3YSX, and Adrian, G3VJM. Derek, G3GRO, 01293 520 424.

FAREHAM & DARS
2, Project-building night; 9, Night on the air; 16, New data modes, by John, G6BHB and Mick, G4ITF; 23, DXpedition film & talk; 30, Enigma and Fishy Stories, with Andrew, G0AMS. Steve, G7HEP, 01329 663 673.

FARNBOROUGH & DARS
9, Talk 'PSK31 & Other Data Techniques', by Tom, G0HIN; 23, Talk & films by John Binge. Norman, G0VYR, 01483 835 320.

HASTINGS E & RC
16, Talk 'The Pan-European Optical Highway?', by Prof Mahoney. R C Gornall, G7DME, 01424 444 466.

HORNDEAN & DARC
1, Club social evening; 23, 10-minute talks. Stuart, G0FYX, 023 9247 2846.

HORSHAM ARC
3, Talk 'A Short History of Time-keeping', by Bob Monroe. David, G4JHI, 01403 750 228.

MAIDENHEAD & DARC
3, Visit to Windsor and Maidenhead Closed Circuit TV; 15, NFD preparations and video. John, G3TWG, 01628 525 275.

MID-SUSSEX ARS
4, Visit to ATDI, courtesy G8JBJ; 11, VHF on-the-air night; 18, Construction contest - judged by G3NPF. Sue, G6YPY, 01273 845 103.

QRZ AR GROUP OF SUSSEX
11, Talk 'Antennas', by Peter, G3LDO; 12/13, Windmills Weekend Special Event station - GX3YNN/P; 25, Club project evening. Stuart, M0CHW, 01435 863 020.

READING & DARC
10, A report on the recent DXpedition D68C, by Don Field, G3XTT. Pete, G8FRC, 0118 969 5697.

SOUTHDOWN ARS
12/13, Special Event station GB2PW at Polegate windmill; 14, Talk 'Amateur Radio in Australia', by well-known Australian amateur. John, G3DQY, 01424 428 064.

TROWBRIDGE & DARC
2, 10-minute talks by club members. Ian, G0GRI, 01225 864 698 (e/w).

WATERSIDE (NEW FOREST) ARS
1, Talk 'Dayton Hamfest', by Mike, KF4CEE. Wives & partners invited; 12/13, National Mills Weekend - Eling Tide Mill, Hants. A Horton, G0LKG, 023 8084 4316.

WORTHING & DARC
2, Talk 'Cables and Connections', by G8MSQ; 9, PSK and other narrow-band modes; 16, Discussion evening; 23, Bring & Buy evening; 30, Discussion evening. Roy, G4GPX, 01903 753 893.

South West & Channel Islands Region

BLACKMORE VALE ARS
1, VHF on-the-air night and Morse classes; 8, Talk 'ATV', by Mike, G8LES; 15, HF on-the-air night and Morse classes; 22, Web design by Stuart, G7JIF; 29, Tidy the shack. Tony, G0GFL, 01258 860 741.

CORNISH RAC
3, Suggested Bring & Buy; 7, Computer section 'What's the Time', by John Dunscombe. Robin, G0MYR, 01209 820 118.

POLDHU ARC
8, Members' evening. Keith, G0WYS, 01326 574 441.

POOLE RS
4, Night on the air; 11, 'Geoff's Challenge' - construction contest; 18, Construction (shack). Phil, G0KKL, 01202 700 903.

SOUTH BRISTOL ARC
2, 20m activity evening; 9, HF workshop for newcomers, with Doug, G3KUL; 16, Annual maintenance of club aerials, with Peter, G0DRX; 23, Night on the air; 30, 40-metre activity evening. Len, G4RZY, 01275 834 282.

TAUNTON & DARC
4, A general discussion on operating procedures, led by Graham, G0GTR. Peter, G0EYR.

TORBAY ARS
18, Talk by Rob Mannion, G3XFD, *Practical Wireless* editor. Anna, 07879 840 304.

YEOVIL ARC
3, QRP Convention debrief, with G3CQR; 10, Refurbishing old test gear, with G7LNJ; 17, 'The Chinnock' transceiver, with G3CPJ; 24, Data modes on the air, by M5EVT. Roger, M1SAN, 01963 362 934.

East and East Anglia Region

BRAINTREE & DARS
7, Mills Weekend planning; 21, Annual General Meeting. Keith, M0CLO, 01376 347 736.

CHELMSFORD ARS
1, Amateur satellites. David, M0BQC, 01245 602 838.

COLCHESTER RA
10, Visit from RSGB General Manager, Peter Kirby, G0TWW; 24, Three Clubs' Quiz - Clacton, Colchester & Harwich. Kevin Bell, M0BCK, 01206 561 117.

FELIXSTOWE & DARS
13, National Mills Day Special Event station; 14, RAE; 21, Repeater-Internet gateways. Paul, G4YQC, 01394 273 507.

GREAT YARMOUTH RC
11, Kite-flying; 25, Preparations for CW NFD. Tony, G3NHU, 01493 721 173.

HARWICH AMATEUR RADIO INTEREST GROUP
9, Talk 'LV18', by Clive, G7HMN. Eugene G4FTP 01206 826 633.

IPSWICH RADIO CLUB
2, Spectrum Kite Display Team by Bryan & Carl Wright (G7UWB/G7UWC); 16, ESWR planning meeting; 30, Morse practice with John, G4BAV. Keith, G7CIY, 01394 420 226.

LEISTON ARC
1, Talk 'Enigma Variations', by Andy, G8AXO. John, G0FSP, 01728 604 621.

MAIDSTONE YMCA ARS
11, RAE Pre-examination night; 20, Bi-annual Rally. John, G0RHO, 01622 832 259.

CLUB NEWS IN BRIEF

- **NATIONAL MILLS Weekend, coordinated by the Denby Dale (Pie Hall) Amateur Radio Society, G4CDD, takes place this year on 12/13 May. The event is run by the Society for the Protection of Ancient Buildings and amateur radio is just a part of the many attractions taking place at wind mills and water mills over the weekend. This year, because of the foot and mouth disease crisis, there will be no certificate offered for contacting stations on the air at mills.**
- **MEMBERS OF the North Wales Radio Rally Club will be mounting a DXpedition to Bardsey Island between 4 and 11 August. The island counts as EU-124 for the RSGB Islands on the Air awards. A total of 10 operates will be on the air from Bardsey Lighthouse for the first three days then from Plas Bach for the remainder of the period. Activity will be on all bands from 160 to 6 metres. Pictures of the club's previous operation from Bardsey in 1999 are on its web site at www.nwrrcw.org.uk**

Radio amateurs in the Oban area have a get-together in February each year. This year, amateurs from Elgin, Fort William, Oban, Lochgilphead, Tarbert, Glasgow and even England took part.

Items for club news should be sent to the *RadCom* Office at HQ to arrive by the 26th of the month, ie approximately a month before publication (eg 26 January for the March Issue). News items should be sent in writing (fax, letter or e-mail gb2rs@rsgb.org.uk) by the club secretary or the person responsible for publicity. Post cards for this purpose are available from RSGB HQ. A database of all meetings is shared between *RadCom* and GB2RS, so information only needs to be sent once.

Club News is a service for clubs and societies affiliated to the RSGB. The announcements are intended to notify non-members and potential members of your club of specific events, therefore 'informal', 'committee meeting', 'natter night' and 'ragchew evening' etc will only be included if space permits. Basic, unchanged details about RSGB-affiliated clubs are published annually in the *RSGB Yearbook*.

VHF/UHF

NORMAN FITCH, G3FPK
40 Eskdale Gardens,
Purley, Surrey CR8 1EZ.
E-mail: g3fpk@compuserve.com

THIS TIME LAST year the 50MHz band was providing fairly regular propagation to southern Africa but so far this year such events have been rare. As this is being edited on the first day of spring it is snowing on the Surrey hills and the pressure is falling. Tropospheric propagation is the proverbial 'pits', but there was a good aurora which seems to have taken most people by surprise.

All times are in UTC, ODX indicates best DX and QTHR signifies that the operator's address is in the current *RSGB Yearbook*. An asterisk (*) after a callsign denotes a CW contact, (SN), (FK) etc refers to the postcode area and (IO93), for example, is the Maidenhead grid.

PUBLICATIONS

THE LONG established quarterly magazine *VHF Communications* is now in its 33rd volume. The Spring edition, 2001-Q1, features the final part of an article by DJ8ES and DL5HAT describing a high precision 10MHz frequency standard with frequency control via GPS. There are currently 26 Global Positioning Satellites, which carry atomic clocks, the operation of which is carefully monitored by ground stations. With the aid of GPS, a stable quartz oscillator is so well regulated that the maximum frequency deviation always remains better than 1 x 10^{-11}, a precision of 0.0001Hz in 10MHz.

Prof Gisbert Glasmachers has a 10-page article on GMSK, the type of modulation used for mobile communications. This is a comprehensive description of Gauss Minimum Shift Keying published ". . . to provide some background knowledge, together with a certain amount of orientation to assist in practical implementation" to quote from the 'Summary' paragraph.

Gunthard Kraus's, DG8GB, 'Internet Treasure Trove' column mentions CAD and *EZNEC* antenna simulation software that can be downloaded from the Internet. The *EZNEC* program, written by Roy Lewallen, W7EL, costs $80 and Gunthard reckons it to be the best compromise currently available between price and accuracy. He also recommends the JFW catalogue of attenuators and switches of all sizes, the 150 pages of which can be downloaded in .pdf format - see the list for details.

VHF Communications is edited by Andy Barter, G8ATD, and published by KM Publications, 63 Ringwood Road, Luton, LU2 7BG. The e-mail address is andy@vhfcomm.co.uk and there is a website - see the list.

The February issue of *Six News*, the quarterly magazine of the UK Six Metre Group, comprises 60 pages. There is a nine-page article on equatorial propagation by Ray Cracknell, G2AHU. Ray is an acknowledged expert on this subject and his definitive articles on transequatorial propagation (TEP) from his days as ZE2JV in the then Rhodesia are featured in many publications.

UKSMG Vice Chairman Chris Gare, G3WOS, has a 14-page account of his trip to Ascension Island last November when he operated as ZD8SIX. The article is well illustrated with a map and numerous photographs. As usual, The 'What's on Six' and 'Late News' items by Clive Davies, G4FVP, are packed with DX information.

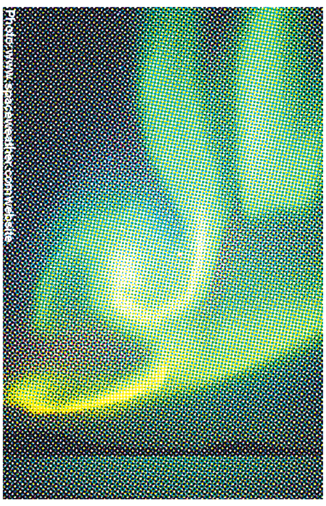
The All-time 50MHz Operating Table occupies three pages. There are 213 participants and it shows that PY5CC leads the world with 195 DXCC countries and 850 grids. The three leading UK entrants are G3WOS (177 / 781), GJ4ICD (176 / 780) and G0JHC (166 / 803). Chris Deacon, G4IFX, edits *Six News* and the UKSMG has an excellent website - see the list.

PROPAGATION

IT SEEMS THAT the peak of sunspot cycle 23 might well have passed [see also page 36 in this issue - *Ed*]. In a contribution to *Six News* Dr Steve Reed, G0AEV, writes, "It does look rather like the maximum will turn out to be mid-summer 2000 based on the latest (13 month) smoothed data, but be careful - there's a lot of uncertainty about such predictions."

The latest data for the 30-day period 19 February through 20 March from the SEC's daily solar data site shows that the 2.8GHz solar flux dropped to a minimum of 130 units on 2 March, with a maximum value of 177 five days later. The average was 145.5, another significant drop of 10% on the value reported last month.

The number of new sunspot regions was also down from 41 to 32 and on only two days did their areas exceed 1000 millionths of the sun's visible disc. On 1 March the area was a mere 80 and on 11 days, no new areas were observed at all.



Jouni Jussila took this image of the aurora from a location near Oulu in Finland at 1900UTC on 19 March.

According to comments in the January issue of the *Six and Ten Report* it was the quietest January on 6m that Brian Hummerstone, G3HBR, could remember: this view was supported by Eric Parvin, G2ADR, and Robert Ibbotson, G0DVY. To compensate slightly, the Quadrantids meteor shower was good and there were some Sporadic E (Es) openings as reported last month. GI and GM operators noted auroral events on 3, 10, 21, 23, 24, 28 and 31 January, most being rather weak affairs.

There is an analysis of 50MHz DX propagation in 2000 covering two pages, a table of solar and geomagnetic data and reports from observers worldwide. The *Report* is an activity of the RSGB's Propagation Studies Committee (PSC), and is edited by G0AEV and Prof Martin Harrison, G3USF. Subscription inquiries should be addressed to Steve (QTHR) whose e-mail address is g0aev@explore.force9.co.uk

The January edition of Neil Clarke's, G0CAS, *SunMag* features an article entitled 'Earth Songs' which scientists call tweeks, whistlers and sferics, short for atmospherics. These VLF radio signals can be detected in a suitable receiver such as the one installed at the Marshall Space Flight Center's Atmospheric Research Facility in Huntsville, Alabama, USA.

You can hear these Earth Songs on the Internet - see the list - and when you get to the page, scroll down to 'More headlines' and click on the button. Then scroll down to 'January 19' and click on the 'Earth songs' highlight. Note that you'll need the 'Realplayer' utility to hear them and it can be downloaded at this site. Another article concerns 'Earth's Invisible Magnetic Tail' and describes this phenomenon - see the map in the April

RadCom page 76.

In the February issue the leading article is 'The Sun Does a Flip' and refers to a NASA Internet message dated 15 February - see the list. Around the time of sunspot maximum the sun's magnetic poles swap over and this phenomenon is explained in this fascinating six-page posting. The earth's magnetic field also flips, but not every 11 years; the last flip was about 740,000 years ago but some scientists think our planet is overdue for another one.

There is a complete nine-page listing of all the 477 sunspot groups observed in 2000 and both issues include the daily solar, geomagnetic and particle data, sunspot group data and flare lists. Subscription inquiries about *SunMag* should go to G0CAS. Neil's e-mail address is neil@g0cas.demon.co.uk and he can be reached on packet via g0cas@gb7don.#19.gbr.eu

METEOR SCATTER & EME

THE NEXT SIGNIFICANT meteor shower is the Eta Aquarids with a zenithal hourly rate (ZHR) of around 60. The OH5IY program suggests the peak could be around 0530 on 5 May. The only report this month is from Jamie Ashford, GW7SMV (NP), who completed a high-speed CW QSO with DD3SP (JO72) in 45min on 2m on 16 February.

The following items come from the April *432 and Above EME Newsletter* published by Allen Katz, K2UYH. Dave Dibley, G4RGK (IO91), is operating (QRV) again on 70cm after repairing parts of his antenna array. In limited spare time he is working on a new PA and power supply but reckons it could be the end of the year before everything is finished. HB9Q was a new 'initial' and others worked were SM2CEW, K1FO, K4QI, K2UYH and K0RZ.

David Hilton-Jones, G4YTL (IO92), is new to 70cm EME but is already up to 41 initials. He mentions rumours of difficulty getting QSL cards from the 70cm EME community and suggests that, if operators don't want to go to the expensive of having cards printed, all they need do is to confirm a QSO on the back of the sender's card and return it. The vital information is the callsign of both stations, date and time of the QSO, frequency, signal report and locator, plus the signature of the operator.

He only needs cards for RSGB awards and points out that mention of awards in journals and magazines is good for attracting the next generation of moonbouncers and VHF / UHF experimenters.

Stuart Jones, GW3XYW (IO71), was QRV on 23cm in March. On the 3rd he completed with G4CCH, SM2CEW, HA5SHF, OH2DG, W2UHI, K5JL, OZ4MM and W7SZ, all on CW. Next day he completed with F1ANH*, F2TU, G4CCH, OZ4MM*, DJ5MN*, WA1JOF* and KA0Y*.

You will find current and back issues of the *Newsletter* on the very comprehensive website - see the list - and, for those new to EME, there is a link to Ian White's, G3SEK, five-page 'EME Operating Procedures for 432 and Above' document.

The 26 / 27 May weekend looks to be quite favourable for skeds, as it will provide almost 33 hours of moon time for London latitude stations. The moon's declination varies from +23.34º to +20.27º and the 144/432MHz sky temperature range is 408/30K to 215/16K. The signal degradation, relative to perigee varies from -0.16dB to -0.01dB.

THE AURORA

THE AURORAL EVENT on 20 March caught most people by surprise. It was triggered off by a faint full halo coronal mass ejection (CME) from the sun on the previous day and has since been classified as a G3 event, which means 'strong'. At the peak, the K_p index reached 7.

David Whitaker, BRS25429, reckons it was one of the best auroras on 6m for a long time. He switched on at 1420 and in the next couple of hours heard stations in nine countries - DL, EI, G, GI, GM, GW, ON, OZ and PA - and 30 grids from IO63 in the west to JO55 in the east.

OZ5IQ was QRV from 1359 on 6m and lists 14 QSOs with stations in DL, LA, OK, ON, OZ, SM, SP and 9A1CMS (JN86), which was his ODX. Kim notes that the event stopped abruptly at 1834.

David Butler, G4ASR (HR), was QRV from 1318 and had a couple of local contacts on 6m on a northerly beam heading (QTE) before concentrating on 2m whereon he made 27 contacts with stations in 18 grids in DL, F, G, HA, OK and PA. For most QSOs the optimum QTE was 55º and his last one was at 1616. ODX were HA8CE (KN06/1789km), OK2STK (JN99/1511km), OK2BDS (JN79/1360km) and OK1AMI (JO70/1326km).

PSK31 ACTIVITY

GIORGIO FINO, IW1FTY, completed his first QSO at 1510 on 19 March on 144.085MHz with TK5JJ (JN41JV). The report was '559' while neither SSB nor CW modes made it. The previous day his signals were copied at S2 by IW9ELR (JM63QC). George runs 100W to a 14-ele Yagi and would welcome some skeds. He can be contacted on converse mode on the cluster on 14.345MHz or via e-mail at iw1fty@qsl.net

Gordon Wyatt, GW8ASA (CF), has been experimenting with the mode using his laptop computer to modulate the signal generator, feeding the output of the receiver to the main computer. He finds it is possible to decode signals that are well below noise level, so would like to see more operators trying out this weak signal mode. Well, folks, it's up to you PSK31 operators to let us know what you are doing now that the spot frequencies have been agreed.

ANNUAL VHF / UHF TABLE - JAN TO DEC 2001

	50MHz		70MHz		144MHz		430MHz		1.3GHz		Total
Call	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Dist	Ctr	Points
G3FIJ	1	1	19	3	23	7	7	1	-	-	62
G4APJ	0	0	-	-	24	4	11	1	-	-	40

The District Codes are the 124 listed on page 53 in the October 2000 *RadCom*. Up to 6 different GI stations and up to 3 different GM stations in each Scottish district may be counted. Countries are the current DXCC ones plus IT9. The deadline for the next issue is 22 May.

BAND REPORTS

50MHz

In February Ted Collins, G4UPS (EX), copied the 3C5I keyer at 1350 on the 20th peaking to S6 before fading out at 1425. At 1124 next morning ZS6AXT* was RST449 with G3HBR. The 3C5I keyer was heard again around lunchtime on the 22nd. On the 24th around noon TR8XX* was heard by locals and G3FPQ worked C56/DL7CM*.

G4JVG reports that 6m propagation was not particularly cooperative for D68C, and the group only made 405 QSOs on the band. Although there were a few DL, I and ON stations in the log, there were no Gs.

At 0830 on the 25th 5B4AGM had paths to JA6, VR2 and VU, according to SV1DQ and Ted heard the C5 at 1510. At 1405 on the 28th 5U2K (JK31) was copied on 50.115MHz at S5 and was later heard working all over Europe at S9. Ted hopes he made it at 1508 when the 5U was buried under many Gs calling him: if so it would be his 160th DXCC country.

GW7SMV said his 'farewells' to 3C5I at 1154 on 21 February as Alan was due to leave Equatorial Guinea at the end of the month. On the 25th C56/DL7CM* was a new country and grid for Jamie and on the 28th he contacted C56/DL2OE at 1353. A nice surprise was 5U2K at 1434 for a first GW/5U QSO on the band, his 117th DXCC country and another new grid. In an opening to South Africa on 19 March he worked ZS6WB, ZS6APV and ZS6VR between 1650 and 1730. To round off the day an aurora in the evening brought QSOs with MM5AJW (IO88) and MM0AMW.

70MHz

Some years ago Robin Caine, G4IWS (RG), wrote about the lack of activity on 4m so I suggested he listen during contests. He now has a synthesised transverter and was QRV in the 18 March leg of the Cumulatives and heard a dozen stations, ODX being GD4GNH at RS33, ". . . which at least proved the

80

CONTEST

TIM KIRBY, G4VXE
11a Vansittart Road,
Windsor SL4 5BZ
E-mail:tim@ukgateway.net

MOST, BUT NOT ALL, serious participants in contests use computer logging. It simplifies, as we've discussed previously, the work of getting a contest entry produced and submitted to the adjudicator. As the number of logs submitted on disk rises, so the opportunity for more accurate checking of logs rises. If everyone, or at least, most entrants submitted disk entries, it becomes possible to cross-check contacts automatically. This enables a more easily and more accurately adjudicated contest. The HF Contests Committee already has software to check some contests in this way, but in discussions with the HFCC Chairman, Justin Snow, G4TSH, indicated that they hope to extend this further, if someone can be found to help write the software.

Justin commented that he had just received the entries for the AFS SSB Contest 2000. He noted that there are a total of 173 individual entries and one checklog this year. Thirty-seven of these are paper logs, nineteen of which have been printed out with the aid of a computer! Some of these printed logs are even generated by contest logging software such as *SuperDuper* or *TR* and have several hundred QSOs in them.

Justin continued, "It is pretty exasperating to have to retype computer-generated paper logs and it slows down the adjudication procedure more than necessary. Not withstanding the fact that by the time I have filtered through the real electronic logs I will probably have pulled out a few more fancy formatted Excel spreadsheets or .PRN files and the like.

"I will be trying to contact as many of the people who have submitted 'electronic paper' logs as possible to try and get something more adjudication-friendly."

From the VHF Contests Committee, Peter Bowyer, G4MJS, commented, "Written or typed paper logs are always acceptable, but we reserve the right to require electronic logs from those entrants whose logs have been prepared on computer. Adjudicators regularly chase this up with entrants who insist on sending sheaves of logs printed out from *SuperDuper* or whatever. And anyone who sends me a fancy Excel spreadsheet with new multipliers identified in bold green 24-point font and dupes in red, gets it sent straight back!"

On the 'uk-contest' Internet reflector there were some discussions about how people would like to see the rules and contests for UK events evolving. One suggestion was that only computer-submitted entries would be eligible to be adjudicated. Non-computer logs would still be accepted, and would be shown in the results table, but could not be placed, because they could not be checked accurately without retyping the log. Those people not using computer logging would either have to upgrade or be content with seeing their scores, but having unplaced entries.

Reaction to this suggestion varied, as you might imagine! Most people on the reflector thought that it was a good idea. The fact that they were 'on the reflector' suggests, of course, that they are comfortable with computer technology and the results may be skewed! A connected discussion resulted in someone advocating all entries needing to be submitted on disk being branded as 'elitist'!

Personally, I liked the avenue of still accepting non-disk entries, but 'encouraging' people to submit data files by not placing paper logs. How do you feel about this? It would be helpful to know and you can be sure that feedback received will be passed on to the relevant contest committee.

PORTABLE CONTESTING: FOOT & MOUTH

IT'S ALWAYS difficult to include 'up to the minute' news in this column as it has to be prepared some weeks ahead of the publication date. However, most readers will be aware that the RSGB VHF Contests Committee has suspended the portable section of all VHF Contests until further notice. This is because of the outbreak of Foot and Mouth Disease in the UK. The disease is spread readily on the soles of boots and shoes. In order to reduce the possibility of contesters inadvertently and unwittingly spreading the infection, the VHFCC took their decision. At the time of writing it is not clear how long it will take to get the outbreak under control. As soon as the portable sections of contests are reinstated, this information will be made available through the GB2RS news broadcasts and other channels.

FEEDBACK

THANKS TO ALL of you who took the trouble to write in covering various issues. Some response was received agreeing with my suggestion that the RoPoCo contests might be moved to a more 'socially acceptable' time!

A couple of letters also, regarding the Backpackers contest and what constitutes a Backpackers station. The rules state that all the equipment should run off 12V - so generators are out! Our correspondents felt that stations should be capable of being 'backpacked' to the site and that some of the rigs being used did not fall into this category. I do have some sympathy for this view and, our Backpacker station, GW5NF/P, is regularly carried up the hill in this manner. However, this is a tough requirement to legislate for, hence the rule stipulating that the station should run off 12V.

144MHz Low Power, 2000

THERE WAS a mixture of feelings about this contest, split between those in the north and those in the south, due to the big aurora! Two complaints were received regarding giving serial numbers during aurora contacts. To clear this up you *must* give a serial number even if you do not receive one back. Congratulations to G8LNC, GW7ORR/P, G3MEH, PE1EWR and the runners-up in each section. Also, well done to 2E1GUA for the Novice entry. Other Novices were active, so please send in an entry and give James, 2E1GUA, some competition!

Logging standards varied in this contest, from seven perfect logs to a couple losing half their score due to miscopying information. If you are not sure about the details, ask again.

Dave Edwards, G7RAU

144MHz Low Power Contest, 2000

Multi Operator

Pos	Call	Score	Loc	Group	QSO	Mult	Ant	Best DX	km
1*	G8LNC/P	5500565	IO90JO	Victory CG	188	115	4x19 2x9	DD5FX	706
2*	G4ZAP/P	4458189	IO93EH	A1 CG	178	113	4x9	SP2FAX	1291
3	G4SMV/P	4096547	JO03CE	Five Bells	97	91	6x12	SM2CKR	1639
4	G0NFA/P	2666846	JO00EW	Bentley & QRZ RC	141	91	2x9	GM0GMD	630
5	G4BRA/P	2030754	IO80ST	Bracknell ARC	107	87	2x17	DL6FAW/P	738
6	G6PQZ/P	1854671	IO91GI		118	89	19	DL6FAW/P	668
7	G8NWM/P	1478708	IO92TR		96	77	2x12	I9JE	656
8	G0DLR	257137	JO01EI	Culverstone	51	47	15	M0AFC/P	353
9	G8AHK	103552	IO91QF	Surrey Uni RC	29	32	17	M0AFC/P	334

Single Operator

1*	GW7ORR/P	4743200	IO81KW		186	110	2x10	LA/DK5WO/P	938
2*	M0AFC/P	3086740	IO84SA		157	95	13	ON1LPA	686
3	G0HAS/P	2104404	IO80WP		106	93	13	PE1KLQ	675
4	G4HLX/P	1246936	IO91FN		91	79	13	SP2FAX	1321
5	GW7LQD/P	1071525	IO82KW		101	75	2x9	DC6IA	711
6	G7VHW/P	467280	JO01DO		64	59	17	I1FNR	480
7	M0BAO/P	163540	IO80LV		32	34	17	PE1EWR	463
8	G0IOW/P	33858	IO91MO		20	22	HB9CV	G0NFA/P	205

Fixed

1*	G3MEH	1221605	IO91QS		104	77	2x10	F6AIL/P	640
2*	G4ZTR	916828	JO01KW	Villa CG	77	67	2x9	SP2FAX	1150
3	G0GCI	599952	JO01ED		63	58	9	DL6FAW/P	540
4	G0ODQ	596640	IO91NQ		71	66	11	GI4SNA	467
5	G1WAC	455365	IO92BJ	Wythall CG	50	61	18	DL6YEH/P	632
6	G4APJ	402390	IO83UP		44	51	9	F6BFR	535
7*	PE1EWR	398280	JO21SL		34	40	10	M0AFC/P	492
8	G4HGI	286528	IO83PL		35	44	11	SP2FAX	1360
9	G8ZRE	251958	IO83NE		40	49	8xy	G0NFA/P	335
10	G1TWS	172440	JO01HO		36	40	11	M0AFC/P	332
11	M0COK	154611	IO92AJ		38	41	7	G0NFA/P	228
12*	2E1GUA	98828	JO01IS		34	31	13	GW8ASA/P	276
13	G7NBE	85064	IO92GS		21	31	9	PE1EWR	472
14	M0COP	31700	IO92BK		21	20	8	G0NFA/P	228
15	G0XSV	13311	IO91OK		10	17	9	GW7ORR/P	170

432MHz Low Power, 2000

THE START TIME of this contest enabled some stations to take advantage of the early morning enhancement and achieve reasonable DX, but after the first hour conditions were reported to be generally flat and subsequently quiet. Most stations enjoyed good weather, although the previous evening's aurora left some rather tired, with a couple of operators taking time out during the contest to catch up on sleep. Congratulations to G4ZAP/P, The A1 Contest Group, for their convincing win in the multi-op section, and to G4ERP/P and G3MEH for their closely fought wins in the Single Open and Single Fixed sections respectively. As usual certificates are awarded to the winners and runners-up in each section, certificates also go to PE1EWR for his overseas entry and 2E1GUA for his Novice entry.

Matthew Jeffery, G7ORR

432MHz Contest, August 2000

ALTHOUGH accompanied by fine weather, propagation conditions seemed to be universally poor for this event. This is reflected in the QSO numbers and best DX results in the logs. It may also be the case that some potential entrants defected to 6m as conditions were excellent at the time.

This contest was hard work for most people and it is to be hoped that things are improved next time around. There is a serious lack of activity outside contests on 70cm these days and this band is prime territory for commercial operators in the communications and short-range device industries. Certificates go to the winners and runners-up in each category.

Steve Redfern, G4AEQ

432MHz Contest, August 2000

Multi Operator (M)

Pos	Call	QSOs	Points	Mults	Total	Loc	Best DX	km	Pwr	Ant
1	G0NFA*	17	1480	23	34316	IO91NE	M0CGL	222	10	-

Single Operator Fixed (SF)

Pos	Call	QSOs	Points	Mults	Total	Loc	Best DX	km	Pwr	Ant
1	G3MEH*	35	3565	43	153295	IO91QS	PE1EWR	290	300	2x23Y
2	G0GCI*	24	3126	29	90654	IO01ED	M0AFC/P	373	100	2x21Y
3	G1KHX	15	2515	24	60336	IO81MI	PE1EWR	470	120	2x19Y
4	G6FQZ	17	1968	24	47232	IO91JR	G8BNE	301	100	21Y
5	G1WAC*	14	1565	24	37560	IO92BJ	G0GCI	208	25	21Y
6	2E1GUA	9	1015	8	11195	IO01FS	GW8ASA/P	276	10	21Y
7	G4APJ	5	933	11	10263	IO83UP	G0GCI	331	25	19Y
8	G3YJR	7	498	11	5478	IO93EJ	G4CLA	116	10	19Y

Single Operator Other (SO)

Pos	Call	QSOs	Points	Mults	Total	Loc	Best DX	km	Pwr	Ant
1	GW8ASA/P*	30	4003	31	124093	IO81FP	G4ERG	312	50	23Y
2	GW1ATZ/P*	24	3198	31	99138	IO82KW	GU3EJL	362	30	48MBM
3	M0AFC/P	17	1689	21	35469	IO84SA	G0GCI	373	25	2x12ZL
4	M0COP/P	10	1000	18	18000	IO92CI	G0GCI	201	50	17Y

*Certificate winners

Bob Whelan, G3PJT, operating as ZL4CC from the station of ZL1DD in the RSGB Commonwealth Contest in March.

432MHz Low Power Contest, 2000

Pos	Call	Score	Loc	Group	QSO	Mult	Antenna	Best DX	km
				Multi Operator					
1*	G4ZAP/P	1032174	IO93EH	A1CG	77	66	2X28	DF2VJ	740
2*	G4SIV/P	625560	IO03CE	Five Bells CG	30	52	8X28	F5KCR/P	761
3	G4BRA/P	510048	IO80ST	Bracknell ARC	52	57	4X21	PA0ZM	647
4	G3UAX/P	485475	IO91GI		56	55	12Ele	PA0ZM	562
5	G8NWM/P	407950	IO92TR		46	50	2X22	DF2VJ	635
6	G0OKF/P	140658	IO93UK		25	34	-	G0HAS/P	335
				Single Operator					
1*	G4ERP/P	512430	IO81XW		57	57	2X21	DF2VJ	696
2*	GW1ATZ/P	472986	IO82KW		50	54	48	PE1EWR	482
3	G0HAS/P	319404	IO80WP		36	43	21	PA0ZM	631
4	G0GRI/P	300639	IO81XG		45	47	17	PE1EWR	388
5	M0AFC/P	140126	IO84SA		31	31	2X12	G0HAS/P	376
6	G8WIR/P	40986	IO83RO		13	23	7	G4BRA/P	310
				Single Operator, Fixed					
1*	G3MEH	268464	IO91QS		44	48	2X23	DF2VJ	999
2*	G3XDY	244200	IO02DB		30	40	28	DF2VJ	905
3	G4ZTR	229108	IO01KW	Villa CG	35	41	4X21	DF2VJ	516
4*	PE1EWR	176046	JO11SL		21	30	2X21	GW8ASA/P	490
5	G0GCI	152218	IO01ED		27	34	2X21	DK3FB	512
6	G0ODQ	136456	IO91NQ		27	37	2X21	M0AFC/P	281
7	G4APJ	106592	IO80WP		20	32	19	G0HAS/P	334
8	G1WAC	61594	IO92BJ	Wythall CG	17	26	21	G7MWP	237
9*	2E1GUA	53716	IO01FS		18	26	23	GW8ASA/P	276
10	G3IIZ	16032	IO01AJ		9	16	HB9CV	G4ZAP/P	241
11	G4HGI	14229	IO83PL		10	17	-	G4SIV/P	196

*certificate winners

10GHz Trophy, 2000

CONDITIONS WERE about average for this contest, although the lousy weather floating around did bring some good contacts by rain scatter. The Parallel Lines CG walked away easily with the Trophy once again, and Telford & DARS, G3ZME/P, took second place largely by nature of having both narrowband SSB / CW and wideband FSTV equipment and making an additional 11 QSOs by TV.

The contest has changed format for 2001, and the trophy will be awarded to the overall winner of the annual set of 10GHz cumulatives.

Andy Cook, G4PIQ

10GHz Trophy 2000

Pos	Callsign	Score	Mult	QSO	Locator	Pwr	Ant	Best DX	km
1*	G4LIP/P	315063	27	46	02QV	15	1.2m	DH6FAE/P	361
2*	G3ZME/P	63014	14	34	82QL	4.5	0.9m	G4LIP/P	314
3	M1CRO/P	42896	16	28	01PU	5	0.6m	DK0MU	418
4	G4MAP/P	28067	13	21	92GB	15	0.9m	PA6NL	382
5	G3PHO/P	14256	11	9	84KD	5	1.2m	G4MAP/P	238
6	G3XDY	9264	8	18	02GB	10	0.6m	G3ZME/P	265
7	G4KNZ/P	6856	8	7	02TD	5	0.6m	G0HNW/P	263
8	G4LDR	4400	8	11	91EC	8	0.9m	G4ALY/P	198
9	G4LRT	1164	4	3	92EJ	1.2m	0.4m	G1JRU	172
10	G6DER	30	2	2	93GN	0.8	0.6m	G0HNW/P	36

*Certificate Winner

CONTEST CALENDAR

HF Contests

Date	Time	Mode	Contest
5 May	*0000-2359*	*CW*	*IPA Contest*
5 May	*0001-2400*	*CW*	*10-10 International*
5–6 May	*0000-2400*	*SSTV*	*Danish SSTV Contest*
5–6 May	*2000-2000*	*CW/SSB/ RTTY*	*ARI International DX*
6 May	*0000-2359*	*SSB*	*IPA Contest*
12 May	*1700-2100*	*CW*	*FISTS Spring sprint*
12 -13 May	*1200-1200*	*RTTY*	*Volta WW*
12 -13 May	*2100-2100*	*CW/SSB SSTV*	*CQ-M International DX*
13 May	*0900-1800*	*Phone*	*WAB 'LF' Phone*
19 May	*1500-1900*	*CW*	*EU Sprint*
19–20 May	*2100-0200*	*CW/SSB*	*Baltic*
26–27 May	*0000-2400*	*CW*	*CQ WPX CW*

VHF Contests

Date	Time	Mode	Contest
5 May	1400–2200	ALL	RSGB 432MHz Trophy
5–6 May	*0000-2400*	*SSTV*	*Danish SSTV Contest*
5–6 May	1400–1400	ALL	RSGB 432MHz–248GHz
13 May	0900–1200	CW	RSGB 70MHz CW
19–20 May	1400–1400	ALL	RSGB 144MHz
20 May	1100-1500	ALL	RSGB 1st 144MHz Backpackers

The full rules of RSGB HF and VHF/UHF contests were published in the RSGB Contesting Guide in October 2000 *RadCom*. Brief rules for non-RSGB contests, which are listed in italics above, can often be found in the 'HF' and 'VHF/UHF' columns. The HF and VHF Contest Committees both have web sites from which comprehensive details are available. These are www.g4tsh.demon.co.uk/HFCC/index.htm and www.blacksheep.org/vhfcc

MORE RESULTS OVER THE PAGE

5th 144MHz Backpackers Contest, 2000

THE WEATHER was once again kind to the Backpackers for this contest. Band conditions were variable with some QSB but there was plenty of DX to work during the first three hours of the event. However, many Backpackers found that getting through with low power needed a lot of patience.

Three stations managed to submit perfect logs for this contest and a further seven stations lost less than 2% of their claimed score. An error in a callsign was the most common cause of losing points. An incorrect locator was the second most common error. Callsign and locator errors accounted for about 90% of all of the errors in the logs. The average points lost was 6.8%.

GW7LQD/P wins the Single Operator 3W section with M0AFC/P claiming first place in the 10W section. In the multi-operator sections, the One Man and His Dog Contest Group, G8NWM/P, claimed first place in the 10W section with the Malvern Hills ARC 'B', GW4IDF/P, claiming first place in the 3W section.

This was the final contest of the year's Backpackers series. These contests continue to be popular with entrants with comments such as "a very enjoyable day, and here's to next year's series" or "it has been a good year for the Backpackers contests" being typical of the many comments received with the logs. However, the format of these series has remained the same for a number of years. Are there any changes that you would like to see? I invite your comments and suggestions.

Ian Pawson, G0FCT

5th 144MHz Backpackers Contest, 2000

* Certificate winner

Single Operator 3W

Pos	Call sign	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*	GW7LQD/P	IO82KW	76	13533	30	405990	DK0MU	719	3	2x9Y	IC275E
2*	G1WKS/P	IO01ED	48	9328	33	289168	GM4ZUK/P	671	2.5	13Y	FT290
3	GW0PZO/P	IO83ID	71	10277	27	277479	OT0M	542	2.5	5Q	FT290
4	G7VHW/P	IO01GP	39	6663	25	166575	G8T	444	2.5	5Y	FT290
5	GW1ATZ/P	IO82KA	40	6450	22	141900	GM4ZUK/P	548	2	10Y	FT290
6	G0NFO/P	IO82RJ	40	5158	20	103160	GM4ZUK/P	505	2.5	7ZL	FT290
7	G0VQK/P	IO83QF	31	4916	20	98320	F6IFR	480	3	9Y	IC202
8	G0OIW/P	IO91MO	13	1665	11	18315	G8T	349	3	HB9CV	IC202

Single Operator 10W

Pos	Call sign	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1*	M0AFC/P	IO84SA	108	24308	35	850780	DL8GP	833	10	13Y	IC706
2*	GW8ZRE/P	IO83IA	111	20139	37	745143	DB7IU/P	672	10	7ZL	TR751E
3	G0PQF/P	IO01AX	61	13996	36	503856	GM4ZUK/P	576	10	9Y	IC251E
4	G0GRI/P	IO81XG	64	14308	35	500780	HB2MS	794	10	13Y	TR751E
5	G8ORG/P	IO93AD	46	9522	26	247572	LX/PE1JBK	655	10	8Y	IC251E
6	M0BAO/P	IO81JD	42	8624	26	224224	GM4ZUK/P	645	10	17Y	IC706
7	G4EDR/P	IO94RD	33	8592	25	214800	G8T	562	10	4Q	IC706
8	G0WIR/P	IO81PH	32	5993	26	155818	GM4ZUK/P	626	10	HB9CV	IC202
9	G4WVD/P	IO70NN	15	3346	12	40152	G0HDV/P	448	10	10ZL	FT480

Multi Operator 3W

PosGroup	Call sign	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1* Malvern Hills ARC 'B'	GW4IDF/P	IO81NV	75	13616	33	449328	GM4ZUK/P	561	3	19Y	IC202S
2*	GW5NF/P	IO81PR	69	12992	31	402752	GM4ZUK/P	579	2.5	2x9Y	FT290
3	G0HDV/P	IO93UK	58	11765	29	341185	EI4IX	600	3	16Y	TR751E
4 Wythall CG	G1WAC/P	IO82XJ	47	7652	27	206604	GM4ZUK/P	506	2.5	17Y	FT290
5 Oldham Radio Club	G1ORC/P	IO83XN	62	7931	22	174482	F6IFR	487	2.5	2x9Y	FT290
6 Stockport RS	G8SRS/P	IO83XH	35	4108	19	78052	F1CXX/P	520	2.5	9Y	FT290

Multi Operator 10W

PosGroup	Call sign	Locator	QSOs	Score	Mult	Total	Best DX	km	Power	Ant	Equipment
1* One Man & His Dog CG	G8NWM/P	IO92TR	65	14060	33	463980	LX/PE1JBK	539	10	2x10Y	FT736R
2* Barpackers CG	M1BAR/P	IO83XI	54	9520	31	295120	F1CXX/P	524	10	14Y	TR751E

receiver is working!" I hope you soon get the TX working, OM and make some QSOs.

144MHz

Clive O'Hennessey, GM4VVX (IV), triumphantly declares, "I have at last had an answer to my CQ calls!" It came from a newly-licensed Novice 2M1VKP in the next grid, IO77, a new one for Clive, " . . . but it has taken eight months to work it." He screamed his lungs out on 6 February in the Activity Contest but only worked one station, GM7ASN: no other signals were heard, not even on FM.

In a weak aurora on 13 February, which rumbled on from 1635 to 2210, he worked nothing. In another event next day his 400W got an RST33A report from LA2EDA*. A few beacons were audible from 1450 to 1655.

GW7SMV had success in the tropo opening on 14 February when he worked 10 PAs and nine DLs. While in QSO with a DL, Jamie was called by SK7MW (JO65) and subsequently contacted SK7CY (JO66), LA4YGA (JO48) for ODX and OZ6ABA (JO57). More tropo on the 18th brought QSOs with LX2DX (JN29) and six Fs in IN99, JN08, JN17 and JN18. He heard beacon HB9HB and, for the first time ever, DB0FAI. He was QRV in the 3/4 March contest but hardly anyone was on.

432MHz AND UP

Peter Blair, G3LTF (SP), worked some Scandinavians on 70cm on 14 January. He caught the 14 February tropo when 70 and 23cm opened up to OZ and DL. He worked several stations up to 960km. At 2330 the SM beacons started to come through on 70cm, first SK6UHF, then SK7MHH at 1086km, also on 23cm, next SK1UHF (1438km) and then at 0010 on the 15th ES0UHF at 1716km. Sadly there was no-one on at that time.

Later that morning he contacted SM1FMT at 0700 for ODX at 1471km. He is still looking to crack the 1000-mile barrier on 70cm tropo. Peter's gear is all home built and gives 200W on 70cm to a pair of 7.5 wavelength Yagis at 16m AGL with an MGF1302 masthead preamp.

John Quarmby, G3XDY (IP), was QRV on 70cm on16 January and worked four OZs and five SMs. ODX was SM4DHN (JP60/1176km), also worked on 23cm and 13cm, as was SM6ESG. He was QRV for the first hour or two of the 70cm AFS contest on 4 February, notable QSOs being DF2VJ and DC4VO (JN39), DF4UE (JN48), F1EZQ (JO27), DH3NAN (JO50), DL8OBU and DF9QX (JO42) and DL1FX (JN49). In the 14 February opening he had limited time and worked a couple of stations on 23cm. LX1JX was contacted on the 18th on 70cm but they didn't quite make it on 23cm.

Ken Punshon, G4APJ (BL), heard PA6NL on 70cm at 1932 on 3 March " . . . scraping round the edge of the Pennines" and thinks he got a QRZ from him. He can be e-mailed at ken.punshon@compaq.com if anyone would like to make some skeds. GW8ASA spent 90 minutes on 70cm on 21 February and worked 2E1EMK, GW3MFY, G8LMC, G7RRQ and G3KBS. Gordon says that their activity nights, as reported some months ago, are still running.

SIGN OFF

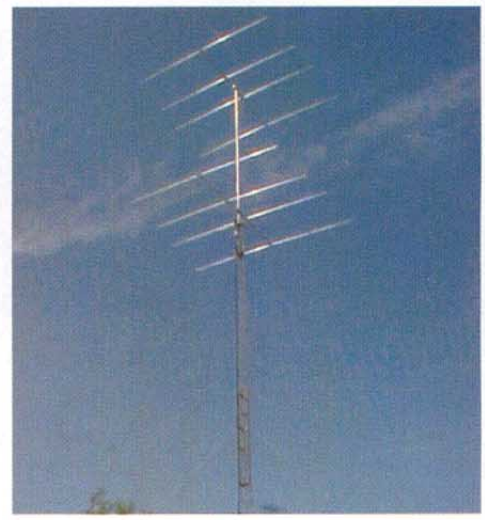
NICE TO HAVE reports on *all* the bands for a change. The copy date for July is **22 May** and for August it is **19 June**. My answerphone and fax machine is on 020 8763 9457 and the CompuServe ID is g3fpk ♦

WWW.

CAD software:	http://www.ansoft.com
EZNEC software:	http://www.eznec.com
JFW catalogue:	http://www.tmworld.com/index.htm
VHF Comms:	http://www.vhfcomm.co.uk
UK 6m Group:	http://www.uksmg.org
Earth Songs:	http://www.spacesciences.com/
Sun does a flip:	http://science.nasa.gov/headlines/y2001/ast15feb_1.htm?list59127
K2UYH (EME):	http://www.nitehawk.com/rasmit/eme
RSGB VHF/UHF:	http://www.rsgb.org/operating/index.htm

HF HF HF HF

DON FIELD, G3XTT
105 Shiplake Bottom, Peppard Common, Henley on Thames, RG9 5HJ.
e-mail: hf.radcom@rsgb.org.uk



Darren Collins, G0TSM, a regular contributor to the annual tables (see page 83). Right: G0TSM's antennas, 2 x 4-element 10m Yagis at 45 and 63ft, giving 9.95dBd gain and 35dB front-to-back.

DURING MARCH band conditions were somewhat variable, with several spells of auroral activity adversely affecting HF propagation. Nevertheless, there were some good DXpeditions to be worked, most notably 3G0Y from Easter Island. This team did an excellent job, and were worked in the UK on all bands and modes. The same can also be said of BQ9P (Pratas Island). 3D2AG/P was very active from Rotuma, and there were several openings from the UK on both 10 and 12m. Also, as I write this, Ron, ZL1AMO, is active from Temotu as H40RW. Conditions from the UK have been unfavourable, but he is there for three weeks, so hopefully a number of readers will have been able to put this rare one in the log. Chuck, 3Y0C (N4BQW), has now left Bouvet Island, but was able to give this extremely rare counter to many DXers, with somewhere around 30,000 contacts, despite only being able to operate in his off-duty time (and under extremely arduous conditions).

DX NEWS

THE 3B6RF Agalega Island operation which was postponed from last year is now scheduled to take place between 5 and 16 May. This is a big operation, with 20 operators, and a large amount of equipment and antennas. The group will operate all bands and modes, including PSK and SSTV. Sigi, HB9DLE, will be pilot for Europe, and can be reached at hb9dle@uska.ch QSLs go to HB9AGH, via the bureau or direct (see QTH Corner). The 3B6RF web page (see listing at the end of the column) includes a log-search facility.

Jacky, F2CW, will head a group of four operators to activate the Chesterfield Islands (formerly considered part of New Caledonia) between 24 April and 8 May. The callsign may be TX0CW. They expect to have three stations, making a special effort on the low bands and 15m. Yaesu Japan and Kan Mizoguchi, JA1BK, are sponsoring this operation. QSL via ZL3CW (see VP6CW in QTH Corner).

IB0S will be active from Santo Stefano Island (EU-045) from 23 - 27 May.

Take, JI3DST/6, will be active from Miyako Island (AS-079) from 28 April to 6 May. Look for him to be active on 10, 15, and 40 SSB, RTTY and SSTV. QSL via JI3DST.

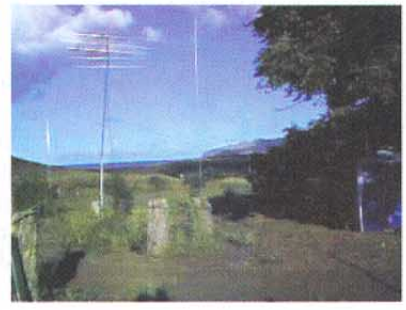
Aki, JA4FHE/4, will be active from Nakanoshima, Oki Islands (AS-041), from 3 to 6 May.

Joe Musachia, W5FJG (ex KA5ZMK), is working for the US State Department as a communications technician assigned to the American Consulate in Jeddah, Saudi Arabia. He recently received permission from the Saudi Government to operate from the consulate using the call 7Z1AC, and hopes to be there for the next two years. Joe has a web page (see list) which will have logs and operating updates. QSL via WA4JTK.

AWARDS

THIS YEAR THE VRZA (Dutch Amateur Radio Society) celebrates its 50th anniversary. An award will be issued to commemorate the occasion. To qualify, contact at least four of the following special stations that will be on the air throughout 2001: PI50VRZ/A, PI50CQP/A, PI50V, PI50R, PI50Z and PI50A. Each week the callsigns PI50V, PI50R, PI50Z and PI50A will be assigned to four of the 18 club stations participating in this event and shifting the next week to four other club stations until the circle is closed going the whole year round. QSLs can be sent via the regular club station's callsign, ie PI4 (club call) so please ask, if you work one of the PI50 calls, for the correct club station's callsign. The stations will be on all bands and modes, including during contests etc. A log file of the four stations you have heard / worked, signed by two other amateurs, and accompanied by US$5 or equivalent will be sufficient to apply for the award. Send to the manager: Ben Horsthuis, PA0HOR, Fr Halsstraat 95, 3781 EV Voorthuizen, The Netherlands.

There is a new award for chasers of islands in the USA. Michael Crownover, AB5EB, has announced the creation of the Stars and Stripes Island Award (SSIA). This award is different from the United States Island Award (USIA) in that the SSIA is an award with a finite number of groups. The award is based on a list of islands within the US as defined by the United States Geological Survey. There are 673 groups from all 50 states and the District of Columbia.



3G0Y on Easter Island.
Left: DK7YY (foreground) and other operators at 3G0Y.
Right: Part of the antenna farm at 3G0Y.

Chuck, 3Y0C, passing through South Africa on his way home, gives Dennis, ZS1AU, a souvenir of Bouvet Island. Chuck, who is a US astronaut, will be up in the space station in November.

Groups generally consist of a group of counties within a state with all eligible islands within those counties counting for the same group. All of the islands eligible for the award are named and have definitive latitude and longitude co-ordinates. The database of qualified islands and other relevant information is on the Stars and Stripes Island Award web site.

The Penn-Ohio DX Society (PODXS) has an award for PSK enthusiasts. Information about the 070 Club PSK award program can be found on their web site.

CONTESTS

RESULTS OF THE ARRL International DX CW and SSB Contests, 2000 appear in the tables. In the CW event, particular congratulations to G0IVZ, world 6th on 20m, GM3POI and G5G, world 2nd and 7th on 15m, G3WVG and G5M, world 4th and 10th on 10m, and the MD/DL3OI and G4BUO teams, world 2nd and 3rd in the multi-two category. In the SSB event, congratulations to G3FNM, world 10th and 3rd in Europe QRP; GM7R, world 9th on 10m, and to M6T who wins the plaque for leading European single-op.

In the 2000 ARI Contest, UK scores were: G0LII SO-CW 521941, GM3CFS SO-CW 364126, G3LZQ SO-CW 198322, G3VQO SO-CW 106411, G3RSD SO-CW 44084, G0VQR SO-CW 26100, GM4HQF SO-CW 23602, G5LP SO-CW 9556, G4POF SO-SSB 152172, M0CFV SO-RTTY 1824, G4EMT SO-MIX 2960, RS-177448 SWL 132282.

And finally a reminder that the main HF contest in May is the *CQ* WPX CW Contest, which is a 48-hour event (single-operators restricted to 36 hours) over the last full weekend of the month (26 / 27 May). Exchange RST plus serial number. There are high-power, low-power (100 watts), QRP (5 watts), Assisted, Tribander/single-element, Band restricted (for those with restricted licences, such as Novice operators) and Rookie (licensed less than three years) categories, as well as the usual multi-single and multi-multi categories. As usual, I can provide full details in return for an SASE.

Results of ARRL International DX CW Contest, 2000

Call, score, power (A = QRP, B = LP, C = HP), band (if single-band)

Single-op			
GW0KZW	9540	A	
G0WKW	532728	B	
G3KKP	343830	B	
G3TXF	325650	B	
M0CQS (N0KV op)	219960	B	
G6QQ	170136	B	
GM4SID	125172	B	
G3KKQ	91584	B	
G0MRH	74250	B	
M0AEK	68886	B	
G3NAS	62088	B	
G4ZME	50258	B	
2U0ARE	19824	B	
GM3ZAS	4752	B	
M6T (G4PIQ op)	2165760	C	
G3MXJ	1463310	C	
G3XTT	1397088	C	
G2QT	818805	C	
G4BWP	73710	C	
G4BJM	66126	C	
G4IUF	26784	C	
G3UFY	23769	C	
G5MY	20475	B	40
G0IVZ	200256	C	20
GM3POI	276120	C	15
G5G (G0LII op)	198063	C	15
GW3NJW	71604	B	15
GM3CFS	63828	B	15
G3RSD	46011	B	15
MJ0ASP (F5SHQ op)	6318	B	15
G3WVG	206580	C	10
G5M (G3WGN op)	176736	C	10
G3TBK	141426	C	10
GI4KSH	40131	C	10
G0MTN	132330	B	10
G3PJT	717709	B	10
G3KNU	28485	B	10
Single-op assisted			
G3LZQ	457899	C	
G3TMA	202356	C	
G0DEZ	18816	B	
Multi-single			
M2000A (G3WGV G3XWK G4VXE G0OPB JG1VGX ops)	1056090	C	
Multi-two			
MD/DL3OI (+ DL4LQM DL5AXX DL5LYM DL7URH DL8WAA ops)	4632180	C	
G4BUO (+ W3EF G4TSH ops)	4309464	C	
GM7R (GM0NAI GM3YOR GM0CLN MM0CCC ops)	1440285	C	

Results of ARRL International DX SSB Contest, 2000

Call, score, power (A=QRP, B=LP, C=HP), band (if single-band)

Single-op			
G3FNM	63516	A	
G0MTN	319005	B	
G3VAO	235152	B	
GI0KVQ	183732	B	
M0CQS (N0KV op)	135930	B	
G4NXG	97200	B	
MM/W3LEO	72390	B	
GW0AJI	70716	B	
M0BEX	66339	B	
G3NAS	49392	B	
GI0OUM	21417	B	
M6T (G4PIQ op)	3121284	C	
G3TMA	692244	C	
GM3POI	444150	C	
GJ2A (K2WR op)	345693	C	
GM3BCL	215946	C	
G4IUF	86130	C	
G3UFY	24570	C	
G2VJ	5124	B	20
M4T (G0VQR op)	3420	B	20
G0EYO	7176	B	15
GM7R (GM0NAI op)	437190	C	10
G4JVG	103797	C	10
G2QT	49200	C	10
G0NWY	39312	B	10
G4AHJ	17160	B	10
GM0EGI	34050	A	10
Single-op, assisted			
G4OJH	282420	C	
Multi-single			
M2H (G0REP G3MXH ops)	1841562	C	
GW8GT (GW0MAW GW4JBQ ops)	1354197	C	
M4U (G0DVJ G4EYE G4YJQ M0CGE G4WHK G3YYZ G0OZS M1DSY G7HOW ops)	478710	C	

PROPAGATION

VINCE, G6IQL, WROTE to me recently, recommending the book *Long Path Propagation - Revisited in Year 2000* by Bob Brown, NM7M (e-mail: bobnm7m@cnw.com). At $15 including postage, Vince feels this book is a must for HF operators. I have the original version myself, and assuming the new version is even better, then I can only concur with Vince's recommendation.

IRCs AND QSLing

VICTOR, UA2FM, REPORTS that new rules require Russian Postal officials to return mail sent to a PO Box that does not include the name of the receiving party. This change took effect on 1 January. So please put name first, not the call, if you write to any Russian amateur. QSL cards going to RW2F,

QTH CORNER

BQ9P	Steve Wheatley KU9C, PO Box 5953, Parsippany, NJ 07054-6953, USA.
EP2MKO	Igor Kovalev, Box 59, Pyatigorsk, 357500 Russia.
FO0ARE	Szabo 'Kari' Karoly, HA8IB, Aradi str 42, H-5525 Fuzesgyarmat, Hungary.
FO0AWI	Wolfgang Ziegler, DL1AWI, Arno-Schlothauer-Str 15, 99842 Ruhla, Germany.
H40RW	Ron Wright, ZL1AMO, 28 Chorley Avenue, Massey, Auckland 1008, New Zealand.
HK5MQZ/0	Jairo Vargas, HK5MQZ, P.O. Box 10862, Cali, Colombia.
HK5QGX/0	Ryouichi Tsuda, JA0MGR, 2-315 Sekiya-Honson, Niigata 951, Japan.
IB0S	Nuccio Meoli, I0YKN, Via della Stazione snc, 04010 Cori - LT, Italy.
JA4FHE	Akifumi Matsuda, 1-11-6 Ageicyo, Kurayoshi-city, Tottori 82-0022, Japan.
N4GN	Tim Totten, PO Box 91196, Louisville, KY 40291-0196, USA (new address).
PW0S	Steve Wheatley, KU9C (see BQ9P above).
TX8G	Morten Antonsen, LA9GY, Hallsetreina 6, N-7027 Trondheim, Norway (or through the bureau to LA5IIA).
VP6BK	Garth Hamilton, VE3HO, PO Box 1156, Fonthill, ON L0S 1E0, Canada.
VP6CW	Jacky Calvo, ZL3CW, PO Box 593, Pukekohe 1800, New Zealand.
YJ0ABQ	Angelo Brandolini, I6BQI, Contrada Colle di Giogo 36/A, 65010 Moscufo - PE, Italy.
ZK1BQI	Angelo Brandolini, I6BQI (see YJ0ABQ above).
ZK1EPY	Dominique Auprince, F6EPY, 4 Allee de la Genestriere, 91600 Savigny-sur-Orge, France.
3B6RF	Ambrosi Flütsch, HB9AGH, Lerchenweg 29, CH 8046 Zurich, Switzerland.
3G0Y	Falk D Weinhold, DK7YY, PO Box 700 343, 10323 Berlin, Germany.
5W0DA	Dominique Auprince, F6EPY(see ZK1EPY above).

COUNTRIES WORKED, 2001

CALL	CW	SSB	RTTY	MIXED
M0BIB	-	-	-	184
G4OBK	-	-	-	176
G3SXW	161	0	0	161
G3IGW	158	0	0	158
G4DUW	102	120	-	125
G0TSM	75	54	7	107
GM4FAM	-	-	-	102
M0CAL	0	75	0	75
G3MDH	0	72	0	72
GM4OBK	-	-	-	52
M5AEF	12	48	0	52
G4MUW	0	51	0	51
GI0NQC	0	6	40	46
G3YVH	19	16	-	30
M0ASJ	-	-	-	21
M0CNP	0	4	0	4
MU0FAL	80	87	-	-

RK2FWA or UA2FM must be addressed to Victor Loginov, PO Box 73, Kaliningrad, 236000, Russia. Victor recommends sending QSL cards for RK2FWA or RW2F via DK4VW, as mail to Russia is often interfered with.

The text on IRCs (International Reply Coupons) says they can be used in any UPU (Universal Postal Union) country. For a listing of these countries check out the UPU web page. Not only do you get a listing of which countries are in the UPU, but also you can find the official abbreviations of the country names. Also, Bill, W9OL, has a QSL IRC / $ page on the Internet.

TABLES

I HOPE EVERYONE is now familiar with the new format. Countries count only once per mode, regardless of band. This month I particularly enjoyed the update from Robin, M5AEF, who uses QRP (generally 1 watt) but has still put DX like YB in the log, as well as D68C on several bands.

THANKS

Special thanks go to the authors of the following for information extracted: *OPDX Bulletin* (KB8NW), *The Daily DX* (W3UR) and *425 DX News* (I1JQJ).

Please send items for the **July** issue by **19 May.** ♦

WWW.

3B6RF DXpedition:
www.Agalega2000.ch
Joe Musachia, W5FJG (7Z1AC):
http://sites.netscape.net/joeyjeep99usa/homepage
Stars and Stripes Island Award:
www.qsl.net/ab5eb/ssia
Penn-Ohio DX Society
http://hometown.aol.com/n3dqu/podxs.htm
Universal Postal Union:
www.upu.int/upu/an/Pays_membres.html
W9OL QSL IRC/$ page:
www.qsl.net/w9ol/
3G0Y DXpedition photos:
www.qsl.net/3g0y/3g0ypics.html
RSGB HF pages:
http://www.rsgb.org/operating/index.htm

HF F-Layer **Propagation Predictions** for **May 2001**

	7.0MHz	10.1MHz	14.0MHz	18.1MHz	21.0MHz	24.9MHz	28.0MHz
Time	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220	000011111220
(UTC)	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020	246802468020
*** Europe							
Moscow	999878899979	999999999999	999999999999	899999999998	599999999986	.9999999996.	.899999998..
*** Asia							
Yakutsk	....	1.......5764	888725678889	678888887787	457888875565	235667653353	..4556532.3.
Tokyo	.......79..	.......799..	.....789998.	....7889898.	....788888..	.....7.....	....
Singapore	6881	39997	389997	2789985	14789863	...12467872.	....234564..
Hyderabad	1677	5.......7899	73.....179999	575223689997	347656789975	.25777788742	..345556662.
Tel Aviv	86.....2667	763....26887	315322346763	1..111125431	....111.2211	....	....
*** Oceania							
Wellington	....	....	....	....	....	....	....
Perth	3775	17867	.......155.7	5	....	....	....
Sydney	.......58..	.......3781.	.....25665.	.....32.4.	....	....	....
Honolulu	....	....	....	....	....	....	....
W. Samoa	....	....	....	....	....	....	....
*** Africa							
Mauritius	9.......9999	9.......69999	98.....99999	.88...899999	.88878999997	..888899998.	..88888998..
Johannesburg	89.....7999	67.....9999	..2....29986	..62..27973.	..75446885..	..6656787...	..5556775...
Ibadan	99.....999	997.....8999	99998.899999	889999999999	679999999997	..998999997.	..89888998..
Nairobi	....	1..........	31.......12	43.....1244	1.1....12353	..221123452.	....223453..
Canary Isles	999.....8999	65883..59999	999998899949	999999999299	999999999999	999999999999	999999999999
*** S. America							
Buenos Aires	999.....99	9999.....999	99998....999	999898889999	999.99999999	989.89999999	7.8.89999999
Rio de Janeiro	999.....999	999.....999	9999.....999	99999..99999	999.99999999	9...99999999	99999999
Lima	999.....59	9997.....99	99993....199	878853..2699	536835435788	...6.5546775	...4.444565.
Caracas	881.....8	999.....89	9999.....599	768998..7899	...898888998	....8888897.	.....7..
*** N. America							
Guatemala	999.....9	9999.....89	99999.....99	999999999999	...999999999	.....999999.	.....9..
New Orleans	881.....	998.....7	888563...379	425..7667888	6777886	.....44676.	.....45..
Washington	98.....6	8991.....9	99985.5..489	877689899999	756479779998	4...57668887	645777
Quebec	88.....8	987.....79	436864467888	..3554468863	...33224663.	.....234..	.....3..
Anchorage	....	776.....	988877668777	7676..778888	6.6...666677	.....6.	.....
Vancouver	.3.....	576.....	6673..211245	223....15653	.....232.	.....	.....
San Francisco	284.....	7883.....1	7786222..136	4453..344565	33554	.....2.	.....

Key: Each number in the table represents the expected *circuit reliability*, eg '1' represents reliability between 1 and 19% of days, '2' between 20 and 29% of days etc. No signal is expected when a '.' is shown. **Black** is shown when the signal strength is expected to be low to very low; **blue** when it is expected to be fair and **red** when the signal is expected to be strong.

The RSGB Propagation Studies Committee provides propagation predictions on the Internet at www.g4fkh.demon.co.uk The page is updated monthly. The provisional mean sunspot number for March 2001 issued by the Sunspot Data Centre, Brussels, was 114.2. The maximum daily sunspot number was 258 on 28 March and the minimum was 51 on 17 March. The predicted smoothed sunspot numbers for May, June and July 2001 are respectively: (SIDC classical method – Waldmeier's standard) 93, 92, 90 (combined method) 122, 123, 124.

BOB TREACHER, BRS32525
93 Elibank Road, Eltham, SE9 1QJ.
E-Mail: brs32525@compuserve.com

SWL

WELL, THE much vaunted month of super DXpeditions in February probably was, to most SWLs, rather a damp squib. Although listeners in Italy were revelling in 59 signals on 28MHz from AC4G/KH9, 3D2AG/P, T32RD, 3D2CI and FO/DL1AWI, SWLs in the British Isles had to suffer hours of frustration as poor band conditions (SFI in the 130s to 140s) rendered their signals inaudible. How did I fare? . . . not very well! Only two new band slots were achieved: the FO on 28MHz and the T32 on 24MHz, when there was hope of many more.

Far more productive were the DXpeditions to Syria (YK9A) - heard on 28, 21, 18, 7, 3.5 and 1.8MHz; the Comoros (D68C) - heard on nine band / modes, including 1.8MHz SSB; and St Peter & Paul Rocks (PW0S) - heard on all bands from 28 - 7MHz.

Although I am somewhat biased, being part of the D68C Support Team, I feel sure that I echo all British SWLs sincere congratulations to D68C on an absolutely first class DXpedition. The team had consistently good signals on all bands, were audible at almost any time of the day - and when was the last time you heard a DXpedition station announcing its callsign after every one or two QSOs? It was a real pleasure to listen to the operators' operating technique and to have heard, arguably, the best DXpedition of all time.

At the time of penning this column, I have already received 80 direct QSL requests - some for 20 band / modes - and I am receiving quite a few entries for the SWL Nevada Comoros Challenge. Entries should reach me by 30 April, so you still just have time to send me your entry. D68C QSL cards will be in the post as soon as I receive the cards - you will not be disappointed.

Things were supposed to quieten down after the avalanche of available DX in February, but it didn't quite work out like that as we were lucky to have the 'sweet' following the 'main course': 3Y0C, 5U2K, 9M0M, BQ9P, VK9EHH and 3G0Y. For the newer SWL, February and March could have provided a real bonanza of new countries; I do hope so.

CQWW SWL CHALLENGE

I AM PLEASED to present the results of last year's CQWW Challenge in this issue. I must thank Mick Toms, BRS31976, for his invaluable assistance in helping to check the logs. Mick's help has certainly allowed the results to be published much quicker than last year. I hope that the earlier appearance of the results will lead to a larger entry this October.

There were 50 entries to the various categories this year and I am pleased that Jean-Jacques Yerganian, ONL383, won both the SSB and CW sections with impressive totals. On the home front, I am delighted that Mark Deacon, BRS46566, was third, and Gavin Tomlinson, BRS91529, fifth in the SSB single-operator section. It was good to see Simon Grant, RS173787, come home in eighth place. In the Multi-Multi category my London SWL team held off challenges from teams of Dutch and German SWLs to set a new world record score of 1.44M as a result of hearing 666 country multipliers during the SSB contest weekend. In the CW section, Robert Small, BRS8841, was second. A results booklet has been produced and is available from me for £1 (to cover printing and postage: the Challenge receives no sponsorship).

CQWW SWL CHALLENGE RESULTS - SSB

SINGLE OPERATOR

	SWL	MULT	28	21	14	7	3.5	1.8	Score
1	ONL383	590	133	121	132	95	69	40	1,092,680
2	OM3-27707	496	135	104	120	70	44	23	795,088
3	BRS46566	494	113	113	107	73	48	40	720,525
4	OE-527/ADXB	439	128	91	81	66	45	27	575,529
5	BRS91529	444	111	84	90	64	51	44	541,680
6	ONL3647	433	119	102	71	62	47	32	521,765
7	F-11556	414	127	82	87	64	26	28	517,500
8	BRS173787	401	93	79	86	60	44	39	423,055
9	SM3-8055	391	108	94	79	44	36	30	406,249
10	UA3-170-847	392	69	80	88	57	54	44	404,544
11	F-17789	371	86	71	76	58	42	38	368,774
12	DE0RFE	367	99	67	76	57	37	31	362,229
13	BRS8841	349	82	69	88	52	37	21	347,953
14	ONL-4335	342	86	60	73	54	35	34	333,792
15	DE1HCS	346	86	77	64	53	39	27	316,590
16	RS95258	324	82	74	67	41	41	19	300,672
17	NL-455	326	83	66	65	53	36	23	283,294
18	F-14846	308	82	66	58	46	30	26	235,312
19	F-20553	298	77	60	69	42	37	13	229,460
20	G1WFM	288	74	69	65	44	26	10	214,272
21	F-12921	275	88	71	49	30	21	16	201,025
22	F-14217	239	109	60	70	0	0	0	185,942
23	BRS88921 (GM)	293	62	57	46	53	42	33	183,711
24	G7RSK	271	38	55	59	55	35	29	166,665
25	F-11734	253	73	64	45	32	24	15	165,462
26	ONL5923	263	77	33	52	42	35	24	164,901
27	ONL3997	249	94	59	42	23	19	12	158,613
28	F4ANS	214	57	40	50	31	23	13	111,494
29	NL-290	219	36	41	23	50	39	30	110,157
30	OKL7	198	36	39	58	31	34	0	90,684
31	ONL6945	185	52	54	48	21	10	0	80,845
32	ONL2372	174	13	32	58	31	29	11	65,076
33	ONL4638	128	21	30	31	20	6	0	61,056
34	F-16133	160	63	36	39	22	0	0	56,000
35	DH2URF	159	32	37	31	30	29	0	55,491
36	OE1-0140	275	127	17	54	66	11	0	43,175
37	VE3ODX-SWL-03	66	30	8	28	0	0	0	18,810
38	F5NLX	63	20	20	15	8	0	0	3,959

MULTI-MULTI

1	RS178500	666	150	131	143	109	81	52	1,443,888
2	NL-6600	495	113	115	110	63	51	43	695,970
3	DE7BME	375	120	81	47	58	43	26	424,875

MULTI-SINGLE

1	BRS88568	306	71	79	61	48	36	11	250,308

CQWW SWL CHALLENGE RESULTS - CW

SINGLE OP

	SWL	MULT	28	21	14	7	3.5	1.8	TOTAL
1	ONL383	572	122	109	104	104	80	53	995,280
2	BRS8841	372	58	81	82	67	43	41	375,720
3	UA3-170-847	293	51	53	58	51	42	38	179,609
4	OKL7	263	59	44	37	47	43	33	148,069
5	I3-325/VE	206	35	34	33	35	34	35	76,220
6	ADXB/OE-527	162	43	25	18	35	18	23	59,778
7	F5NLX	144	15	43	33	38	15	0	36,432
8	NL-455	123	37	22	19	27	21	17	24,846

ROUND-UP

IT WAS GOOD to hear recently from Simon Wood, RS180399, and Edward Turnbull (who did not quote his RS number). Simon is 26, lives in south Devon and uses a Lowe HF-225 receiver and 10m long wire for HF reception, and an AOR-950 and Icom IC-R2 scanner for VHF. Unfortunately, his job keeps him away from the receiver more than he would like. He started SWLing in much the same way that I did: his parents bought him a small airband radio and his interest grew from there. Simon would really like to improve his 3.5 and 1.8MHz receive capabilities (he is not alone!) Assuming we're talking wire antennas, the key is to have the space to erect a much longer antenna and to be able to run it from a decent height. A half-wave sloping dipole cut for the top end of 3.5MHz (if you're an SSB man) is a good starting point. The higher you can get the end you connect to the centre core of the coax, the better. Such an antenna would also double as a fairly good antenna for 1.8MHz.

Edward lives in Northumberland and is a keen amateur listener, but from his letter, an even keener broadcast band listener. He brought to my attention a bi-monthly news magazine, *WML SWD*, issued by W M Lee in Malaysia. This publication has news of BC reports, QSLing, and general SWL topics. If you are interested in BC listening you might care to send an e-mail to: wmlee69@hotmail.com and ask for a copy of his *Shortwave Desk* newsletter. ♦

ATV

ROGER JONES, G3YMK (SK)
& TREVOR BROWN, G8CJS
c/o RSGB HQ

LATEST CLEARED ATV REPEATERS

No new ATV repeaters have been cleared as at 1 April 2001. The outstanding repeater proposals submitted for licensing or modifications to NOVs are:

Call sign	Application type	Process stage	Proposer/ keeper
GB3PT	New 23cm, Isle of Wight	RA	G8CKN
GB3TX	New 23cm, Northern Ireland	Primary User	GI6AXD
GB3VW	New 13cm, East Yorkshire	RA*	G7MFO
GB3VL	Power increase, Lincoln	Primary User	G7AVU
GB3TB	New 23cm, Torbay**	RA	G0EKH
GB3IT	New 23cm, Ipswich	Letter of Intent	G7OCD

* Original output frequency of 2380MHz was not accepted. Revised application for 2435MHz output has been submitted.
** GB3TB is planned to replace the existing GB3WV which will be closing down.

SADLY, ON 16 February Roger Jones, G3YMK, passed away in hospital. Roger was 52 and leaves a his wife Sheila, son Tony and daughter, Linda. The last contact I had with Roger was a short e-mail: "Just to let you know that my father has become quite ill and will be in hospital for the near future. He is keen to let everyone know he will be back on-line ASAP. Thanks, Linda Jones".

Roger started, but did not manage to complete, his last ATV column. I see I featured quite prominently in Roger's column, so I hope he would have approved of me completing it for him. The first three items are his.

DIGITAL ATV

BATC CHAIRMAN, Trevor Brown, enters the debate regarding the future of Digital ATV in his column in the latest edition of *CQ-TV 193*. Trevor poses the question as to which technology will prevail with the multitude of compression engines becoming available. Traditionally, TV systems have been designed such that the receiver can be as simple as possible, but with modern processing very sophisticated techniques are becoming increasingly possible. The driving force must be the use of our 70cm band for Digital ATV, compatible with all of the other users of the band. Experiments in Germany show promise and Trevor describes these in his article

Trevor is anxious to point out that, whilst the prospect of digital ATV is very exciting and opens up the prospect of much experimentation, the future of analogue ATV is far from dead. With the emergence of inexpensive video transmitters and low cost cameras, ATV remains one of the fastest growing aspects of amateur radio.

PLUG-N-PLAY ATV

A COMPREHENSIVE range of modules to build ATV stations from 23cm to 10GHz is available from Wyzcom based in Northern Ireland. As well as fully synthesised 23 and 13cm transmitters, a complete DRO stabilised 10GHz transmitter system is offered which forms a good basis for repeaters and several of these are in use throughout Europe giving very good performance. Compared with other methods of generating 10GHz, it is free of the drift problems encountered when trying to lock free running oscillators - this is particularly important if your repeater site is way up a mountain many miles away! The cost is reasonable also.

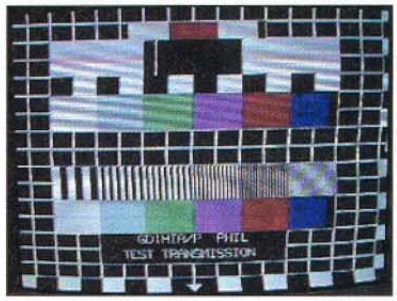
WORST KEPT SECRET?

ATV ENTHUSIASTS from all over the UK and Europe will be making their way to Bletchley Park near Milton Keynes on 6 May for the BATC Annual Rally. As well as the usual specialist traders and car boot sales, numerous demonstrations of specialist techniques will be on offer during the day. Members of BATC will be on hand to explain and encourage visitors into the hobby. There will also be representatives from the RMC present, so this might be your opportunity to sort out any queries regarding ATV repeaters face-to-face. Full details of the rally can be found on the BATC website.

REPEATER NEWS

THE ANGLESEY repeater, GB3TM, relayed some interesting pictures during March from Phil, GD1HIA/P, operating portable from the Isle of Man (see photograph). Phil travelled there and joined forces with Stan, GD3LSF. They had hoped to use Stan's repeater site on Snaefell but, due to extreme weather conditions, had to settle for a much lower car park (NGR SC415818). Phil managed a P3 signal into GB3TM, a distance of 91km using 12 watts and an Alford slot, and was grateful for the reports from MW0BLU, GW4KAZ, GW3MEO, GW0BCR, GW3JGA, GW0ABL and GW6KFH.

On 8 March, Stan and Phil used a location at the far south of the island (NGR SC199672), and worked into Eire and Northern Ireland, and again into GB3TM, Anglesey. He also managed an all-time first from GD with a P5 picture on 3cm from Angus, GI7RGM. This was also an ATV first on 3cm out of Northern Ireland, with 250 milliwatts. A full report of the test in the Isle of Man can be found on their website.



GD1HIA's test card - see 'Repeater News'.

FEATURED REPEATER

The North Wales ATV Repeater, GB3TM

GB3TM CAME ON-AIR in July 1994 and has been in continuous operation since that date. During this time there have been only two failures, a seized cooling fan and a fractured connection in the aerial. From the electronics aspect, the repeater has been extremely reliable.

The transmitter consists of a Worthing crystal-locked transmitter unit feeding a Mitsubishi M57762 integrated circuit block amplifier, providing an output power of approximately 16 watts at 1316MHz. The receiver comprises a modified Satvern TDM-2000 satellite receiver, set to the input frequency of 1249MHz and fitted with a low noise two-stage GaAsFET pre-amp.

The linking and logic control of the transmitter and receiver are provided by the BATC I2C system. This contains a CPU card with Z80 processor, RAM and EPROM memory, and a VDU card containing a Teletext chip set which provides gen-locking and BBC Mode 7 graphics for caption and news pages.

In addition to the control system, a Maplin PAL coder is used for encoding stored pages and an FSK decoder is provided for up-dating the news pages remotely. Video and audio switching cards complete the signal part of the repeater function.

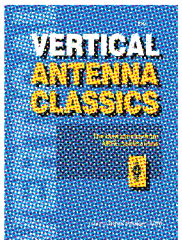
The transmit and receive aerials consist of two separate Alford slots. These are mounted one above the other on an existing PMR lattice tower at the 10-metre level. Band-pass filters are fitted to both the transmitter and receiver aerial connections.

The repeater site is located on a high ground near Amlwch on the north-east coast of the Isle of Anglesey at SH 472 909. It has a good sea path to the whole of the North Wales and Lancashire coasts. GB3TM is also accessible to GD under normal conditions and to EI under 'lift' conditions. The GB3TM Repeater Keeper is GW8PBX (QTHR). ♦

WWW.

www.coldal.org.uk/rmc.htm
RSGB RMC Site
www.batc.org.uk
BATC site
www.cq-tv.com
BATC site
www.qsl.net/g1hia/gd1hia.html
Isle of Man
www.videorepeater.co.uk
Worthing Group

RSGB BOOKSHOP



Vertical Antenna Classics
Articles on the art and science of the vertical antenna.
128pgs
ONLY £11.04
£12.99 (non-members)

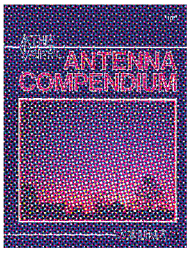
Antenna Impedance Matching
A must for the antenna designer.
224 pgs
ONLY £11.04
£12.99 (non-members)

Practical Antennas for Novices
Easy to build antenna systems.
183x243mm - 52 pgs
ONLY £1.00

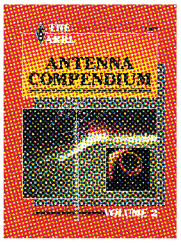
Stealth Amateur Radio
Adventure into the world of hidden stations and invisible antennas.
ONLY £11.04
£12.99 (non-members)

HF Antenna Collection
An invaluable collection of outstanding articles.
184x245mm - 233pgs
ONLY £8.49
£9.99 (non-members)

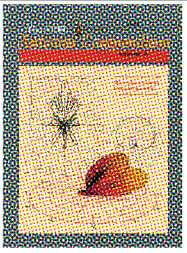
The Antenna Experimenter's Guide
Adjust any antenna to work with maximum efficiency.
244x183mm - 160 pgs
ONLY £15.29
£17.99 (non-members)



ARRL Antenna Compendium
Vol 1- Articles on a multiband portable, quads & loops etc.
176 pgs
ONLY £9.34
£10.99 (non-members)

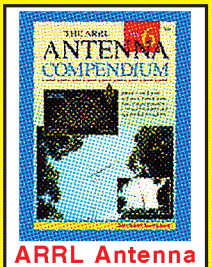


ARRL Antenna Compendium
Vol 2 - Wide range of antenna types and related topics.
216 pgs
ONLY £11.04
£12.99 (non-members)

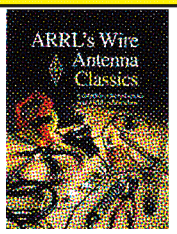


ARRL Antenna Compendium
Vol 3 - Antenna designs and much more
240 pgs
ONLY £11.04
£12.99 (non-members)

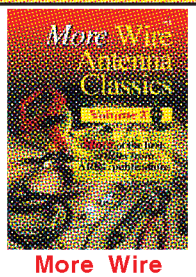
ARRL Antenna Compendium
Vol 5 - Coverage of baluns, low-band Yagis and more! - 208 pgs
ONLY £15.29
£17.99 (non-members)



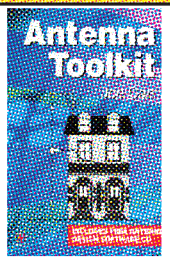
ARRL Antenna Compendium
Vol 6 - More all-new articles for the antenna experimenter.
ONLY £16.99
£19.99 (non-members)



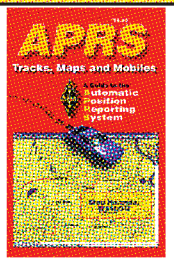
ARRL Wire Antenna Classics
Devoted to wire antennas, from the simple to the complex
ONLY £11.04
£12.99 (non-members)



More Wire Antenna Classics
Filled with even more wire antennas!
ONLY £11.04
£12.99 (non-members)

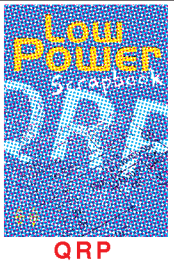


Antenna Toolkit
(Book & CD)
Comprehensive handbook for antenna experimenters
ONLY £21.24
£24.99 (non-members)

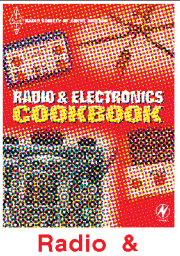


APRS Tracks, Maps & Mobiles
A guide to the Automatic Position Reporting System.
135x210mm - 224pgs
ONLY £11.04
£12.99 (non-members)

RSGB Technical Compenium
All of the technical features from the 1999 RadComs.
297x210mm - 320 pgs
ONLY £15.29
£17.99 (non-members)



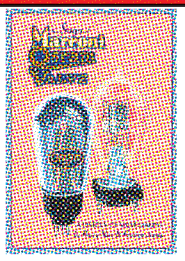
QRP Low Power Scrapbook
133 of the very best projects from Sprat magazine
A5 - 320 pgs
ONLY £11.04
£12.99 (non-members)



Radio & Electronics Cookbook
A wealth of ready-to-build electronics projects. 160pgs
ONLY £14.44
£16.99 (non-members)

RSGB BOOKS ARE AVAILABLE IN BOOK STORES ASK FOR 'GARDNERS BOOKS WHOLESALE'

Marconi's Atlantic Leap
Special offer members only
25% off
250x175mm - 98 pgs
ONLY £5.25
£6.99 (non-members)



The Saga of Marconi Osram Valve
A history of valve making.
241x170mm - 346 pgs
ONLY £21.24
£24.99 non-members)

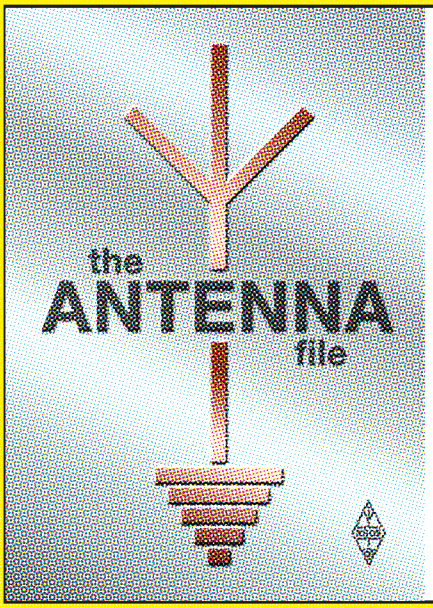
CALL THE RSGB ONE-STOP SHOP

TEL: 0870 904 7373
FAX: 0870 904 7374
E-mail: sales@rsgb.org.uk

For full catalogue: www.rsgb.org/shop

(All books are subject to p&p £1.50 for 1 item - £2.95 for 2 or more)

ANTENNAS



The Antenna File

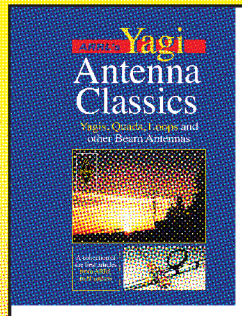
The Radio Society of Great Britain produces some of the best works on antennas and this is a collection of that work from the last ten years. This book contains 288 pages of articles drawn from the Radcom magazine and includes:

- 50 HF antennas, 14 VHF/UHF/SHF antennas, 3 receiving antennas, 6 articles on masts and supports, 9 articles on tuning and measuring, 4 on antenna construction, 5 on design and theory, and 9 Peter Hart antenna reviews.
- Every band from 73kHz to 2.3GHz
- Beams, wire antennas, verticals, loops, mobile whips and the G2AJV Toroid

In fact everything you need to know about antennas and how to get the best out of them.

A4 publication

ONLY £16.14 - £18.99 (non-members)



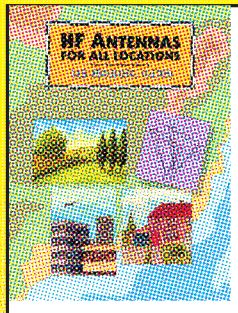
ARRL's Yagi Antenna Classics

— Yagis, Quads, Loops, and other Beam Antennas

Enjoy this collection of some of the very best articles from *QST*, *QEX*, *NCJ* and other ARRL publications. The beam antennas covered in this book will provide the reader with a historical perspective, new and ambitious ideas, and computer-optimized designs for all-around best performance.

208 pages

ONLY £12.74 - £14.99 (non-members)

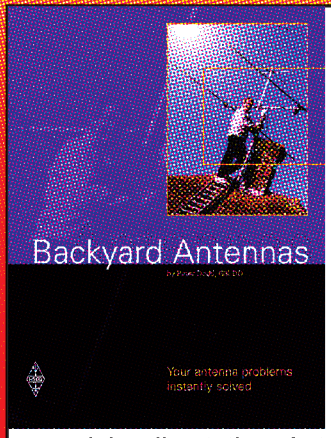


HF Antennas For All Locations - 2nd Edition

A thought provoking book which has been a major contribution to the state of the art from an acknowledged expert. It explains the 'why' as well as the 'how' of HF antennas, and takes a critical look at existing designs in the light of latest develoments. This edition has been completely revised and greatly expanded, there are more novel antenna designs, including beams which cover more bands with fewer problems, and much more.

322 pages

ONLY £6.79 - £7.99 (non-members)

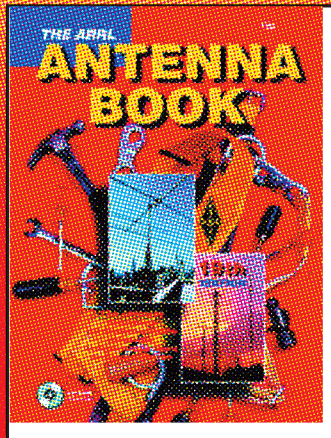


Backyard Antennas

Radio amateurs and shortwave listeners all want to chieve the very best from their HF and VHF equipment. Receivers and transmitters are available to professional standards, but very few people have the real estate to erect the sort of antenna used by a commercial radio station. Antenna guru Peter Dodd explains how, by using a variety of simple techniques, it is possible to achieve very high performance from a compact antenna. Also detailed is how to make an antenna efficient on several bands at once.

208 pages

ONLY £16.14 - £18.99 (non-members)



The ARRL Antenna Book

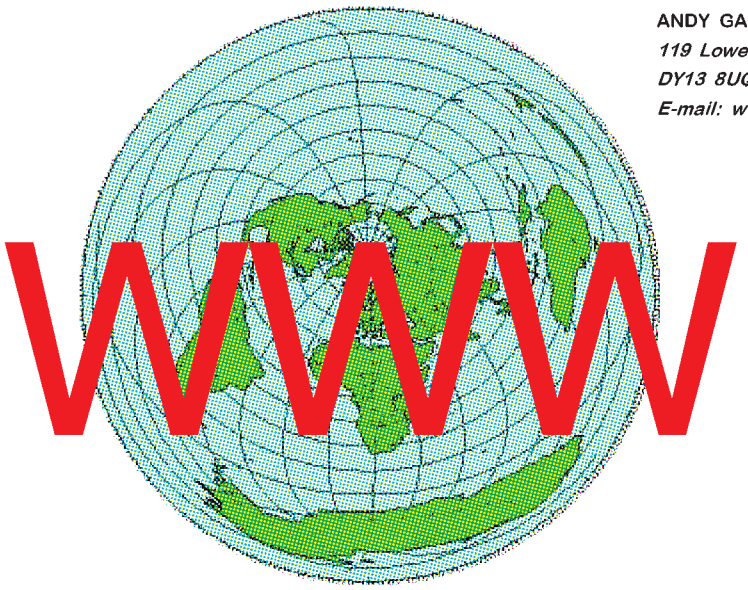
19th Edition

You need REAL-WORLD antenna solutions. Use this extensively rewritten edition to design and build antennas using modern materials (antennas that work for you and your station!). The latest computer modeling techniques have improved traditional antenna designs. Find a new treatment of broadband antennas; gain and size comparisons for multielement arrays; and updated information on log periodic, quad, long-wire and traveling-wave antennas.

816 pages

ONLY £23.79 - £27.99 (non-members)

For full information visit our website www.rsgb.org/shop



ANDY GAYNE, G7KPF
119 Lower Lickhill Road, Stourport-on-Severn, DY13 8UQ.
E-mail: www.radcom@rsgb.org.uk

FROM TIME TO TIME I receive recommendations for web sites that don't quite warrant in-depth reviews, because the subject matter may be a little too specialised or perhaps the site content is not large enough to attract detailed analysis. Such sites are still valuable resources, so this month I have decided to provide *RadCom* readers with some brief overviews of a selection of these sites.

The response to my request for feedback earlier in the year was an almost unanimous call to keep the content of reviews at about the same level as before. In future columns, I will attempt to provide readers with the detailed reviews they expect, but I hope you don't mind this one-off deviation from the normal format.

WATCHING THE BANDS

SOME TIME AGO Gwyn Williams, G4FKH, Vice Chairman of the RSGB Propagation Studies Committee, asked me to mention his HF F-layer propagation predictions page [1], which is an on-line version of the predictions listed in *RadCom*. The page was described as experimental, with continuation being dependent on the level of interest shown. It is now well over a year since the page first went live and Gwyn is still updating it with current information, so the experiment would seem to have been a success.

Anyone interested in two-metre operation would benefit from a visit to the 144MHz News web site [2] produced by Derek, G0NFA. The site is well maintained, with updates almost daily, and contains news of band conditions, DXpeditions, contests, meteor showers, solar forecasts, and anything else relevant to operating on one of the major VHF bands. A low graphic content makes the site quick to load, but a lot of information is presented to the reader in one go, which can be off-putting, so make sure you have plenty of time for reading and exploration when visiting 144MHz News.

The web site of G3ZHI [3] has particularly impressed Dave Keely, GW0OGI. Concentrating on amateur radio to Internet linking, the site gives an easy-to-read history of linking in the UK, as well as describing in simple terms the technical and bureaucratic processes involved in setting up a repeater link. The site also hosts a comprehensive I-Phone chat room page, with portals to a wide variety of Internet linked repeaters and off-air chat rooms. The site is completed by the inclusion of a selection of links (displayed using a dreadful font), web cams, and details of the GB3US repeater [see the April *RadCom*, pp39/40 - *Ed*]. In my opinion the presentation of the site could do with improving (making it 800x600 friendly would be a good starting point), but the information contained within it is nevertheless worth a good look.

BOARDS AND DIRECTORIES

NOVEMBER 2000 SAW the creation of the FT-100 Bulletin Board [4] by Steve Burrows, G7BXB. This is an unusual but interesting concept, whereby owners of this particular model of transceiver can exchange news, views and ideas, as well as discussing problems and modifications. The bulletin board will be of little interest to non-owners of FT-100s, though it may prove to be a useful source of genuine comments about the equipment for anyone considering purchasing one. I can see this idea spreading to other common makes and models of equipment, both current and vintage.

Bob Smith, G3LVW, has identified an extremely comprehensive directory of electrical data, in the form of the Electrical Engineering Links page [5]. Compiled by Bruce Carter, a self-proclaimed 'op-amp expert', the site provides links to manufacturers of a wide range of electrical and electronic products, including batteries, capacitors, inductors, semiconductors, etc. The links are well organised, both by product type and alphabetically, making this site a worthy bookmark for those with an interest in the practical side of the hobby.

Those wishing to improve their foreign language communication skills might like to take a look at Travlang's 'Foreign Language for Travelers' (*sic*) [6]. Recommended by Andy Napier, GM1TBW, the site can help with translations to and from well over 70 different languages, ranging from Afrikaans to Zulu. Intended for holidaymakers, the site presents groups of words covering basic phrases, numbers, travel, times and dates, and so on, much of which is relevant to radio communications. A sound file can be played for any of the words listed, allowing you to perfect their pronunciation. So, for example, the next time you make contact with a fellow radio enthusiast from the Czech republic, you will be able to confidently sign off with "na shledanou".

NEW EVENT

EARLIER THIS YEAR, support was being canvassed for a new event, namely the National Museums On-the-Air Weekend [7], planned for the weekend of 2/3 June 2001. Promoted initially by Harry, M1BYT, and Geoff, M0BGS, the event is following the successful theme pioneered by the likes of castles and lighthouses on the air, and gives clubs and societies around the country another opportunity to raise the awareness of amateur radio in their local communities. ♦

Learn how to pass greetings in a multitude of languages.

WWW.

[1] www.g4fkh.demon.co.uk (HF F Layer propagation predictions)
[2] http://members.aol.com/g0nfa/144news.html (144MHz news)
[3] www.qsl.net/g3zhi (G3ZHI Internet linking)
[4] http://pluto.beseen.com/boardroom/x/48479/ (FT-100 bulletin board)
[5] www.mindspring.com/brucec/links3.htm (EE links page)
[6] www.travlang.com/languages (Language translations)
[7] www.qsl.net/m1byt (National museums on-the-air)

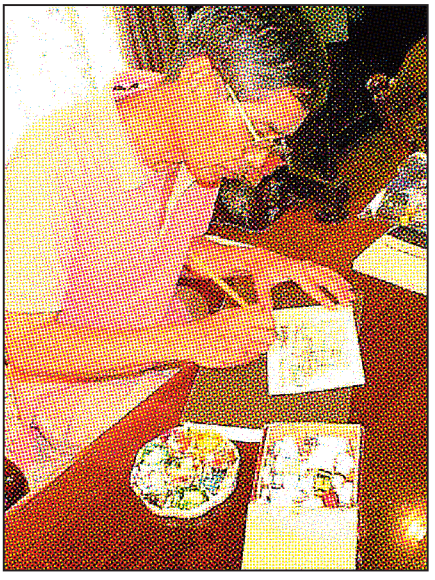
QRP QRP QRP QRP QRP

REV GEORGE DOBBS, G3RJV
St Aidan's Vicarage,
498 Manchester Road,
Rochdale OL11 3HE.
E-mail: g3rjv@gqrp.com

ALTHOUGH amateur radio is a truly international hobby, it is surprising how many significant things happen in the hobby known only to local or particular participants. For many years one of my favourite little journals has been the *Fancy Crazy Zippy*. "Fancy-Crazy-What?" you may say. The *Fancy Crazy Zippy* is an excellent little experimenters' magazine produced for 25 years by Tadashi Okubo, JH1FCZ. It is published in Japan as an adjunct to JH1FCZ's small business, The Fancy Crazy Zippy Labs. During these 25 years, Tadashi has produced a range of small kits and products around his individual experimentation and the *Fancy Crazy Zippy* has been the outlet for this information. Sadly it is only published in Japanese, but I have gleaned much from simply reading the circuits.

Amongst the more notable ideas to emerge were the 'Super VXO', a technique for making a wide-range variable frequency crystal oscillator by using two identical crystals in parallel and the 'Hentenna', a novel antenna for 6-metre operation. The Super VXO has recently enjoyed a revival amongst QRPers and the Hentenna has been a reliable design ("Hen" means "strange" in Japanese) for 6-metre usage in Japan. The 300th edition of the *Fancy Crazy Zippy* magazine was publishing in January 2001, with the sad news that it was the final issue. The outlet for the JH1FCZ ideas will now be a website at www.fcz-lab.com. Currently it is in Japanese only, but English pages are promised.

I had the pleasure of meeting Tadashi on a visit to Japan a couple of years ago. I had a glorious day in the FCZ Lab, which is the front portion of his expensive house. Much to my gratification, the 'laboratory' proved to be as untidy as my own workbench. One of the features of the *Fancy Crazy Zippy* magazine has been the delightful hand drawn illustrations of equipment and places. So not surprisingly, JH1FCZ proved to be an accomplished artist and I treasure the pen-and-wash individual QSL card he gave me on my visit (see photograph).



Tadashi, JH1FCZ, makes an individual pen-and-wash QSL card for G3RJV.

QRP AND PSK31

THE DIGITAL mode PSK31 (phase-shift-keyed 31 baud) has captured the imagination of many QRP operators and has proved to be a very successful mode for QRP operation and *SPRAT*, the journal of the G QRP Club, now has a regular column by Dick Pascoe, G0BPS, reporting on PSK31 and other digital modes.

In the annual G QRP Club 'Winter Sports', Dick was the first QRPer to use only PSK31 for the whole event. He made contact with 104 stations in 36 countries. The best of the rarer ones were Bosnia, Paraguay, Algeria, Turkey and Kuwait and later the Gambia, Malta and Cuba. Dick's equipment was a TS-520SE transceiver with an FC-107 ATU. The power used was always under 5 watts. Should anyone reading this column want to report PSK31 successes to Dick, his e-mail address is Dick@trickie.com

Richard Constantine, G3UGF, recently e-mailed me saying, "PSK31 is impressing the hell out of me at the moment! It might not be far but I am regularly working the US on 5W of PSK on the higher bands, 18/24/28, at 599 copy. I was particularly pleased to work Paraguay recently on 5W and a vertical antenna."

Hands Electronics has recently introduced a dedicated PSK31 transceiver in kit form. The DAT20 transceiver is a stripped monoband SSB transceiver with a built-in interface ready for direct connection to a PC soundcard. With a suitable crystal change on the local oscillator, the unit will also handle MFSK using the *Stream* software or RTTY with the *MMTTY* program. The kit is presented for 20-metre operation, but the circuit will run from 1.8 to 30MHz with a change to the low-pass and band-pass filters. The transceiver design was published in the Spring edition of *SPRAT*. Details can be obtained from Hands Electronics, Tegryn, Llanfyrnach, Pembs SA35 0BL.

AMATEUR RADIO AND YOUNG PEOPLE

THE QRP ARCI in the USA runs a forum each year called 'Four Days in May', linked to the giant Dayton Hamvention. This year, as part of its construction competition, it is introducing a project called 'QRP and Youth' (QRPy). I will leave you with an extract from the words of Ken Evans, W4DU, describing this interesting approach which might inspire us here in the UK?

"In recent years, many of us have lamented the lack of youth in our hobby. With the ARRL announcing the 'Big Project', QRP ARCI decided to join this effort and tap some of the most creative minds in amateur radio (QRPers). Let's think outside the box and design some projects with kids in mind. Here are some ideas:

- Kids love to talk with each other via 'secret' means; perhaps we could give them something more personal using an analogue, low-power wireless link - one that works across a room or gymnasium. If it gets the message across and is easy to build, they just might try it.
- Kids do love to learn, and they are, at times, required to construct science fair projects. How can we tie radio in with their study of science? How about a small, well-designed kit that makes visible certain principles of physics, and does something cool at the same time? Please, not just another laser pointer!
- Imagine a nicely-packaged, easy-to-understand short-wave broadcast radio kit, accompanied by a very relevant pocket guide to the stations they're likely to pick up.
- One could imagine a QRPy design entry that involves only software.
- In *Star Trek, The Next Generation*, 'Jordy' has super-vision that covers a broad spectrum. Can we build a simple device that captures 'invisible' signals from ultrasonic to microwave, then re-packages them as human-scale audio or a simple visual display? Its antenna could exploit acoustics, magnetics and optics all at the same time. It would provide a new way of understanding and thinking about the world.

"As you can see, we have left this wide open. It does not have to be a 'ham radio' project (but it can). We want to assist kids to find the fun in learning and building. Let's see if we can generate some excitement!" ♦

LF

DAVE PICK, G3YXM
178 Alcester Road South,
Kings Heath,
Birmingham B14 6DE.
E-mail: lf.radcom@rsgb.org.uk

THE PETER Bobeck Award (in memory of DJ8WL) for the first G/VE QSO has been presented to *five* amateurs! How did the first trans-Atlantic QSO involve five stations? Well it happened like this:

One of the prime movers in trans-Atlantic tests - Larry, VA3LK (Westport, Ontario), had commenced a test with Laurie, G3AQC, on 5 February. The aim was to use very slow CW with 90 second dots, exchanging part of the QSO during each night's opening. No other mode of communication was open between them. The band wasn't open on many of the nights and Larry had some antenna problems due to bad weather, but the QSO was finally completed in the early hours of 19 Feb when Laurie received his report back from Larry. A fantastic achievement as it is certainly not the easiest of paths.

In the middle of all this Peter, G3LDO, was conducting tests with Jack, VE1ZZ (Halifax, Nova Scotia). Jack puts out a good signal which has often been received in G, but he has no computer equipment. This difficulty was overcome on 13 February by using John, VE1ZJ, as an intermediary. He received Peter's transmission on 136kHz and passed the report across to Jack on 80m. Jack was able to use 3 second dots (hand sent!) whilst Peter used 10 second dots.

So it was hard to say who made the first trans-Atlantic QSO and whether either of the unconventional approaches qualified as a valid QSO.

There is no doubt however that signals passed both ways across the Atlantic in pursuance of a QSO and, in the end, the joint committees of DARC, AMRAD and RSGB decided to give plaques to all concerned. They also decided to clarify the conditions of the award for the first W to Europe QSO should the FCC licence the band for amateur use.

What happens now? Well, Larry is attempting to get a signal down to ZL or VK, a much bigger challenge than the Atlantic crossing. This will probably need something a bit more high-tech than very slow CW and various forms of BPSK are being tried. Most of the bigger signals from G have been heard in VE, many in W too, so it's entirely possible that next winter will see trans-Atlantic QSOs into mainland Europe. So far, SM6PXJ has been copied in VE and CT1DRP has been copied in both VE and W.

RECORDS

IT SEEMS THAT I was mistaken last time with the 73kHz CW record so let's put things straight in the table below. If I have missed any out, please let me know!

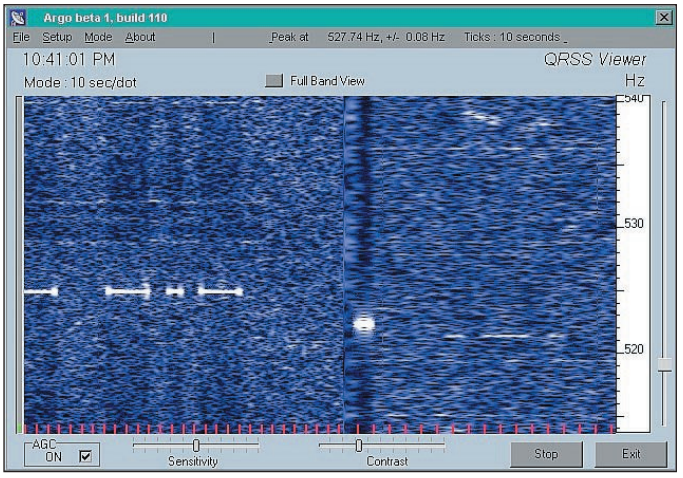
SUMMER JOBS

NOW THAT the evenings are light and the weather is warmer it's time to pay some attention to the aerial system which may have been neglected over the winter. Insulators are an often forgotten item, make sure yours are in good condition. If you run low power, poor insulators will just make you weaker, if you run QRO they will catch fire! The other thing that may need attention as spring continues is foliage. If there are any leafy plants near the aerial, consider a bit of judicious pruning. It's amazing how much a leafy branch can lower the Q of an aerial system if it is close to it.

The efficiency of the system also depends on how good your ATU is. We all go to great lengths to wind big coils out of good wire but tend to forget that the Q can be destroyed by putting the coil in the wrong place. I have mine in a special hut in the garden, next to the hedge. Foliage again! I have recently increased aerial current by over 10% now that I have screened the coil by lining the hut with aluminium. The same would be true of a coil indoors next to a wall or other lossy structure.

The best place for a loading coil is, of course, well out in the clear and as high up the vertical part of the aerial as possible. The law of diminishing returns applies here though - the higher up the aerial the coil goes, the higher its inductance must be and consequently its loss. Tests conducted by ON7YD and G3XDV prove that there is a measurable advantage in placing the coil just below the top loading and, as they say "every little helps"! ♦

136kHz		
Slow CW two-way:	VA3LK / G3AQC	5,460km
Best one-way:	M0BMU / W4DEX	6,380km
CW:	OH3LYG / I5MXX	2,149km
73kHz		
Slow CW cross-band:	G3LDO / OH9UFO (OH9UFO was on 136kHz CW)	1,876km
All mode	2-way CW: G3LDO / MI0AYZ/P	570km



This spectrum grab was taken by VE1ZJ and shows the 'K' from Jack, VE1ZZ, followed by G3LDO's 'R'.

ROGER BALISTER, G3KMA
La Quinta, Mimbridge, Chobham, Surrey, GU24 8AR.
E-mail: iota.hq@rsgb.org.uk

RARELY THESE days does an island operation start from a new IOTA group without some prior notice, if not to the world at large, at least to the IOTA Committee. Even more rarely does such an operation become a new IOTA counter almost by accident. But this is exactly what happened in January when a team of three Indian amateurs, Horey, VU2HFR; Joy, VU2JSH, and Skid, VU2SKD, from the Calcutta VHF Amateur Radio Society set up a station on Sagar Island in the Ganges Delta for the annual Ganga Sagar Mela festival.

This was most definitely not a DXpedition. The society had responded to a request from the district authorities to provide emergency back-up communications for the half million people participating in the festival. They had established a ham radio network of 13 VHF and two HF stations at the various crossover points from the mainland to the island and were handling thousands of missing / lost persons messages, in an attempt to reunite families. Suddenly they found many VU as well as DX amateurs asking them to come up on the IOTA meeting frequencies to give out a 'new one' for the IOTA programme.

The three operators on Sagar had little prior knowledge of IOTA and, probably, little intention of making many international contacts. Their HF equipment was modest, a 100W rig and a low sloping dipole. Yet, once alerted to the IOTA status of Sagar Island, they squeezed a few hours from their busy public service duties to make 280 IOTA contacts to secure the new reference AS-153 for the West Bengal State group. A real surprise for the lucky island chasers who made it into the log. The great news is that the Calcutta VHF Amateur Radio Society is now fired with enthusiasm for a more substantial operation from Sagar Island during the January festival next year. This could just provide the stimulus required to encourage activity in India from other currently unnumbered or seldom activated IOTA groups.

Our thanks go to the three operators on the island, to the Calcutta VHF Amateur Radio Society support team in Calcutta and to Arasu, VU2UR, IARU-MS Region 3 Coordinator, who alerted them to this IOTA opportunity. [For photographs see the March 'IOTA' column - *Ed.*]

RSGB IOTA Programme, PO Box 9, Potters Bar, Herts EN6 3RH

LET'S LEARN!

THE LAST FEW YEARS have seen a quite remarkable growth of interest in IOTA from countries in the Far East and South East Asia, areas where knowledge of the programme had not previously been strong. This is not just because of improved band conditions and higher activity levels on the air - although these have certainly helped - but more likely because of increased publicity in the DX press, particularly on the Internet, and positive feedback from DXpeditioners which have caught the imagination of 'movers and stirrers' in these countries. It is amazing how many recent DXpeditions in countries such as China, Indonesia, Korea, Taiwan and Thailand attract large participation levels. It is not unusual for a team to number 15 to 25 amateurs with the majority aged in their 20s.

Surely there is a message here for the UK and other countries experiencing an ageing amateur population? If you plan to go on an IOTA expedition, look around, see whether there is a young amateur or two in your vicinity who might benefit from joining your team. You never know, if they have the time of their lives, in a few years they may be the ones organising the DXpedition and asking *you* to join. If financial sponsorship is required, ask around, see whether it can be obtained, you never know. Although primarily a DXCC rather than an IOTA operation, the recent UK-led D68C operation from the Comoros was a superb example of what can be done to construct a team - a mix of ages as well as nationalities, and including a recent RSGB Young Amateur of the Year.

The BV9L team on Liuchiu Yu island, AS-155. A good example of an operation from the Far East with a large team of young operators (see 'Let's Learn!'). BV9L made 4000 QSOs in three days of operation.

NEW 'ACHIEVEMENT AWARD'?

OVER 1000 IOTA groups now have IOTA reference numbers. A decision will have to be taken soon on a suitably prestigious award to issue to those members who manage this pinnacle of achievement. The IOTA community is invited to submit suggestions on the form that it should take - please send them to IOTA HQ before 1 July. Nothing has been ruled out but we would remind you that, as the majority of award winners will be from outside the UK, weight, robustness and cost are considerations to bear in mind as well as attractiveness.

A 2002 DEADLINE

A REMINDER that if you are one of those members who has not converted existing IOTA record scores to the new *Directory* listings, you have until 1 February 2002 to do so. After the preparation of that year's Honour Roll and Annual Listings, credits that have not been rechecked by means of a completed Conversion Sheet - they could number as many as 16 - will be deleted from all records on the IOTA database. Members who intend to claim credit for any of the new references marked with an asterisk in the IOTA *RadCom* columns for September 2000 onwards and who have not yet completed a Conversion Sheet, should include one with their update, enclosing appropriate QSLs. Checkpoints are under instructions not to process cards from asterisked groups where a Conversion Sheet has not yet been submitted. You can download the Conversion Sheet, from either of the two web-sites below. ♦

WWW.

RSGB IOTA web pages: http://www.rsgbiota.org
IOTA Manager's website: http:// www.eo19.dial.pipex.com/index.shtml

NEW REFERENCES

AS-154/Pr	TA	Black Sea Coast East group
AS-155/Pr	BV	Taiwan's Coastal Islands*
NA-218	CO8	Las Tunas / Holguin / Santiago de Cuba Province group*
OC-243	VK6	WA State (South Coast) West group*
OC-244/Pr	DU1-4	Luzon's Coastal Islands*
OC-245/Pr	YB5-6	Sumatra's Coastal Islands North*
SA-088	PP5	Santa Catarina State South group*

Pr = provisional
* see text

Regular Feature

MICROWAVE

SIMON LEWIS, GM4PLM
Creoch Farm, Ochiltree, Ayrshire KA18 2QH.
E-mail: uwave.radcom@rsgb.org.uk

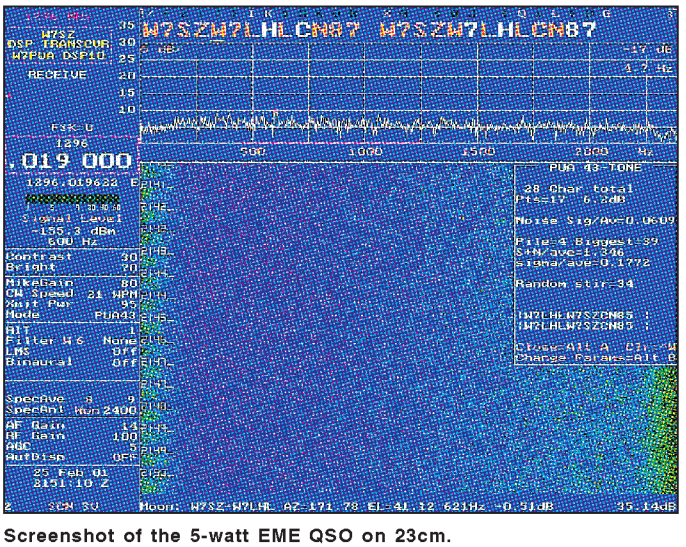
3cm EME IS NOW becoming commonplace in the hobby, but Al Ward, W5LUA, is stepping it up a gear with the report of his 24GHz EME reflections. Al reports "I was finally able to hear and record my first earth-moon-earth echoes on 24,192.1MHz at 0816 UTC on 7 March 2001. My antenna is a 3-metre Andrews prime focus dish rated to 30GHz with proper back structuring to optimise the dish's surface. The dish really began to perform when I added a back structure which looks like a tic-tac-toe board mounted to the backside of the dish. The end result was improved sun and moon noise. I presently receive 12.5dB of sun noise and 1.3dB of moon noise. I use a scalar feed optimised with reference to the W1GHZ *On-Line Antenna Handbook*.

"My dish has an F/D of 0.3, and my LNA is a two-stage W5LUA homebrew design using a pair of Agilent Technologies PHEMT devices which provide a 2.25dB system noise figure. My basic transverter is built around surplus 23GHz modules which down-converts to a 2304MHz IF, down-converted again to a 14MHz IF and an IC-271 transceiver. I was able to achieve about 20 watts at 24,192MHz by re-tuning a Varian TWT which I have been using on 10GHz EME at about 80 watts output. Re-tuning consisted of lowering the helix voltage and doing some tuning in the output waveguide section.

"I was using Mike Owen's *Realtrak* Software to track the moon. I was concerned about the accuracy of the Doppler calculation of the various moon tracking programs which I have used in the past. With an expected Doppler shift of up to 50kHz, there is not a lot of margin for error when tuning for echoes. I ran some echo tests on 10,368MHz and came to the conclusion that Mike's software was the most accurate at this frequency. I therefore placed my confidence in his software at 24,192MHz. Based on the Doppler shift of the received echoes, I believe Mike's software predicted the returns within a few hundred Hz. On the evening of 6 March local time, I had just installed my elevation rotator which allowed me to remote operate the dish.

"Previous attempts at echoes were with all equipment mounted in a shed near the dish. I had tried for echoes prior to zenith, but only *thought* I had heard echoes. Some clouds were beginning to cover the moon, so I decided to set my alarm clock for about 0200 and give it a shot on the setting moon. The first discernable echoes were heard at 0816 UTC with the moon at an azimuth of 268.8° and an elevation of 38.8°.

"The Doppler shift at this time was a negative 45.3kHz. Echoes peaked very well at 0848 UTC where the elevation was down to 31.5° and the Doppler shift a negative 49.1°. At this point, I ran out of azimuth control with my present set-up. My lunar echoes peaked Q5 (M copy) in a 2kHz bandwidth and were easily identifiable on AF9Y's DSP software. This triumphant event came after several years of optimising the system and many failed attempts at achieving lunar echoes. I was rather surprised to find that the echoes did not seem to be much broader than my 10GHz echoes, maybe due to the 0.3° beam-width of my dish. More information including the AF9Y gif files will be posted on the North Texas Microwave Society web page (1). Now to make a QSO!"

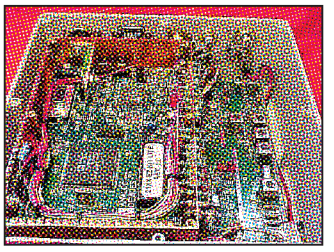


Screenshot of the 5-watt EME QSO on 23cm.

DSP10 UPDATE AND 5-WATT 23cm EME

SOME OF YOU may remember mention of a DSP-based 144MHz transceiver in this column some time ago. Well, I am now nearing completion of mine and have included some details on this superb transceiver that is taking off well in the USA. Designed by Bob Larkin, W7PUA, the unit is designed to act either as an IF driver or as a low-power prime mover. The unit is designed around a commercial DSP kit made by Analog Devices, which takes a lot of the hard work out of the project and only requires the construction of the RF board. A matching 8-watt PA PCB is also available. The transceiver uses the PC as a front panel and user interface, and this can be as simple as an old 386 running DOS - it really does not need anything special.

The transceiver is really showing its true potential and a second version of the software now includes some excellent weak-signal modes designed to exploit the potential of long-period signal correlation. The work on the DSP10 continues, but it was responsible for a QRP 5-watt EME QSO between Ernie, W7LHL, and Larry, W7SZ. They were successful with a PUA43-mode QSO on 1296MHz EME. They were using a power level of 5 watts and backyard TVRO dishes of 10 and 12 feet. PUA43 uses 43-tone FSK with adaptable



Internal view of the DSP10 144MHz transceiver.

'very-long-term integration'. This mode provides automated transmit and receive for communication by terrestrial or EME paths, allowing an extreme ability to trade-off of data rate against signal strength. 'Message estimation' is always used to show the most-likely message along with a second alternative. The character colour is indicative of the confidence level for each symbol. With this kind of signal level and dish size, EME can now become a mode that anyone (who can manage to accommodate this size of dish) will be capable of using. ♦

WWW.

(1) www.ntms.org
North Texas Microwave Society

FURTHER READING

Microwave Handbook (RSGB), see p49.

DENNIS KITCHEN, G0FCL
'Hazelbeech', 13 Lenwood Park, Northam, Bideford, Devon EX39 3PD.
E-mail: space.radcom@rsgb.org.uk

SPACE

AT THE TIME of writing (March 2001), Mir still dominates the news. It is due to re-enter the earth's atmosphere in the early hours of Thursday 22 March (plus two or minus one day). If all goes according to plan, it should plunge harmlessly into the Pacific Ocean to the east of New Zealand. Indeed, the Mir orbit has been allowed to decay to the point where the Progress rocket which is docked to the spacecraft can initiate the re-entry.

It certainly *must* re-enter now, because the orbit has already decayed so much that the Progress thrusters are not powerful enough to lift Mir back into a stable orbit. NASA is in contact with the Russian controllers to exchange the maximum amount of information to ensure a 'safe' splashdown. Nonetheless a large insurance policy for $200,000,000 has been negotiated on Mir - just in case!

INTERNATIONAL SPACE STATION

OOPS - IT IS necessary to insert an apology this month. The International Space Station uplink and downlink frequencies given in the March issue of *RadCom* were transposed. They should read: world-wide packet uplink - 145.990MHz and world-wide downlink frequency 145.800MHz; the voice uplink for Europe is 144.490MHz. Callsigns are NA1SS, R0ISS and DL0ISS, with the packet TNC set to RZ3DZR. Sorry about the mistake! My grateful thanks to Sid and Christine Provan for pointing out the error which was entirely my fault.

Russia still has a presence in space with its module and part crew on ISS. This will hardly compensate for the loss of their 'jewel in the crown', Mir. However, as one official wryly commented, "Flying a space station that threatens the entire world isn't the best way to show our greatness". Crews are being prepared in Russia to fly taxi missions to take relief crews to ISS using Soyuz TM spacecraft. The idea is for the taxi crew to spend a few days on ISS and then return in the previous taxi vehicle with the retiring crew, leaving a new space 'lifeboat' for the new crew. Interestingly, Russia has offered an extra Soyuz module for the station; this would be operated on a commercial basis, in the hopes of charging rent to her partners!

The shuttle *Discovery*, STS-102, delivered some five tons of equipment and the second crew to the space station in early March. The equipment was contained in an Italian-made 'Removal Van' - the Leonardo (da Vinci). This was attached to Alpha, (ISS), and unloaded. Waste such as expended batteries, other broken hardware and debris was loaded into the module and returned to earth for disposal. The amount of debris floating around in space is now reaching alarming proportions and constitutes a serious danger to astronauts and spacecraft alike. A punctured space suit is lethal.

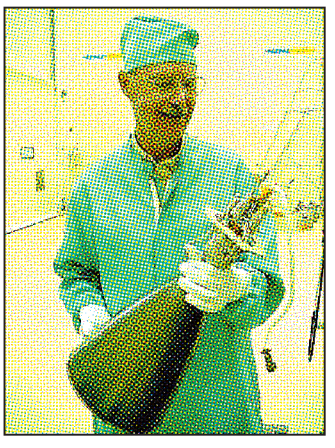
The new crew contains two radio hams - the first woman crew member, Susan Helms, KC7NHZ, and the new commander, Russian cosmonaut, Yuri Usachev, UA9AD. The retiring commander, William Shepherd, celebrated the handover by a chat to students at his Arizona high school *alma mater*. He also spoke briefly to students at the Arcadia High School in Pheonix, Arizona. A nice climax to his four-month-plus tour of duty as ISS Commander.

NASA was to have funded development of other shuttle-type vehicles, the X33 & X34, but shortages of cash have resulted in cancellation of NASA support. An interesting project; hopefully it will be picked up again later or, of course, carried on as a private venture. Qualification trials of the X-33 engines have already been successfully carried out with no observed anomalies.

AMSAT OSCAR 40

NEWS CONTINUES to be encouraging. The heat pipes are apparently working again. The spin rate has been successfully reduced, almost to the point where attitude adjustment is possible and the spacecraft orientation can be made more favourable for command and control from the ground. Once this is achieved, the Arc-jet motor will be tested and other systems checked out. In fact, it is hoped that the satellite will be released for limited operation for the North American Field Day, the third week in June.

The recovery of AO-40 has been greatly helped by a team of amateurs collecting telemetry from the satellite. The telemetry has been coordinated by Paul, VP9MU, to whom the satellite fraternity owes an outstanding vote of thanks. AMSAT-NA has published a full report of the incident which caused all the problems with AO-40 after a perfect launch on 16 November 2000. It is contained in ANS 075.01 bulletin.



Dick Daniels, W4PUJ, about to install the 400N motor on AO-40.
Photo: AMSAT-DL

GENERAL INFORMATION

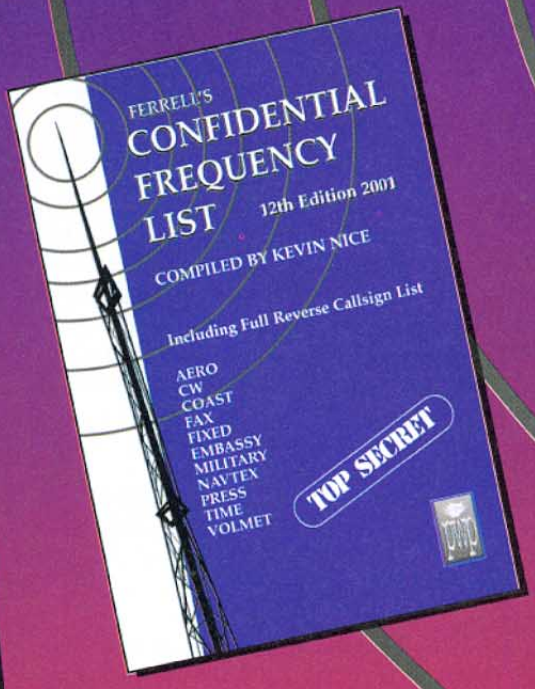
THE INFORMATION above concerns only a few satellites likely to be of general interest to the radio amateur. It doesn't even begin to scratch the surface of what is available in this fascinating part of our hobby. There are weather satellites and other amateur communications satellites apart from all the commercial ones. How to use the available resources is correctly the concern of an organisation such as the Remote Imaging Group, (Weather), or AMSAT-UK (communications, both voice and data).

The first requirement is to know where a satellite is at a given moment, and many computer programmes are available for this. If you would like to get some idea of the traffic on the busy high roads of space, heartily recommended is a free programme called SatScape. It is available from http://www.satscape.com/ for download. There is a good help file, which should get you going and help you to keep the information up to date. ♦

W W W .

Satellite news from the UK
www.uk.amsat.org/
AO-40 news from Germany
www.amsat-dl.org/
Space news
http://science.nasa.gov/

Coming Soon



The very best frequency guide on the market has been fully updated and will be on sale soon.

Ferrell's 12th Priority Order

TELEPHONE ORDERS TAKEN ON (01202) 659930
between the hours of 9.00am - 5.00pm. Outside these hours your order will be recorded on an answerphone

FAX ORDERS TAKEN ON (01202) 659950
Or please fill in the details ticking the relevant boxes, a photocopy will be acceptable to save you cutting your treasured copy!

To: PW Publishing Ltd., FREEPOST, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8ZZ. **RA5**

Don't Miss:

- 16,000 changes
- Now includes ALE
- 16kHz - 30MHz
- Compiled by SWM Editor
- Latest Data

Please send me.....copies of *Ferrells Confidential Frequency Guide, 12th Edition* @ £19.99 per copy.

UK P&P: £1.25 for one copy, £2.50 for two or more.

Overseas P&P: £2.50 for one copy, £4.00 for two, please add 50p per item thereafter.

PAYMENT DETAILS

Name.....

Address.....

.....

.....**Postcode**.....

Telephone No.....

I enclose cheque/PO (Payable to PW Publishing Ltd.) £

Or
Charge to my MasterCard/Visa/Switch/AMEX Card the amount of £

Card No. | | | | | | | | | | | | | | | | |

Valid from.....to.....

Issue No:.....Tel:.....

Signature.....

Orders will be only processed when the book is published.

Prices correct at time of going to press.

Please note: all payments must be made in Sterling. Cash not accepted.

TELEPHONE ORDERS TAKEN ON (01202) 659930
FAX ORDERS TAKEN ON (01202) 659950

Order Your Copy Now
Expected publication date: Mid April

the last Word

Amateur Radio on the NHS?

I had just signed with a friend of mine after our usual CW sked on 40m and was completing my log, when I copied a short test transmission on CW by a G3 station. I called him and was able to give him a report of 599. I was therefore astonished to learn that the transmission came from a patient in hospital! He told me that he had just set up his gear and this was his first transmission. I replied that I didn't realise how good our NHS could be and was told that he had been surprised as well, but he had suggested to his doctors that his recovery might well be speeded up if he could pick up his hobby of amateur radio again after being off the air for the past two years. They agreed and had obviously pulled out all the stops, to the point of giving him a private room and arranging to have two antennas erected, one of which was an end-fed wire of 120ft. That's more than many of us can have at our homes, so I must try to thank the staff of the hospital.

We are all aware of the acute shortages suffered by the NHS, and the way this piles the stress on to all members of its staff, so this really is nothing short of wonderful. I therefore hope that you will be able to publish my letter, and let's hope that my G3 friend makes a speedy recovery and will soon be operating from his home QTH again.

Colin Bird, G0SDA

Wonderful Web

May I congratulate the person responsible for the construction of your new web pages.

I had to take a step back from my VDU: all of a sudden everything was so clear and organised it literally jumped out of the screen.

First class.

Michael 'Mac' Mcinally, M0AJC

Education, Education, Education

It is with regret that I write concerning the ever-increasing list each month of Silent Key amateur operators. The quality and quantity of knowledge lost to the hobby is not to be recovered by new amateurs as the knowledge held by these radio operators I could write on the back of a postage stamp.

The education of the 21st century amateur is very important for the long-term survival of the hobby. This teaching should be part of the function of *RadCom*. At this time the magazine is more like an advertising handout. I fear the hobby will start its downhill run next year. I hope you have the courage to print this letter because of the urgency of the situation.

R Boddy, MISCE, G6AKL

[*While I agree with Mr Boddy that it is indeed sad to see the loss of years of amateur radio experience in the Silent Key column each month, I would disagree with the implication that* RadCom *is neglecting its teaching role. It is only in recent years that* RadCom *introduced the 'Down to Earth' column, in which numerous 'tutorial' features have appeared, eg this month Gwyn Williams' article on propagation and 'An Introduction to Variable Tuned Circuits' in March etc* - Ed]

True Spirit of Friendship

In May 2000 you published a letter from me ('Does Anyone Care?', The Last Word), in which I asked for help in obtaining my RAE. Again in August 2000 you published another letter, 'People Do Care', in which I thanked all those who had helped me with material and advice. I also stated that I would let you know how I got on. On 4 December I sat the RAE at home, and was invigilated by Geoff Dover, G4AFJ, of the Leicester Radio Club, to whom must go thanks for his time and help to sit the exam.

On 17 January I got my results from City & Guilds, informing me that I had passed, and enclosing the appropriate certificates and other paper work, and I applied for my 'B' licence. My callsign arrived a fortnight later, and now I have finally got on the air. Patrick Beehlar, G3ZCT, has put in some considerable time to help put my station together, and loaned me some equipment to get me going, for which I can never thank him enough.

It is indeed wonderful when a group of people who share the same interests can get together, and without any thought for personal gain, and at their own expense, in time and costs, will willingly help those less fortunate than themselves to reach their goals. The RSGB has fostered a true spirit of friendship amongst its members, and for no other reason than this, deserves the support of all its membership, in all it tries to do to further the hobby of amateur radio and electronics.

So now I have come from an SWL to M1EYA, next comes the Morse for my full licence. I am not sure how long it will take, but watch out, I don't intend being too long.

Richard Neale-Gardner, M1EYA

Grey Zone on 10m?

I enjoy that rare DX contact as much as the next ham, but I am not your dedicated DX chaser, getting up before the streets are aired or sitting up half the night because that is what the band conditions demand. Once I have completed the chores allocated by the station manager I may get in the shack and see what's going on. I think this is why the 10m band is the favourite, since it fits into my day when it is open and there is always the chance of some good DX.

For the past few months I have been dabbling in UI-View, first on 2m and then on 10m as I have a poor location for 2m. I am pleased to say that, conditions permitting, we are now getting some very interesting results. As I have said, I am not an early bird, but with UI-View you can switch it on and get on with other things and when the band opens and the contacts start coming in it will list the stations and alert you if you wish. Earlier in the year, when I was up before dawn, I was surprised to find that on most days, just as dawn was breaking, we had about a 15-minute 'window' to Greece. This would close, but then open again when the sun was well up as normal. Now dawn is well broken before I am up and my friends in SV-land do not get their stations on until about 0800 anyway. I was not aware that there was grey zone propagation on 10m and would be interested to hear any explanations.

Finally, I keep seeing doom and gloom bulletins about the demise of packet radio. Well UI-View is a form of packet and it is live. If you are interested have a look at my page on the Cheshunt club's web site at http://uhars.herts.ac.uk/cadarc/ui-view.htm

Jim Brightman, G0JXN

Improving Morse Capability

With reference to recent letters in 'The Last Word' on improving Morse capability, we in Scotland have long offered slow speed Morse QSOs to help people improve their Morse capability and therefore enjoy the full benefits of amateur Morse and marine Morse transmissions, which are not by any means dead, except possibility in the case of British Marine Radio Stations.

I am happy to have Morse QSOs at any agreeable speed and would suggest 80, 40 or 30 metres. Anyone interested can contact me QTHR by letter or by telephone (BT directory enquiries) to arrange a sked. It would be useful if amateurs could learn the international abbreviations and QSO format as shown on pages 20 / 21 of the current *RSGB Yearbook*.

Jim Stirling, GM3UWX

QSL Bureau

Thank you to all the QSL Bureau team and the radio amateurs of the G4A and G4H series of callsigns. I have just finished looking after their incoming QSL cards for the past few years. I really appreciate the thanks of those that have been sending me their good wishes. It has been a very interesting time looking at all the various cards about in the world. Again my thanks to all.

Dave Roebuck, G0LJM

CLASSIFIED ADVERTISEMENTS

Classified advertisements 58p per word (VAT inc.) minimum 14 words £8.12. All classified advertisements must be prepaid. Please write clearly. No responsibility accepted for errors. Latest date for acceptance is 1st month prior to publication.

Cheques should be made payable to RSGB. Copy and payment to:

Jan Forde, Lambda House, Cranborne Rd, Potters Bar, Herts EN6 3JE.

Tel: 0870 904 7377 Fax: 0870 904 7378

E-mail: adsales@rsgb.org.uk

FOR SALE

ALUMINIUM TUBE. Heavy-duty (scaffold) tube approx. dimensions 20' long 2" dia. $^{11}/_{64}$" (4.5mm) wall thickness, 20' and 10' lengths available @ £1.80 + VAT per ft. C.W.O. Rusper Hire (Crawley) 01293 87 1621 office hours only.

AMLOG 5 FOR WINDOWS, still available. Six years of continual improvements. More custom options than ever, faster to use etc. FREE help line. (No limit). Full: £19.00, Update: £8.00 (callsign required). Demo: FREE. Cheques to: E.R. Gaze, Zentek, 132 Gladstone Street, Darlington, Durham. DL3 6LE. Tel: 01325 482344 e-mail: Zentek@ic24.net

CALLSIGNS - NAMES Embroidered Polo Shirts for yourselves or your clubs. Medium, Large, XL, XXL. Popular colours £11.50 (inc p&p). Call John, GW0SYN 01745 815115

CT HAM RADIO DEVICES (UK) fine range of CT hand keys & Paddles. 200 Svetlana and other Russian tubes, sockets, relays and more. Details at http://www.dxham.com E-mail tony@uch.net

E-TYPE TRAP DIPOLE 10-160m fits 28ft garden. Full sized anti-TVI models, traps,baluns, info SAE. Aerial Guide £2.00. R. Holman G2DYM, Uplowman, Devon EX16 7PH. 01398 361215 anytime.

FIBREGLASS TUBE High strength tube, square box, rod and other sections all from stock in 6m lengths. Engineered Composites, Chester. Tel: 01244 676000. www.engineered-composites.co.uk

G3LLL's Bargains 6146W/GE, 12BY7A, Yaesu/Icom bits! List g3lll@onetel.net.uk Repairs (callers only) Morecambe. 0790 1932763

LANDWEHR VHF/UHF MASTHEAD LOW NOISE PREAMPLIFIERS, 2 metre 145MAS £150 and 70cm 435MA £155 plus £5 p&p. SEE OUR WEB SITE FOR FULL DETAILS www.g0eyo.freeserve.co.uk or write, phone, fax or email for full details, Qualitas Radio, 23 Dark Lane, Hollywood, Birmingham B47 5BS. Tel: 0121 246 7267 or Fax: 0121 246 7268 or e-mail: chris@g0eyo.freeserve.co.uk

LIMITED SPACE ANTENNA 160-10 metres 84' overall with 76' of balanced feedline £59.95 plus £5.00 P&P. Choke Baluns Std model £36.85, Yagi Model £37.45 (state boom size) G5RV £28.50 all inc. P&P. Amidon Cores, limited stocks available. Send SAE for full details of all the above. Ferromagnetics, P.O. Box 577, Mold, Flintshire CH7 1AH.

PROGRAMMED PROMS,PMR & MORE Details: www.atlantacomms.co.uk or S.A.E.: Atlanta Communications (RC), PO Box 5, Chatteris, Cambridgeshire PE16 6JT.

QUALITY PRE-USED EQUIPMENT. The UK's largest stock. Special Service and consideration for purchase of deceased amateur equipment. Essex Amateur Radio Services. Telephone 01268 752522.

TECHNICAL MANUALS FOR WW.II Radio and Radar, Hundreds in stock. RAF, Army, Navy, Luftwaffe, Wehrmacht, US Forces. Tel: 0151 722 1178 or SAE with requirements to VINTAGE TECHNICAL SERVICES. 28 Welbourne Road, LIVERPOOL L16 6AJ

THE RF KIT CATALOGUE. Send 2 x 2nd class stamps or browse www.rf-kits.demon.co.uk. Hands Electronics, Tegryn, Llanfyrnach, Dyfed SA35 0BL Tel: 01239 698427.

THE RIG REVIEW is a diskette with details of 720 rigs and receivers. Unravel those readers advertisements. It costs £7.00 post free from Twrog Press - see following:

QSL CARDS - Gloss or Tinted cards. SAE for samples to Twrog Press, Penybont, Gellilydan Blaenau, Ffestinlog, Gwynedd LL41 4EP. E-mail:- twrog@hotmail.com Web:- twrogpress.co.uk.

BRING & BUY

AUCTION ADVERTISE YOUR SURPLUS EQUIPMENT etc at http://www.bringandbuy.cjb.net using the free 60 day auction, no commission. Or long term classified section for items and wants at low fixed price. Wants posted free.

COMPUTER SOFTWARE & HARDWARE

SD - EI5DI's CONTEST LOGGERS. HF £25.00, VHF £25.00, both £39.00. Paul O'Kane, 36 Coolkill, Dublin 18. (00353 1295 3668) www.ei5di.com

SHACKLOG 5.3 - Probably the most popular UK written and UK supported logging software. £32.00. With IOTA add-ons £42.50. SASE + disk for demo copy. Alan Jubb, G3PMR, 30 West St., Gt Gransden, Sandy SG19 3AU. 01767 677913. www.shacklog.co.uk

WEB SITE HOSTING. You can Have your own domain name and web site up and running for £5 per month. E-mail websites@g3vji.com for further information.

HOLIDAY ACCOMMODATION

BED & BREAKFAST/FOOD. Scotland, North coast GM0EXN, Cliff Top HF & Internet. Tel: 01847 851774 Email: accommodation@btinternet.com. Web address: http://www.btinternet.com/~bandb.farnorth/index.html

CRICCIETH, NORTH WALES. Bed and Breakfast. Seaview all rooms. Pennyfarthing 01766-522744, e-mail: pennyfarthing@psilink.co.uk

NORTH WALES, CARAVAN, BUNK HOUSE, CAMPING. Elevated site. Use of shack and beam antenna. Open all year. Rural setting. "Tynrhos", Mynytho, Pwllheli LL53 7PS (01758 740712). TYNRHOSDIVING@BTINTERNET.COM

CLASSIFIED continued

MISCELLANEOUS

CALL IN ON THE 'GOOD NEWS' CHRISTIAN NETS! Every Sunday at 8am on 3747kHz and around 7047kHz and 144.205 at 3pm sharing Christian fellowship over the air. Info from WACRAL, 51 Alms Road, Brixham, South Devon TQ5 8QR
Tel: 01803 854504

UT7CT SHACK RENTALS: Use of shack, car and translator. Airport transfers, meals and tours included, £70 per day. Full details at www.qsl.net/ut7ct or Box 322, Cherkassy 18000, Ukraine.

VIDEO TAPE CONVERSIONS to and from all modes NTSC : SECAM : PALN : PALM Digital processing. Fast and economic service. Also 'cine' conversions. Phone G4WMP 01932 846139.

QSL CARDS

FULL COLOUR QSL CARDS , plus our low cost, conventional cards. Personal designs our speciality. LSAE for samples:- The Standfast Press, South Drive, Inskip, Preston PR4 0UT.

QSL CARDS - High Quality but low prices. Personal designs including SWL. Fast service. SAE for samples: Adur Village Press (G4BUE), Highcroft Farmhouse, Gay Street, Pulborough, West Sussex RH20 2HJ.
Telephone: 01798 815711

QSL CARDS OF QUALITY Specialising in personalised designs incorporating photographs. Large S.A.E. for samples to: Admiral Printers, 12 Faraday Court, Park Farm North, Wellingborough, Northants NN8 6XY - Tel 01933 678344.

WANTED

VALVES WANTED - NEW AND BOXED. KT66 GEC £35. KT88 GEC £60. EL34 Mullard £27. EL84 Mullard £4. EL37 Mullard £27, DA30, DO30, PX25, all at £120 each. PX4 Globe Shape £70, DA100 GEC £150. ECC83 Mullard £5. GZ32 and GZ34 Mullard £10, ECC32 and ECC33 Mullard £15, B65 Metal Base £8. 53KU Bulbous £8. Other types wanted. Please send a SAE for free list. Old valved radio and test equipment also wanted. COLOMOR (ELECTRONICS) LIMITED, Unit 5, Huffwood Trading Estate, Brookers Road, Billingshurst, West Sussex RH14 9RZ. Tel: +44 (0) 1403 786 559 Fax: +44 (0) 1403 786 560

I BUY, SELL EXCHANGE AMATEUR RADIOS OLD OR NEW. Cash waiting 9am-6pm daily. Phone Dave G3RCQ 01708 374043 or E-mail g3rcq@supanet.com for further information, or write G3RCQ, 9 Troopers Drive, Harold Hill, Romford, Essex RM3 9DE

BUSINESS CARD SECTION

CB & Amateur Radio P&D
MIØCIB
PETER BELL
1 KNOCKBRACKEN DRIVE
COLERAINE CO LONDONDERRY
N IRELAND BT52 1WN
PHONE: 028 7035 1335
FAX: 028 7034 2378
MOBILE: 07798 731460
EMAIL: peter@amateur-radio-ni.co.uk

fds GRAPHICS
The Studio
Retail Park Close
Marsh Barton
Exeter EX2 8LG
Tel: 01392 203322

Kits-Keys-QRP
G3TUX
THE QRP Component Company
P.O. Box 88 Haslemere Surrey GU27 2RF
Tel. 01428 661501 Fax: 01428 661794
www.g3tux.com

ML&S martin lynch & sons
Suppliers of Communications Equipment
128 & 140-142 NORTHFIELD AVE., EALING, LONDON W13 9SB
TEL: 0208 566 1120
FAX: 0208 566 1207
Web: www.hamradio.co.uk E-mail: sales@mlands.co.uk

LAR COMMUNICATIONS
THE COMPLETE RADIO SUPPLIERS
STEVE POUNDER
BRADFORD ROAD EAST ARDSLEY
NR. WAKEFIELD WF3 2DN
TEL:0113 252 4586
FAX: 0113 253 6621

1st Class Aerials
TV, Radio, Amateur Radio Aerials.
Also Digital and Analogue.
Satellite Equipment.
For more information call:
01454 314756 07778 307607

WATERS & STANTON PLC
ISO 9002 REGISTERED FIRM
SPA HOUSE
22 MAIN ROAD, HOCKLEY
ESSEX SS5 4QS. U.K.
TEL: 44 (01702) 206835
OR: 44 (01702) 204965
FAX: 44 (01702) 205843
E-mail: sales@wsplc.com
Web: www.wsplc.com

Adur Communications
Radio Communication Sales & Servicing
Tel: 01903 879526
E-mail: pgodbold@adurcomms.com
www.adurcomms.com

KENT ENGINEERS
KENT MORSE KEYS
www.kent-engineers.com
243 CARR LANE, TARLETON,
PRESTON, LANCS. PR4 6BY
Tel: (44) (0) 1772 814998
Fax: (44) (0) 1772 815437
E-mail: kent.engineers@cwcom.net

ALAN FORREST ELECTRONICS
66, Druridge Drive, Blyth, Northumberland NE24 4PZ
ICOM - KENWOOD - YAESU
Unbeatable prices - pay by cheque or visa or finance
Tel: 01670 359458
Licenced credit broker (written details on request)
email: info@alan-forrest-electronics.co.uk
Web: www.alan-forrest-electronics.co.uk

H J MORGAN SMITH
SHEET METAL ENGINEERS
Unit 3, vernon Building, Westbourne Street, High Wycombe, Buckinghamshire HP11 2PX
Tel: 01494 532421 Fax: 01494 452765
sales@morgansmith.f9.co.uk www.morgansmith.f9.co.uk

Castle Electronics
REPAIR AND SERVICING TO ALL TWO WAY RADIO COMMUNICATIONS AND CCTV SYSTEMS
UNIT 20, WOLVERHAMPTON BUSINESS AIRPORT
NR. STOURBRIDGE, WEST MIDLANDS DY7 5DY
Tel: 01384 221036 Fax: 01384 221037

WWW.
cqhamradio.net
IT'S WORTH A VISIT

YAESU
Unit 12, Sun Valley Business Park,
Winnall Close, Winchester SO23 0LB
Tel: 01962 866667

TO ADVERTISE IN THIS SECTION CONTACT JAN
TEL: 0870 904 7377
FAX: 0870 904 7378

Advertisement Index

Next Advertisement Copy Date:
Display advertisement copy date for June 2001 is 20 April

WiNRADiO®

TAKiNG THE EUROPEAN RADiO MARKET BY STORM

FREEPHONE 0800 0746263 TO PLACE A CREDiTCARD ORDER

*Recieve a FREE Mini-Cone Antenna With Every WR-3100 order!**

JOIN THE TRUNKED RADIO REVOLUTION WITH YOUR WiNRADiO RECEiVER!

1. Enjoy multiple, major trunk tracking modes
2. Automatic traffic following & sophisticated control panel
3. Take comfort in the automatic volume control
4. Single & dual receiver modes
5. Convenient inbuilt electronic logger and database
6. Comes complete with an inbuilt traffic recorder
7. Full XRS™ - compliant technology

The WiNRADiO Trunking Option*
Trunking systems are used by public safety, transportation, business, law enforcement, government, military and other organisations. This software includes major trunking modes: Motorola SmartNet® and MPT1327.

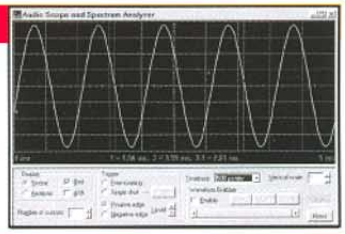
ONLY £81.07 inc vat

TAKE A LOOK AT WiNRADiO's DIGITAL SUITE (AWARDED 5 STARS BY WRTH)

1. WEFAX / HF Fax
2. Packet Radio for HF and VHF
3. Aircraft Addressing and Reporting System (ACARS)
4. Audio Oscilloscope, real time Spectrum Analyzer with calibration cursors
5. Squelch-controlled AF Recorder
6. DTMF, CTSS decode and analyse

The DSP applet provided with the WR3100i spectrum monitor ISA card (£995+VAT) allows continuous control of audio bandwidth and other signal conditioning functions.

ONLY £81.07 inc vat
(requires SoundBlaster 16 compatible sound card)



WiNADiO® PC RECEIVERS

Available as either an internal ISA card that slips inside your PC, or as an external (portable) unit. WiNRADiO combines the power of your PC with the very latest in synthesised receivers.

YOU CAN USE WiNRADiO™ SCANNiNG PC COMMUNiCATION RECEiVERS FOR:
Broadcast, media monitoring, professional & amateur radio communications, scanning, spot frequency, whole spectrum monitoring, instrumentation surveillance and recording.

If you're after the ultimate receiver-in-a-PC with full DSP then smile and say, "Hello" to the new **WR3100i-DSP** with its hardware for real-time recording, signal conditioning and decoding applications. It's all you need.

NEW EXTERNAL MODELS

EXTERNAL WiNRADiO™
We are now able to offer you a complete range of stand-alone WiNRADiO comms systems:

- **WR1000e - £359** INC VAT
- **WR1550e - £429** INC VAT
- **WR3100e - £1169** INC VAT

Each stand-alone unit connects to your PC through either the basic RS232, or through an optional PCMCIA adapter (for high speed control).
The units are powered through either your existing 12v supply, or through an (optional) NiMH rechargeable 12v battery pack.

"It's software is excellent.. more versatile and less idiosyncratic than that of the Icom IC-PCR1000"
WRTH 1999 Review

"Five stars for its mechanical design"
WRTH 1999 Review

"Most Innovative Receiver"
WRTH 1998 Awards

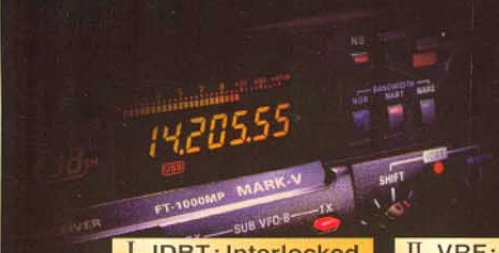
Model Name/Number	WR-1000i & WR-1000e	WR-1550i & WR-1550e	WR-3100i & WR-3100e
Construction of internals	WR-1000i/WR-1550i-3100iDSP- Internal full length ISA cards		
Construction of externals	WR-1000e/WR-1550e - 3100e - external RS232/PCMCIA (optional)		
Frequency range	0.5-1300 MHz	0.15-1500 MHz	0.15-1500 MHz
Modes	AM,SSB/CW,FM-N,FM-W	AM,LSB,USB,CW,FM-N,FM-W	AM,LSB,USB,CW,FM-N,FM-W
Tuning resolution	100 Hz (5 Hz BFO)	10 Hz (1Hz for SSB and CW)	10 Hz (1Hz for SSB and CW)
IF bandwidths	6 kHz (AM/SSB),	2.5 kHz(SSB/CW), 6 kHz (AM)	2.5 kHz(SSB/CW), 6 kHz (AM)
	17 kHz (FM-N), 230 kHz (W)	17 kHz (FM-N), 230 kHz (W)	17 kHz (FM-N), 230 kHz (W)
Receiver type	PLL-based triple-conv. superhet		
Scanning speed	10 ch/sec (AM), 50 ch/sec (FM)		
Audio output on card	200mW	200mW	200mW
Max on one motherboard	8 cards	8 cards	6-8 cards (please ask)
Dynamic range	65 dB	70 dB	85dB
IF shift (passband tuning)	no	±2 kHz	±2 kHz
DSP in hardware	no - use optional DS software		YES (ISA card ONLY)
IRQ required	no	no	yes (for ISA card)
Spectrum Scope	yes	yes	yes
Visitune	yes	yes	yes
Published software API	yes	yes	yes (also DSP)
Internal ISA cards	£299 inc vat	£369 inc vat	£1169.13 inc
External units	£359 inc vat	£429 inc vat	£1169.13 inc (hardware DSP only internal)

PCMCIA Adapter (external):	£69.00 inc vat when bought with 'e' series unit (otherwise: £99 inc vat)
PPS NiMH 12v Battery Pack & Chrgr:	£99 inc vat when purchased with 'e' series unit (otherwise: £139 inc vat)
The WiNRADiO Digital Suite:	£74.99 inc vat when purchased with a WiNRADiO receiver (otherwise: £81.05 inc vat)

For your free (no obligation) info pack & WiNRADiO demo disk go to: http://www.broadercasting.com. If you don't have access to the internet then by all means feel free to phone/fax us. *Trunked radio transmissions should only be received & decoded with permission of the originator of the transmission.

Please send all your enquiries to: info@broadercasting.com or Telephone: 0800 0746 263 or +44 (0)1245 348000 - Fax: +44 (0)1245 287057
Broadercasting Communication Systems, Unit B, Chelford Court, Robjohns Road, Chelmsford, Essex, CM1 3AG, United Kingdom

"Brick-Wall" Selectivity



Today's Premier class operators demand the best RF weaponry available. Yaesu's exciting new MARK-V FT-1000MP answers the call, with an expanded array of receiver filtering, 200 Watts of power output, and Class-A SSB operation capability for the cleanest signal on the band. Enhanced front-panel ergonomics saves you precious seconds in a DX or contest pile-up. Yaesu HF design and manufacturing know-how ensures that no short-cuts have been taken in our effort to bring you the best HF transceiver money can buy. For more QSOs in your log, and more awards on your wall, there is only one choice: the MARK-V FT-1000MP from Yaesu!

I. IDBT: Interlocked Digital Bandwidth Tracking System

The IDBT feature greatly simplifies operation by matching the bandwidth of the DSP (Digital Signal Processing) system to the net bandwidth of the 8.2 MHz and 455 kHz IF stages. The IDBT system monitors the settings of the SHIFT and WIDTH controls, and automatically sets the DSP bandwidth to match the user settings within the net bandwidth of the Analogue IF Filtering.

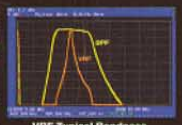
IDBT: A Breakthrough in Selectivity!

10-pole Collins® Mechanical SSB Filter

II. VRF: Variable RF Front-End Filter

Protecting the MARK-V's receiver components from strong out-of-band signals, the VRF system acts as a high-Q "Preselector," located between the antenna and the main bandpass filter networks, providing additional RF selectivity on the 160-20 meter Amateur bands for multi-operator contest teams, DX-peditions, or for operation near MW/SW broadcast stations.

VRF Features Large, High-Q Coils and High-Quality Relays



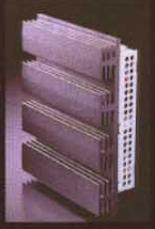
VRF Typical Bandpass Response (3.5 MHz)

III. 200 Watts of Transmitter Power Output

Utilising two Philips® BLF 147 Power MOSFETs in a 30 V push-pull configuration the MARK-V's Transmitter generates up to 200 Watts of the cleanest RF Power output available thanks to the conservative design of the PA Section.

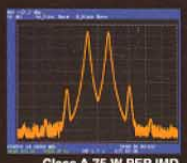
Philips Power MOSFETs

High-Speed Automatic Antenna Tuner



IV. Class-A SSB Operation

Exclusively available on the MARK-V FT-1000MP , a press of a front-panel button engages Class-A SSB operation of the transmitter, at a power output level of 75 Watts. Class-A operation produces incredibly clean signal quality, with 3rd- order IMD suppressed 50 dB or more, and 5th- and higher-order products typically down 80 dB or more!



Class A 75 W PEP IMD

V. Multi-Function Shuttle Jog Tuning/ Control Ring

The immensely-popular Shuttle Jog tuning ring, which is concentric with the Main Tuning Knob, has a new look in the MARK-V: it now includes the activation switches for the VRF (left side) and IDBT (right side) features, so you don't have to move your hand position to activate these important circuits during contest or pile-up situations!

Access VRF and IDBT Features via Shuttle Jog Dial

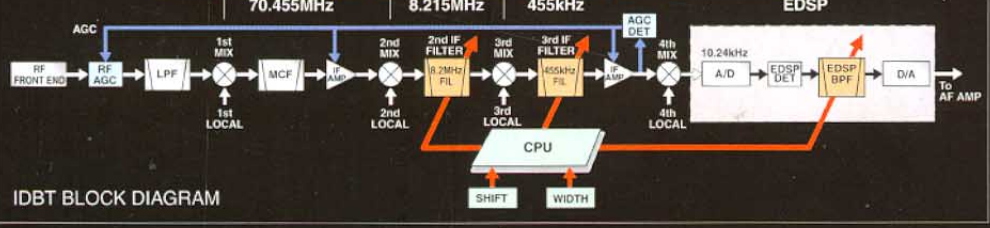
DC 30 V / 13.8 V Power Supply FP-29

Photo shows optional MD-100A8X Deluxe Desk Microphone

HF 200 W All-Mode Transceiver

MARK-V FT-1000MP

IDBT: INTERLOCKED DIGITAL BANDWIDTH TRACKING SYSTEM



IDBT BLOCK DIAGRAM

YAESU
Choice of the World's top DX'ers

For the latest news, hottest products:
Visit us on the Internet! http://www.yaesu.co.uk