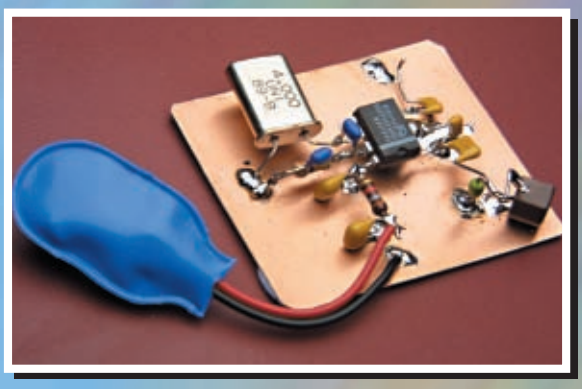
Practical Wireless

PW

amateur radio & more!

Free Inside! Greenweld Catalogue



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WEB ORDERING
www.wsplc.com

YAESU NEW FT-897

£1099 C

A 100W HF rig plus 2m and 70cms (50W/20W) with provisions for running from internal optional Ni-MH pack at 20W output. Go anywhere and operate portable at realistic power levels. Put in car as self-powered radio for mobile use. Use as base station from 13.8V at full power. The possibilities and fun are endless. And it is packed full of features including large LCD display, 200 tagged memories, DSP, IF shift, IPO, Noise blanker, VOX, Collins filter, CTCSS, and DCS, ARTS, Spectrum Scope, compatible with FC-30 auto ATU and ATAS 120/100 antennas. And all this packed into a size of 7.87" x 3.15" x 10.3". The "must have" radio for 2003.

YUPITERU MVT - 3300

The Yupiteru MVT-3300 Scanner.
- VHF Airband plus lots more including emergency services
- 66-88 / 108-170 / 300-470 / 806-1000MHz
- AM & FM
- 200 Memories
- 5 Tuning steps
- Fast Scan Speed
- Very Sensitive
- Requires 4xAA cells (not supplied)
- Includes Flexible Antenna Earpiece and carrystrap.

£129 B

NEW WS-2300

WIRELESS WEATHER STATION

£199.95 C

This professional remote weather station is a high quality system that measures the indoor surrounding area and receives weather data from three outdoor sensors through wireless 433MHz frequency signal or optionally by wire transfer to the receiver.
Wireless Weather Station consists of: * *Base receiver station * Three outdoors sensors - Thermo-hydro transmitter, Wind sensor, Rain sensor * PC program on CD-ROM * RS-232 serial data transfer * AC/DC power adaptor*

HF TRANSCEIVERS

ICOM

IC-756 PRO II
Flag ship of the ICOM range of transceivers.

IC-756 PRO II	160-6m 100W 12V	#£1999.00#	C
IC-7400	160-2m 100W 12V	£1449.00	C
IC-706 IIG DSP	160m-70cm 100W 12V	£799.00	C
IC-718	160-10m 100W 12V	#£449.00#	C
SP-20	Speaker with filters	£164.95	B
SM-6	Base microphone	£69.99	B
SM-20	Base microphone	£144.99	B
PS-125	Icom 25A PSU	£295.99	C

= LIMITED SPECIAL OFFER - *HURRY!*

YAESU

FT-1000 Field

FT-1000 mkV	160-10m 200W 230V	£2499.00	C
FT-1000 Field	160-10m 100W 230V	£2199.95	C
VL-1000 Quadra	HF-6m 1kW linear	£3799.00	D
FTV-1000	6m transverter	£549.00	C
MD-200A8X	Desk microphone	£254.95	B
MD-100A8X	Desk microphone	£116.95	B
FT-920AF	160-6m 100W 12V	£1099.00	C
FT-897 *NEW*	HF/6m/2m/70cm 100W	£1099.00	C
FT-847	160-70cm 100W 12V	£1199.95	C
FT-817	160-70cm 5W Batt.	£569.00	B
FT-840	160-10m 100W 12V	£499.00	B
FT-100D	160-70cm 100W 12V	£799.00	B

KENWOOD

TS-2000X
Top of the range Kenwood transceiver.

TS-2000	160m-70cm<100W	£1695.00	C
TS-2000X	160m-23cm<100W	£1999.00	C
TS-B2000	Computer controlled	£1549.00	C
RC-2000	Remote head TS-2000	£199.95	B
ARCP-2000	TS-2000 software	£44.95	B
TS-870S DSP	160-10m 100W 12V	£1399.00	C
TS-570DGE	160-10m 100W 12V	£849.00	C
YK-88CN-1	270Hz CW filter	£61.95	B
YK-88SN-1	1.8kHz SSB filter	£61.95	B
TS-50S	160-10m 100W 12V	£629.00	C
PS-33T	AC power supply 20.5A	£199.95	C
PS-52	AC power supply 22.5A	£229.95	C
PS-53T	AC power supply 22.5A	£229.95	C
MC-60A	Desk microphone	£117.95	B
MC-80	Desk microphone	£72.95	B
MC-90	Desk microphone	£187.95	B

VHF/UHF TRANSCEIVERS

ICOM

IC-2725E
ICOM's latest unique Dual Band FM transceiver.

IC-910H	2m/70cm All modes tcvr	£1149.00	C
IC-910X	2m/70cm/23cm All modes tcvr	£1249.00	C
IC-2725E *NEW*	2m/70cm FM mobile	£309.00	C
OPC-1156	Separation cable 3.5m	£24.99	A
IC-207H	2m/70cm 50/35W mobile	£279.00	C
OPC-600	Separation cable 3.5m	£32.99	A
OPC-601	Separation cable 7m	£39.99	A
IC-2100H	2m FM mobile 55W	£229.00	C

YAESU

FT-8900R
FM Quad band transceiver

FT-8900R *NEW*	29/50/144/430MHz mobile	£349.00	C
FT-7100	2m/70cm FM mobile	£329.00	C
YSK-7100	Separation lead kit	£39.99	A
FT-1500M	2m 50W mobile	List:~~£179~~ £159.00	B

KENWOOD

TMD-700E
Dual band mobile & data communicator.

TMD-700E	2m/70cm FM mobile	£449.00	C
TM-V7E	2m/70cm FM mobile	£359.00	C
TM-G707E	2m/70cm FM mobile	£289.00	C

VHF/UHF HANDHELDS

ICOM

ICOM IC-E90
Handheld + Scanner
6m/2m/70cm 5W

IC-E90 *NEW*	6m/2m/70cm Handheld	£269.00	B
BC-06	UK mains PSU (BC139)	£21.15	A
BC-08	(Spare) charger	£23.50	A
LC-152A	Leatherette carry case	£16.99	A
SP-13	Earphone	£5.87	A

YAESU

VX-7R Handie
Tri-band Submersible
Black or Silver.

VX-7R *NEW*	6m/2m/70cm Handheld black/ silver	£329.00	B
VX-1R	2m/70cm+TV/AM audio	£149.00	B
VX-150	2m + NiCd & charger	£109.00	B
VX-110	2m + NiCd & charger	£99.00	B
ADMS-1E	Software for VX-1R	£44.95	B
CSC-88	Soft case for VX-7R	£11.95	A
CSC-71	Soft case for VX-1R	£11.95	A

KENWOOD

TH-D7E
Data communicator with built-in TNC

TH-D7E	2m/70cm with data	£319.00	B
TH-F7E	2m/70cm with wideband	£259.00	B
TH-G71E	2m/70cm FM Handie	£199.00	B
TH-22EE	2m+NiCd & EU charger	£139.00	B
SC-40 (D7/G71)	Soft case / strap	£15.95	A
SC-45 (G71)	Soft case	£19.95	A
SC-49 (D7)	Leather case / strap	£19.95	A

LINEAR AMPLIFIERS

LINEAR AMP UK

DISCOVERY-70
High power 700W 70cm linear amplifier

CHALLENGERIII	HF linear amp 10-160m	£1795.00	C
RANGER-811H	HF linear amp 10-160m	£895.00	C
DISCOVERY-2	2m 400-1000W out	£1395.00	C
DISCOVERY-6	6m 50-54MHz 400-100W out	£1395.00	C
DISCOVERY-70 *NEW*	430-440MHz 700W out	£1495.00	C

AMERITRON

AL811 XCE
HF Linear Amplifier
All versions CE approved

AL811 XCE	160-10m 600W PEP	£799.00	C
AL811 HXCE	160-10m 800W PEP	£989.00	C
AL800 XCE	160-10m 1250W PEP	£1995.00	C
AL1200 XCE	160-10m 1500W PEP	£2695.00	C

TOKYO HY-POWER

HL-50B	HF+50MHz 50W amplifier	£265.95	B

POWER SUPPLIES

WATSON

W-25SM
25A Switch-mode power supply

W-25SM	25A 13.8V DC power supply	£79.95	C
W-25AM	25A 0-15V DC power supply	£89.95	C

DIAMOND ANTENNA

GZV-4000
40A Switch-mode variable power supply

GZV-4000	40A 5-15V DC S/M PSU	£159.95	C
GZV-2500	25A 5-15V DC S/M PSU	£119.95	C
GSV-3000	30A 1-15V DC PSU	£149.95	C

WEST MOUNTAIN

RIGRUNNER 4012
Distribution board with 2m cable + connectors

RIGrunner 4005	13.8V DC 5-way	£59.95	B
RIGrunner 4008	13.8V DC 8-way	£89.95	B
RIGrunner 4012	13.8V DC 12-way	£109.95	B
C30/PK/12	12 spare connector pairs	£13.95	A

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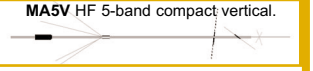
HF VERTICAL ANTENNAS

HUSTLER

6-BTV HF 6-band vertical

6-BTV *NEW*	80-40-30-20-15-10m 1kW PEP	**£239.95**	C
5-BTV	80-40-20-15-10m 7.64m 1kW	**£209.95**	C
4-BTV	40-20-15-10m 6.52m 1kW PEP	**£169.95**	C

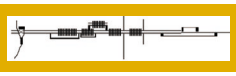
CUSHCRAFT



MA5V HF 5-band compact vertical.

MA5V *NEW*	20-17-14-12-10m 250W PEP	**£229.95**	C
R8	40-30-20-17-15-12-10-6m 1.5kW	**£529.95**	C
R6000	20-17-15-12-10-6m 1.5kW PEP	**£349.95**	C

butternut



HF9V-X HF 9-band vertical

HF9V-X *NEW*	80-6m 7.9m 1kW PEP	**£365.00**	C
HF6V-X	80-40-30-20-15-10m 7.9m 2kW	**£315.00**	C
HF2V	80-40m 9.75m (160m opt) 1kW	**£230.00**	C

hy-gain

DX-88 HF 8-band vertical

AV-640	40-6m 1.5kW, 300W 6m (PEP)	**£399.95**	C
AV-620	20-6m 1.5kW, 500W 6m (PEP)	**£299.95**	C
AV-14AVQ	40-20-15-10m 1.5kW PEP	**£179.95**	C
AV-12AVQ	20-15-10m 1.5kW PEP	**£139.95**	C
DX-88	80-10m 1.5kW, 250W 30m	**£395.95**	C

HF HORIZONTAL BEAMS + DIPOLES

RADIO WORKS

World famous Carolina Windoms used worldwide

Carolina Windoms 1kW (Inc WARC Bands)			
CW-160	160-10m 76.8m long	**£139.95**	C
CWS-160	160-10m 40.5m long	**£134.95**	C
CW-80	80-10m 40.5m long	**£99.95**	C
CWS-80	80-10m 20.1m long	**£119.95**	C
CW-40	40-10m 20.1m long	**£94.95**	C
CW-40 Plus	40-10m 20.1m long	**£109.95**	C
CW-20	20-10m 10.36m long	**£84.95**	C
CW-620	20-6m 9.7m (32ft) long	**£94.95**	C
Carolina Wire "Beams" (Inc WARC Bands)			
CBS-160S	180-10m 30.5m (100ft) long	**£129.95**	C
CB-80	80-10m 30.5m (100ft) long	**£119.95**	C
CBS-80	80-10m 15.25m (50ft) long	**£119.95**	C
CB-40	40-10m 15.25m (50ft) long	**£115.95**	C
Other Antennas			
G5RV PLUS	80-10m with balun 31m (102ft) long	**£64.95**	B
Baluns and Isolators			
T-4-Plus	Line Isolator1.8 - 54MHz 400W	**£42.95**	B
T-4G	Line Isolator 1.8-30MHz + ground	**£42.95**	B
T-4G Plus	Line Isolator 1.8-30MHz + ground	**£45.95**	B
T-4-500	Line Isolator (small) 500W 1.8-30MHz	**£32.95**	B
REM-BAL	4:1 current balun 1.8-30MHz	**£49.95**	B
B1-2K Plus	1:1 current balun - for inverted V 's	**£28.95**	B
B4-2K	4:1 voltage balun loops/folded dipoles	**£42.95**	B
Y1.5K Plus	1:1 current Yagi balun 1.8- 54MHz	**£42.95**	B
Sundries			
KEVLAR	60m 181kg strain guy line	**£22.95**	A
LADDER	450 Ohm ladder line - per metre	**£0.90**	A
LADDER-LOC	Dipole centre for ladder line	**£14.95**	A
RFF-213	Ferrite clamps for RG-213	**£5.95**	A
RFF-58	Ferrite clamps for RG-58	**£3.95**	A

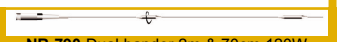
HF MOBILE ANTENNAS

HUSTLER

Standard Resonator 400W (mast section not included)			
RM-10	10m 150-250kHz	**£19.95**	B
RM-11	11m 150-250kHz	**£19.95**	B
RM-12	12m 90-120kHz	**£19.95**	B
RM-15	15m 100-150kHz	**£19.95**	B
RM-17	17m 120-150kHz	**£24.95**	B
RM-20	20m 80-100kHz	**£24.95**	B
RM-30	30m 50-60kHz	**£26.95**	B
RM-40	40m 40-50kHz	**£26.95**	B
RM-80	80m 25-30kHz	**£29.95**	B
Super Resonator 1kW (mast section not included)			
RM-10-S	10m 250-400kHz	**£24.95**	C
RM-15-S	15m 150-200kHz	**£26.95**	C
RM-20-S	20m 100-150kHz	**£31.95**	C
RM-40-S	40m 50-80kHz	**£37.95**	C
RM-80-S	80m 50-60kHz	**£51.95**	C
Lower Mast Sections			
MO-1	54" (FOLD @ 22")	**£33.95**	C
MO-2	54" (FOLD @ 27")	**£33.95**	C
MO-3	54" (NON FOLD)	**£26.95**	C
MO-4	27" (NON FOLD)	**£22.95**	C
Mobile Mount Accessories			
SSM-1	Ball mnt stainless steel spring&stud	**£45.95**	B
SSM-2	Ball mount	**£28.95**	A
SSM-3	Stainless steel spring & stud	**£24.95**	A
HOT	Trunk lip mount	**£24.95**	A
RSS-2	Stainless steel resonator impact spring	**£10.95**	A
QD-2	Quick disconnect adaptor	**£19.95**	A
VP-1	Multi-band adaptor	**£7.95**	A

VHF/UHF MOBILE ANTENNAS

DIAMOND ANTENNA



NR-790 Dual bander 2m & 70cm 120W PL-259, 1.46m with spring fold over base

AZ-504	2m/70cm 0/2.15dB 0.39m	**£34.95**	B
M-285S	2m 3.4dB 1.33m (non fold down)	**£15.95**	B
NR-2C	2m 4.1dB 1.41m long 150W	**£29.95**	B
NR-22L	2m 6.5dB 2.46m long 100W	**£39.95**	B
CR-627	6m/2m/70cm 2.15/4.5 7dB 1.5m	**£67.95**	B
CR-1027	10m/2m/70cms 2.15/5/7dB 1.6m	**£79.95**	B
NR-2000M	2m/70cm/23cm 3./6.3/9.7dB 0.99m	**£59.95**	B
NR-770R	2m/70cm 3/5.5dB 0.98m	**£29.95**	B
NR-790	2m/70cm 4.5/7dB 1.46m	**£59.95**	B
SG-7500	2m/70cm 3.5/6dB 1.06m 150W	**£49.95**	B
SG-7900	2m/70cm 5/7.6dB 1.58m 150W	**£69.95**	B
TRY-2E	6m/2m/70cm 3.4/2.15dB 1.32m	**£29.95**	B

WATSON

W-627 Triple bander 70cm/2m/6m. Length 1.6m, max pwr 120W with fold over base.

Watson Antennas (PL-259 base type)			
W-2LE	2m quarter wave 2.1dBi 0.45m	**£9.95**	A
W-285	2m 3.4dB 0.48m (fold over base)	**£14.95**	B
W-77LS	2m/70cm 0/2.5dB 0.42m	**£14.95**	B
W-770HB	2m/79cm 3/5.5dB 1.1m	**£24.95**	B
W-7900	2m/70cm 5.6/7.6dB	**£32.95**	B
W-627	6m/2m/70cm 2.15/4.8/7.2dB 1.6m	**£34.95**	B
WGM-270 *NEW*	2m/70cm On-glass 3.7m coax 50W	**£29.95**	B
Watson Antennas (Magnetic base included)			
WSM-138	Adjust. 138-170MHz 0.55m max	**£19.95**	B
WSM-260	2m/70cm 2-6dB 0.46m	**£19.95**	B
WSM-225	Airband receive VHF/UHF	**£22.95**	B

VHF/UHF MOBILE BASES

DIAMOND ANTENNA

K-600M Deluxe boot mount SO-239, c/w 5m RG-58 & PL-259

AML	Gutter mount fold over type	**£15.95**	A
K-11	Universal gutter mount	**£24.95**	A
K-33	Adjustable hatch mount	**£23.95**	A
K-400	Adjustable boot mount heavy duty	**£26.95**	A
K-600M	Deluxe boot mount + cable	**£49.95**	B
K-702M	Mag mount 11.1cm di. 4m cable	**£39.95**	B
DPK-TR	Stainless steel boot mount (ECH)	**£18.95**	A
ECH	Cable assembly above units 4m	**£10.95**	B

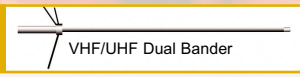
WATSON

WM-14B Large diameter 14cm magnetic mount SO-239, c/w 5m RG-58 & PL-259

W-3HM	Adjustable hatch mount	**£14.95**	A
WM-08	8cm mag mount, 5m cable PL-259	**£9.95**	A
WM-14B	14cm hvy duty mag mount+cable	**£12.95**	A
WSM-88V	BNC mag mount plus 3m cable	**£14.95**	A
W-3CK	5m 5D-FB cable assembly+pigtail	**£18.95**	A
W-ECH	5m standard cable kit assembly	**£12.95**	A

VHF/UHF BASE STATION ANTENNAS

DIAMOND ANTENNA



VHF/UHF Dual Bander

CP-22E	2m 2x5/8th 6.5dB omni-directional	**£44.95**	C
F-22	2m 2x7/8th colinear 6.7dB 3.2m	**£59.95**	C
F-23	2m3x5/8th colinear 7.8dB 4.6m	**£89.95**	C
X-30	2m/70cm colinear 3/5.5db 1.3m	**£49.95**	C
X-50	2m/70cm colinear 4.5/7.2dB 1.7m	**£54.95**	C
X-50N	2m/70cm 4.5/7.2dB 1.7m 'N' type	**£59.95**	C
X-200	2m/70cm colinear 6/8dB 2.5m	**£79.95**	C
X-300	2m/70cm colinear 6.5/9dB 3.1m	**£99.95**	C
X-510N	2m/70cm 8.3/11.7dB 5.2m 'N' type	**£124.95**	C
X-700H	2m/70cm colinear 9.3/13dB 7.2m	**£249.95**	C
V-2000	6m/2m/70cm 2.15/6.2/8.4dB 2.5m	**£89.95**	C
X-5000	2m/70cm/23cm 4.5/8.3/11.7dB 1.8m	**£134.95**	C
X-7000	2m/70cm/23cm 8.3/11.7/13.7dB	**£169.95**	C
GH-62	6m 2x5/8th base vertical 6dB 6.3m	**£99.95**	C

WATSON

WMD-50 Mini discone 25-2200MHz Rx, 6/2m/70cm/23cmTx

WBV-70	4m half wave vertical 3.5dB 2m long	**£39.95**	C
W-30	2m/70cm colinear 3/6dB 1.15m long	**£39.95**	C
W-50	2m/70cm colinear 4.5/7.2dB 1.8m long	**£49.95**	C
W-300	2m/70cm colinear 6.5/9dB 3.1m long	**£64.95**	C
W-2000	6m/2m/70cm 2.15/6.2/8.4dBi 2.5m	**£69.95**	B
WBD-40	25-2000MHz discone Tx 6m/2m/70cm	**£49.95**	C
WMD-50	25-2200MHz discone Tx 6m/2m/23cm	**£39.95**	C

ROTATORS

CREATE

All require 7-core control cable. **MC-2** Optional lower mast clamps (if needed)

RC5-1	Medium duty rotator	**£349.95**	C
RC5-3	Medium duty rotator with presets	**£449.95**	C
RC-5A-3	Heavy duty with variable presets	**£649.95**	C
MC-2	Optional lower mast clamps	**£59.95**	B

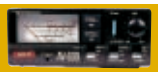
hy-gain

AR-40X designed for light VHF/UHF antennas, c/w mast clamps Control cable not provided.

AR-40X	Lightweight with mast clamps 5-core	**£299.95**	C
CD-45IIX	Light-med rotator 8-core cable	**£425.95**	C
HAM-IVX	Medium duty rotator 8-core cable	**£599.95**	C
T2XX	Tailtwister med-hvy 8-core cable	**£699.95**	C
MS-LD	Lower mast clamps for CD-45IIX	**£35.95**	B
MS-HD	Lower mast clamps for HAM-IVX/T2XX	**£89.95**	B

POWER METERS

AVAIR



AV-600 VSWR/Pwr meter, reads RMS & PEP covers 1.8-525MHz in two ranges.

AV-20	X-needle VSWR/PWR 1.8-150MHz	**£39.95**	B
AV-40	X-needle VSWR/PWR 140-525MHz	**£39.95**	B
AV-200	VSWR/PWR 1.8-200MHz	**£49.95**	B
AV-400	VSWR/PWR 140-525MHz	**£49.95**	B
AV-600	VSWR/PWR 1.8-525MHz	**£69.95**	B

WATSON

W-220 VSWR/Pwr meter, reads RMS & PEP covers 1.6-200MHz max pwr 200W

W-220	VSWR/PWR 1.6-200MHz	**£49.95**	B
W-420	VSWR/PWR 118-530MHz	**£49.95**	B
W-620	VSWR/PWR 1.6-530MHz	**£89.95**	B

ANTENNA ANALYSERS

MFJ

MFJ-269 Analyser also frequency counter, resistance meter and RF generator.

MFJ-269	HF/VHF/UHF digital analyser	**£349.95**	B
MFJ-259B	HF/VHF digital analyser	**£269.95**	B
MFJ-39C	Carry case for MFJ-269	**£26.95**	A
MFJ-29C	Soft case for MFJ-259B	**£29.95**	A

CHECK OUR WEBSITE WWW.WSPLC.COM FOR MORE DETAILS OF THESE PRODUCTS

WATERS & STANTON

1973 WATERS & STANTON PLC 30th ANNIVERSARY 2003

PRICE MATCH

FREQUENCY COUNTERS

WATSON

All frequency counters supplied with internal NiCad's, charger and antenna.

Super Searcher	RF finder & freq. cnter 10MHz-3GHz	**£99.95**	B
Super Hunter	Frequency counter 10Hz-3GHz	**£149.95**	B
Hunter	Frequency counter 10MHz-3GHz	**£59.95**	B
FC-130	Frequency counter 1MHz-3GHz	**£79.95**	B

COAXIAL SWITCHES

WATSON

CS-600

Coax switches ideal for use in antenna systems for transceivers or receivers

CS-600	2-way coax switch 3x SO239	**£12.95**	A
CX201	2-way coax switch 3x SO239	**£18.95**	A
CX201N	2-way coax switch 3xN-socket	**£26.95**	A

DIAMOND ANTENNA

CX-310A

Thru power 1.5kW (max) Range DC-1500MHz Isolation 50dB 500-1500MHz

CX-310A	3-way coax switch 4x SO239	**£65.95**	B
CX-310N	3-way coax switch 4x N-socket	**£75.95**	B

MFJ

MFJ-1702C

Many models have centre earth position and static discharge protector.

MFJ-1702C	2-way coax switch + ground	**£28.95**	A
MFJ-1702CN	2-way coax switch N-type	**£36.95**	B
MFJ-1704	4-way coax switch SO-239	**£69.95**	B
MFJ-1704N	4-way coax switch N-type	**£79.95**	B
MFJ-1701	6-way coax switch SO-239	**£52.95**	B

REVEX

S20

These switches are well engineered and sold in large quantities to the commercial market

S20	2-way coax switch 1kW SO-239	**£32.95**	B
S-20N	2-way coax switch 1kW N-type	**£56.95**	B

AUDIO ACCESSORIES

WATSON

HP-200 Superb Communications Headphones at an amazingly low price

Base Microphones			
WM-308	Desk electret mic c/w ML-308	**£59.95**	B
ML-308	Spare mic lead for WM-308	**£8.95**	A
Earpieces			
FBI-9	Over the ear, 3.5mm mono, biege	**£9.95**	A
FBI-9K	Over the ear, 2.5mm mono, biege	**£9.95**	A
WEP-300B	Over the ear, 3.5mm mono jk-plug	**£2.95**	A
WEP-400	Deluxe adjustable, 3.5mm mono	**£14.95**	A
17-0576	Earpiece 8 Ohms 3.5mm mono	**£0.95**	A
17-0575	Earpiece 8 Ohms 2.5mm mono	**£0.95**	A
Speaker Microphones			
QS-112(Y,K,I,M)	H/held spkr/mic (state which model)	**£16.95**	A
Headphones			
HP-100 *NEW*	8 Ohm comms H/phones	**£19.95**	A
HP-200	8 Ohm padded comms H/phones	**£22.95**	A
Speakers			
30-9751	Pillow spkr 8 Ohms 3.5mm jk-plug	**£4.95**	A
SP-140B	Mobile comms ext. speaker	**£9.95**	A
SP-160	Mobile comms ext. speaker	**£9.95**	A
SP-170F	Mobile comms ext. speaker+filter	**£12.95**	A
SP-2000	Sun visor fitting mobile spkr	**£19.95**	A

HEIL SOUND

Heil Classic HCL series Base mic's with stand and Studio one + HC elements

Desk Microphones			
HCL-5	Classic retro-look HC-5 desk mic	**£259.95**	B
HCL-4	Classic retro-look HC-4 desk mic	**£259.95**	B
HCLic	Classic retro-look IC desk mic	**£259.95**	B
Hand Microphones			
GM-4	Goldline HC-4 hand mic	**£129.95**	B
GM-5	Goldline HC-5 hand mic	**£129.95**	B
GM-V	Goldline Vintage Hi-z hand mic	**£159.95**	B
Headsets & Boom microphones			
HST-817	Traveler single side headset for FT-817	**£89.95**	B
HST-706	Traveler single side headset for IC-706	**£89.95**	B
HST-IC8	Traveler single side headset for ICOM	**£89.95**	B
HST-K8 *NEW*	Traveler single side headset - Kenwood	**£89.95**	B
HST-KM *NEW*	Traveler single side headset - Kenwood	**£89.95**	B
HSTA-817	Extra interface cable for HST-817	**£24.95**	B
HSTA-706	Extra interface cable for HST-706	**£24.95**	B
HSTA-IC8	Extra interface cable for HST-IC	**£24.95**	B
Headphones & Boom Microphones			
PRO-SET-PLUS	Large H/phones with HC-4 & HC-5	**£199.95**	B
PRO-SET-PLUS-IC	Large H/phones with IC & HC-4	**£219.95**	B
PRO-SET-4	Large H/phones with HC-4 element	**£129.95**	B
PRO-SET-5	Large H/phones with HC-5 element	**£129.95**	B
PRO-SET-IC	Large H/phones with ICOM element	**£149.95**	B

bhi

NES10-2 Kills noise, brings up signals. Dip switches offer variable settings. Includes 12V pwr lead.

NES10-2	DSP spkr with user adjustment	**£99.95**	B
NES-5 (NESCB)	DSP spkr no user adjustment	**£79.95**	B
NEIM1031 *NEW*	Noise eliminating in-line module	**£129.95**	B

DATA & CODE

WEST MOUNTAIN

RIGblaster PSK31, MFSK, MT63, SSTV, RTTY, CW, packet/APRS

RIGblaster Pro *NEW*	Dual Port Data Interface & cables	**£289.95**	B
RIGblaster Plus	Data interface 8-pin, software & cables	**£139.95**	B
RIGblaster M8	Data interface 8-pin, software & cables	**£109.95**	B
Rigblaster RJ	Data interface RJ45, software & cables	**£109.95**	B
RIGblaster nomic8P	Data interface 8-pin, software & cables	**£62.95**	B
RIGblaster nomicRJ	Data interface RJ, software & cables	**£62.95**	B
M-4 Adaptor	Adapts nomic units to 4-pin output	**£12.95**	A
M-FT100 Adaptor	Adapts all units to FT100 input	**£17.95**	A
RB-CD	Standard RIGblaster program CD	**£9.95**	A

WATSON

W-GMP

All Morse keys made of brass and on wooden bases. Spring tension & gaps adjustable.

W-GMP	Small brass Morse key on base	**£29.95**	A
W-LMC	Standard brass Morse key on base	**£29.95**	A
W-GMC	Standard Extra Morse key on base	**£34.95**	B
W-GMV	Deluxe brass Morse key on base	**£39.95**	B
W-CRI	Paddle key brass on base	**£46.95**	B

AUTO ATU'S

LDG

RT-11 Low cost water resistant remote Auto ATU. Built-in Icom & Alinco interconnectivity.

AT-11MP Asm	Desktop Auto ATU HF 5-150W	**£269.95**	B
Z-11 Asm	QRP Auto ATU HF 0.1-60W	**£209.95**	B
RT-11 Asm *NEW*	Remote Auto ATU HF+6m 5-150W	**£239.95**	B

Also available in kit form. Choice of interface leads.

MFJ

ANTENNA TUNER UNITS

MFJ-989C VERSA TUNER V

**1.8-30MHz *3kW *6-way Antenna/ load switch *2 coax positions *Built-in 4:1 balun *X-needle meter *Peak & AV*
High power tuner.

MFJ-989C	3kW Roller Inductor ATU	**£379.95**	C

MFJ-969 DELUXE VERSA TUNER II

**1.8-54MHz *300W PEP *T-match network *Internal 4:1 balun *Built-in dummy load *X-needle meter *3-way ant switch*
One of the most popular 300W models.

MFJ-969	160-6m all band 300W ATU	**£199.95**	C

MFJ-949E DELUXE VERSA TUNER II

**1.8-30MHz *300W *3-way Antenna selector *Dummy Load socket *Internal balun *X-needle meter *Peak & AV*
Firm favourite with HF operators.

MFJ-949E	Antenna Tuner/Dummy Load 300W	**£159.95**	B

MFJ-962D VERSA TUNER III

**1.8-30MHz *1.5kW *6-way Antenna/ load switch *2 coax positions *Built-in 4:1 balun * X-needle meter *Peak & AV*
Ideal tuner for max UK legal power.

MFJ-962D	1.5kW Roller Inductor ATU	**£279.95**	C

MFJ-921 VHF DUAL BAND TUNER

**144/220MHz *200W max *Power meter *Rear panel earth terminal*
This tuner helps you get perfect VSWR and offers some filtering as well.

MFJ-921	144 & 220MHz VHF ATU 200W	**£74.95**	B

MFJ-971 PORTABLE TUNER

**1.8-30MHz *300/30/6W *X-needle SWR/Pwr meter * Tunes wire, coax & balance line ants *SO-239 sockets*
Natural ATU for QRP/portable working.

MFJ-971	QRP Portable ATU	**£99.95**	B

MFJ-16010 ANTENNA TUNER

**1.8-30MHz *200W *Base or portable *SO-239 sockets *Simple tuning controls*
Great little tuner ideal for portable work especially for the FT-817.

MFJ-16010	Random Wire Tuner	**£56.95**	B

ARTIFICIAL GROUND

MFJ-931 ARTIFICIAL GROUND

**1.8-30MHz *Ground current meter *Used where no earth ground is possible *Reduces TVI/RFI *Resonates random wire*
Places rig near to actual ground potential.

MFJ-931	Artificial Ground	**£94.95**	B

ACTIVE ANTENNA

MFJ-1022 ACTIVE ANTENNA LF/HF/VHF

**300kHz-200MHz *Handles strong signals *Reduces Intermod *Low noise *Includes telescopic whip *SO-239 *9V batt or 9-18VDC*
Easily plugs into your general coverage Rx.

MFJ-1022	Wideband Active Rx Antenna	**£55.95**	B

DUMMY LOAD/WATT METER

MFJ- 267 DUMMY LOAD/WATT METER

**1.8-54MHz *300/3000W FWD *60/600W RFD *50 Ohms *3in X-needle meter VSWR/Pwr *Reads PEP or AV *SO-239 x2 sockets *9-12V*
Switch enables the dummy load to be by-passed

MFJ-267	Dummy load & VSWR meter HF+6m	**£129.95**	B

NOISE CANCELLER & SSB & CW AUDIO FILTER

MFJ-1025 NOISE CANCELLER

**1.8-30MHz *RF sensed/control switching *Thru Pwr handling for Tx *13.8V ext*
Eliminates locally received electrical noise.

MFJ-1025	QRM Eliminator (no active ant)	**£169.95**	B

MORSE CODE READER

MFJ-461 MORSE CODE READER

**Stand alone unit *Built-in mic *32char high contrast LCD *Automatic speed tracking *Serial port *Built-in speaker *9V PP3 (not included)*
Simple PC program available (user supplies disk)

MFJ-461	Pocket size Morse code reader	**£84.95**	B

MFJ-890UK DX BEACON MONITOR

**Locks onto local atomic standard *18 different world paths *5 HF DX bands *Mimics beacons' sequences - not a receiver *Ext 12V, PP3 back-up*
Use your receiver to listen to the appropriate band.

£99.95 B

INAC FA-10 POWER SUPPLY

The FA-10 provides a variable 9-15V DC output, 10A max. 8A continuous. Full over current, over voltage and short circuit protection is included. Output is delivered either through a pair of recessed banana type terminals on the front panel or conventional terminals on the rear panel. Has built-in loud speaker, carry handle and folding legs.

SPECIAL OFFER! HURRY! £39.95 C

MANSON EP-925 PSU

The EP-925 is a general purpose 3-15V DC 25A (30A peak) power supply able to provide the needs of the modern 100W HF transceiver. It offers dual analogue meters and has over current protection. Large power terminals for rigs as well as quick snap connectors for ancillaries.

NOW BACK IN STOCK **£99.95 C**

CHECK OUR 2003 PRODUCT GUIDE FOR MORE DETAILS OF THESE PRODUCTS

THE SGC SPRING PROMOTION @ WATERS & STANTON

BUY NOW AND SAVE POUNDS!!!

SG2020
20W HF TRANSCEIVER

Rugged construction, fully featured HF transceiver, ideal for QRP operation.

WAS:~~£699~~ NOW:£549.95

SG2020
ADSP VERSION

Rugged construction, Adaptive DSP now built-into this model.

WAS:~~£899~~ NOW:£649.95

SG239 - MINI AUTO HF COUPLER
1.8-30MHz 200W

Low cost with 170 tuner memory locations (not waterproof). Ideal for any antenna including long wires.

WAS:~~£299~~ NOW:£189.95

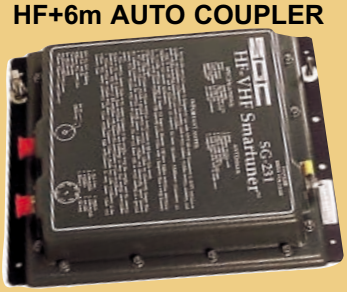
24 Hour Courier Delivery £10 Any Item. £12 For Two Or More

SG230 - HF AUTO COUPLER
1.6-30MHz 200W

Wide HF coverage ideal for any antenna including long wires, fully waterproof.

WAS:~~£399~~ NOW:£359.95

SG231
HF+6m AUTO COUPLER



Our most popular auto coupler covers HF +6m, 100W. Superb matching for any antenna including long wires.

WAS:~~£439~~ NOW:£359.95

SG235 - HIGH POWER AUTO COUPLER 1.6-30MHz 500W

High power with wide HF coverage for any antenna including long wires, 170 tuner memory locations.

WAS:~~£1499~~ NOW:£799.95

W&S FREEPHONE ORDER LINE: 08000 73 73 88

SG237 - 1.8-60MHz 100W

Smallest auto coupler ideal for any antenna including long wires covers HF +6m, 100W. Great for rigs without ATU's.

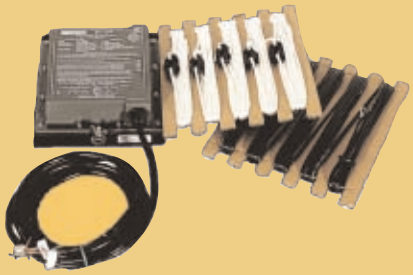
WAS:~~£439~~ NOW:£299.95

SG237 PORTA
AUTOMATIC PORTABLE COUPLER

Designed for portable or base station operation. 3/8in antenna connection.

WAS:~~£649~~ NOW:£449.95

STEALTH ANTENNA KIT



Erect anywhere indoors, even in small apartments. Handy for disaster communications.

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PW

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Cover Subject

As we put the finishing touches to **Oliver Tillet's G3TPJ** project, The *PW* IBP Monitoring Receiver, we thought it deserved a place on the cover this month. We think you'll agree for a home-brew project it's very photogenic and nicely finished. If you have a go at building the project remember to let us know how you get on!

Enjoy this issue, keep Amateur Radio alive by spreading the message of how much it has to offer... and above all enjoy it!

Design: **Steve Hunt**
Photograph: **Tex Swann G1TEX/M3NGS**

April features

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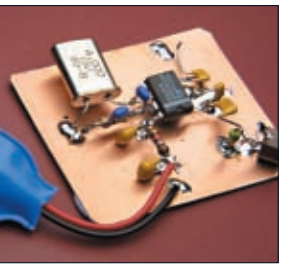

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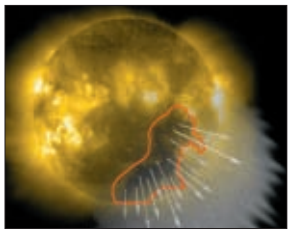

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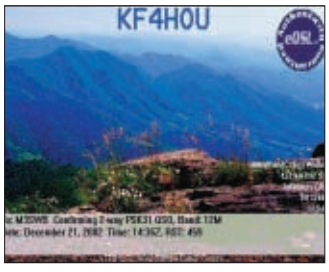

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rob mannion's keylines

Welcome to 'Keylines'! Each month Rob introduces topics of interest and comments on current news.

This month's Worthington cartoon memory - referred to by **John Tye G4BYV** in his letter (see letters page this month) is one that's remembered by him from October 1949. After you've seen the cartoon, the joke is of course that the chirpy signal didn't matter...the air-crew survivors had been heard! And in a way I think it's still an appropriate comment - because the modern parallel is: no matter who or what you are in Amateur Radio...you're on the air and achieving something!

Obviously we don't want a chirpy signal - but the complainant at the other end (on land) has obviously forgotten the significance of the fact that the dingy set's signal has been received! We may not be in danger of losing our lives as the occupants of the dingy were - **but if we lose sight of the fact that our hobby encourages communication between all particpants**...we might as well switch off!

Original caption: "....*Chap says we've got a chirpy note....*" (see text).
(Reproduced courtesy of Short Wave Magazine).

Additonally, I have to admit that researching (courtesy of **Kevin Nice G7TZC/M3SWM**, the Editor of *Short Wave Magazine*) through the archives is itself a dangerous thing indeed. **Dangerous?** Yes, I was in danger of stopping work altogether and sitting down and reading the archives for the rest of the day. This was because amongst the articles from October 1949's issue I spotted a superb feature on adding intermediate frequency regeneration to superhet receivers...something which is at the moment being featured in the Radio Basics column in *PW*.

So, whatever you do at home - I ask you never to throw away your old magazines. Please keep them for future reference as they make superb bite-sized chunks of reference material with a very practical outlook.

Correspondent In Cashel

Some of our authors - who have their full addresses published in *PW* - together with readers who've had their full names and callsign published in the magazine have been receiving a series of mystifying letters from a correspondent in Cashel, County Tipperary in the Republic of Ireland. Incidentally, it's a truly delightful place overlooked by a magnificent ruined castle perched on the Rock of Cashel, dominating the small town.

We've also been receiving the letters here in quantity at the *PW* Editorial offices! They (I've got a pile of 25 of them here, and four or five a week can arrive) are very distinctive in that they all use the same style brown envelopes and the Irish Air Mail stamps. These apparently used stamps are from the delightful series featuring the birds native to Ireland and have been cut off the original envelopes and stuck onto the new envelopes using transparent tape. Fortunately, the British Post Office have not levied any charges on recipients here in the UK!

Rest assured though, the letters which are written very distinctively indeed, **are invariably friendly**. They're also very brief, usually contain some references to DX TV and other subjects...**although all are completely baffling**. And bearing in mind the addresses are often only a town and county (with sometimes a callsign) it's a credit to the Irish Post Office and the Royal Mail that they're getting through.

I'm actually mentioning the mystery because I realise how many of the letters must have been received, judging by the reports from authors and readers. Fortunately, thanks to the Amateur Radio grapevine, including friends in Tipperary and County Cork (**Thank you folks your help was much appreciated**) **I've now learned that despite my own determined efforts there's no point in trying to reply to the writer**. So, if you've received one of the Cashel mystery letters, to save further embarrassment I suggest you don't reply. Please contact me directly and I'll be able to explain the situation at the Irish end personally.

Free Catalogue

Finally, this month the *PW* team are pleased to include the latest Greenweld catalogue which they tell us is filled with "A selection of great bargains". Greenweld produce several different editions each year and they suggest that you don't forget to register with them to make sure you get your free copy of the next issue.

You never know...something you find in the catalogue may end up being incorporated into a *PW* project. It was a surplus synchronous motor from another supplier which helped me produce the first International Beacon Project (IBP) timer unit - so here's hoping!

Rob G3XFD

practical wireless services

Just some of the services *Practical Wireless* offers to readers...

Subscriptions

Subscriptions are available at £31 per annum to UK addresses, £39 in Europe and £43 (Airsaver), £49 (Airmail) overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both Practical Wireless and Short Wave Magazine are available at £61 (UK) £74 (Europe) and £82 (rest of world), £94 (airmail).

Components For *PW* Projects

In general all components used in constructing *PW* projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article. The printed circuit boards for *PW* projects are available from the *PW* PCB Service, **Kanga Products, Sandford Works, Cobden Street, Long Eaton, Nottingham NG10 1BL. Tel: 0115 - 967 0918. Fax: 0870 - 056 8608.**

Photocopies & Back Issues

We have a selection of back issues, covering the past three years of *PW*. If you are looking for an article or review that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues for *PW* are £2.85 each and photocopies are £2.85 per article.

Binders are also available (each binder takes one volume) for £6.50 plus £1 P&P for one binder, £2 P&P for two or more, UK or overseas. Prices include VAT where appropriate.

A complete review listing for *PW/SWM* is also available from the Editorial Offices for £1 inc P&P.

Placing An Order

Orders for back numbers, binders and items from our Book Store should be sent to: **PW Publishing Ltd., Post Sales Department, Arrowsmith Court, Station Approach, Broadstone Dorset BH18 8PW**, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling. Credit card orders (Access, Mastercard, Eurocard, AMEX or Visa) are also welcome by telephone to Broadstone **(01202) 659930**. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Broadstone **(01202) 659950**.

The E-mail address is **bookstore@pwpublishing.ltd.uk**

Technical Help

We regret that due to Editorial time scales, replies to technical queries cannot be given over the telephone. Any technical queries by E-mail are very unlikely to receive immediate attention either. So, if you require help with problems relating to topics covered by *PW*, then please write to the Editorial Offices, we will do our best to help and reply by mail.

amateur radio waves

Make your own 'waves' by writing into *PW* with your comments, ideas, opinions and general 'feedback'.

The Star Letter will receive a voucher worth £20 to spend on items from our Book or other services offered by *Practical Wireless*.

Go Boil Your Toroids!

● **Dear Sir**

I enjoyed your article in Radio Basics (*PW* March issue) on toroids and winding them, etc. As I'm at present developing a transmitter-receiver for a club project which uses toroids, this article was very timely. However, you forgot to mention one thing, which I originally thought was an urban myth, but have come to take seriously: If you wish your nice new inductor to remain any thing like stable over time, having wound it, you should boil it for 5 - 10 minutes to anneal the core material.

Now that is nasty....boiling your own toroids! Regards.

Andrew Rose G8PEO/M0PEO
Crewe
Cheshire

Editor's comment: Thank you Andrew I didn't know that one! I'm pleased you enjoyed Radio Basics - there's been much feed-back on that article, so I ask you please see this month's column for further advice.

'Silent Key' Sales & *Radiophile*

● **Dear Sir**

I was particularly interested to read the piece about 'Silent Key' sales in the January 2003 issue of *PW*. This is because here at *The Radiophile* we handle many of these unfortunate events every year.

I hope and believe that at a time when the relatives of the deceased are grieving and vulnerable, an approach guided by my personal Christian beliefs and the empathy engendered by my once having lost a spouse in tragic circumstances can be of more than mere financial assistance. Indeed, for many of the dependents with whom I meet, although the money provided by the sale would be welcome, the more important aspect is that the articles concerned should go to persons who would appreciate them and not be scrapped. This is a view with which I concur entirely, as I feel that to consign someone's long term collection to a skip would amount to throwing part of his life away with it.

In fact, many dependents have very little idea of the value of the items left by the deceased. Here is where the danger lies in entrusting the disposal of them to anyone but a highly experienced professional. This does not, by the way, apply exclusively to the possibility of unscrupulous or acquisitive persons willing to take advantage of vulnerability, although the number of instances I have encountered in which a widow has been badgered within days of losing her husband by would-be purchasers suggests that there are folk for whom the ordinary standards of behaviour do not apply.

This is the sort of thing I mean: A year or two ago, we were approached by a lady who was faced with the unpleasant task of emptying a large household of old radio receivers. She had already been visited by a collector who had selected a few sets that ought to have been worth at least £1000 and had handed over just £400. Unfortunately, none of huge number left was worth more than a few pounds, but they had to go quickly due to an expiring lease. We had to send at considerable cost a large van and two men on a round trip of 500 miles to achieve the object - but even after all expenses had been paid we were still able to send the lady a cheque for over £700.

Unfortunately, well-intentioned but misguided amateurs - **and I must emphasise here that I use the term to mean non-professional and not in connection with Amateur Radio** - also can cause a dependent to lose hundreds, maybe thousands of pounds. If you doubt this, let me tell you about the lady who asked us to sell a cellarful of old radio gear left by her late father.

The lady had been led to believe that the equipment might be worth perhaps £20 in total and certainly most of it was utter junk. However, lurking amongst it, filthy, dirty and almost unidentifiable, was a very old Marconi receiver from c1922. When we cleaned it up and sold it, we were able to send the lady a cheque for well over £2000!

Again, some time ago we were approached by a gentleman who had been attempting to dispose of a large collection of radio equipment for a dependent via a local radio club. The results so far had been very meagre, but when we took on the job, the very first instalment sold by us fetched over three times what had thus far been raised. Since then, we have sold successfully several more consignments for the same person.

Over, rather than under, estimating the value of a piece of equipment can also be harmful to the interests of a dependent. About three years ago we were asked to sell a certain type of small receiver with an often over-rated rarity value. The owner had been advised that it was "worth over £1000". In fact, this was a gross over-estimate even for an example in pristine condition and the sad fact was that this particular one was missing its handle and rattled internally when moved about.

We reported all this to the owner, but she was adamant that we should apply a reserve price of £750. Inevitably, it did not sell, but hoping to save the situation for the owner, I approached a dealer who was present and suggested that he might like to make a private offer. He came up with what I thought to be an exceptionally generous figure of £550 and I urged the owner to accept it. "No: was the answer, she had been told it was worth over £1000 and that is what it would have to be. Since then, I have heard of several examples of this set having changed hands for around £300.

On a more positive note, a radio enthusiast in the North of England left a vast quantity of equipment for which the solicitor handling the estate had been given an estimate locally of around £1800. Fortunately for the dependent we were called in and after we had sold the goods and all expenses had been paid, we were able to send him a cheque for over £6000.

A major factor in our success in disposing of radio equipment is that the attendance at our auction sales consists £100% of radio enthusiasts most of whom receive our catalogues regularly under our scheme by which for a single payment of £10 we send them each one for 12 months, plus the subsequent reports which give all prices paid. This represents a very considerable saving over the normal price of £2 each for each catalogue and report. We also have the services of a first rate professional auctioneer, **Phil Furnival**, whose expert handling of our sales regularly earns him warm applause at the end. I cordially invite anyone interested in disposing radio equipment to get in touch with me at the address given below.

Charles Miller
Editor
The Radiophile
Larkhill
Newport Road
Woodseaves,
Stafford
ST20 0NP

Editor's comments: As readers will know - Charles is also one of our respected team of authors working on the Valve & Vintage column. The Silent Key article was published as 'General Advice' and not aimed at promoting any particular method of disposing of equipment. However, I am pleased to publish his letter, along with any others which we receive on the same topic, in good faith and as a service to our readers.

Gremlins & Antenna Workshop

● **Dear Sir**

Thanks for the March issue of *PW* which arrived nice and early on the Saturday before publication now I'm a subscriber. I also see the gremlins have been at **Gordon King G4VFV's** article on pages 22 & 23 as both Figs. 2 & 3 are the same diagram (WS2007).

I also liked **Allan Wightman's** Antenna Workshop this month and you might like to hear my experience with Terrestrial Digital Television (TDTV). Here in Stourbridge, my QTH is good for TV as there is an excellent signal from the Wrekin 100kW transmitter in Shropshire which some neighbours use, together with the local Brierley Hill Relay station (10kW) less than 4 miles away. (However, received pictures at my home from this transmitter are impaired by ghosting... possibly due to large buildings in the area of the transmitter.

The Main Station I use is Sutton Coldfield (1MW e.r.p.) say 20 plus miles away, a small outside antenna on the lower part of my antenna mast for the receiver in the kitchen and a 18 element one in the loft for the main TV. I had thought about a set-top digital box and the website shows that most channels are available from the Brierley Hill site. Additionally, a pub just up the road from me did have a new high gain antenna pointing to that site within the last year or so, therefore I expected to have to do some antenna work here.

However, in December a neighbour two doors away had recently had a new TV, video, DVD and then a set-top box and was using the same outdoor antenna for Sutton Coldfield without any problems...which impressed me. Seeing an offer for a set-top digital box before Christmas, I bought one (a Nokia, upgraded from the On-Digital) and first set it up with the kitchen outdoor antenna and all was well.

I then transferred the digi-box to the lounge using the loft antenna, and surprise - surprise again received perfect pictures. Yes, I get the odd drop-out at times, but so far there is no urgent need to move the antenna from the loft to outside. So, it really is worthwhile having a go at the new system and no doubt I'll find Allan Wightman's experiences helpful when the time comes.

I look forward to meeting you at one of the Rallies this year, perhaps Wimborne, now that Longleat is off. Regards to the Editorial team and keep up the good work with *PW*.

Richard Newton G0EWH
Stourbridge
West Midlands

Editor's comment: Nice to hear from you Richard! Our apologies for the error in G4VFV's article - please see the correction this month. There's been much interest in the TDTV subject and a great deal of feedback from readers. We hope to have more on the subject (relevant to Amateur Radio operations) soon and this month's Topical Talk also features some of the other benefits of cable, satellite and TDTV.

Attention M0BBA - M0BZZ Callsigns

● **Dear Sir**

I would like to through your columns bring to the attention of your licensed readers in the callsign block **M0BAA-M0BZZ** the following request. As QSL Sub Manager for this call block, **I have over 3000 unclaimed QSL cards**. So, I'm appealing to anyone who thinks they may have cards lying with me to get in touch, this especially applies to non RSGB members.

I am QTHR in any callbook, and can also be contacted by E-Mail: **b.mulleady@blueyonder.co.uk** My full address is also provided and I can also be found at **www.qrz.com** Thanking you in anticipation.

Brian Mulleady GM0KWL
9 Elizabeth Crescent
Falkirk
Scotland FK1 4JF

Maths Okay...But Results?

● **Dear Sir**

The article by your contributor **Dr John Share G3OKA** on the Windom Antenna (February *PW*) was long on mathematics but short on results. Does his new Windom actually work better than the traditional design?

I recently purchased a Carolina Windom from one of your respected advertisers (complete with one-third tapping point) and I can only report that I am delighted with its performance. Using the a.t.u. built into my TS-570D, it loads up readily on all bands (including WARC) from 3.5 to 28MHz, only requiring an auto tuner extender - exactly as predicted by the manufacturers - to load up on 1.8MHz. Its performance is excellent!

Roger Dowling G3NKH
Lymm
Cheshire

Rag Chews & Tables

● **Dear Sir**

It occurs to me that we (G), G2, G3, G4, etc.) need an incentive to bring M3s into our community. I propose either an award for working the most M3s or a league table showing how many we've worked. Also a calling channel so that we can find them and pull them out of the noise, perhaps on 3.5MHz? Should anyone want a sked on 3.5 or 7MHz with me please E-mail me at **sleepers56@btopenworld.com** and I mean a Ragchew...not a 5-9 and 'goodbye'!

Bob Kerby G0CHK
Fishbourne
Chichester

QRP Index Plus Revived

● **Dear Sir**

I enjoyed **Tom Kelly EI2JA's** article QRP Index Plus Revived in the March *PW*. I always think of this rig as the Reliant Robin of the QRP world with its one leg at the front. Sadly, there have been reports on the QRP-L internet reflector of Stan Yarema having become a Silent key. Perhaps if you can confirm this it will save folk needlessly contacting Stan's family. Kind regards to everyone at *PW*.

Tony Fishpool G4WIF
Dartford
Kent

Continued...

● Keep your letters coming to fill *PW*'s postbag

Letters Received Via E-mail

A great deal of correspondence intended for 'letters' now arrives via E-mail, and although there's no problem in general, many correspondents are forgetting to provide their postal address. I have to remind readers that although we will not publish a full postal address (unless we are asked to do so), we require it if the letter is to be considered. So, please include your full postal address and callsign with your E-Mail. All letters intended for publication must be clearly marked 'For Publication'. **Editor**

Editor's comments: Thanks Tony, we heard (after March *PW* had passed for press) that Stan Yarema K7SY died some months ago. We've been informed that all the Plus components are now held by Emtech in Bremerton, Washington State. Their website is http://emtech.steadynet.com

Worthington Collection Please!

● **Dear Sir**
You've recently asked readers who would be interested in a collection of GW3COI's cartoons. I would for one! I remember many of his drawings for *SWM* in the 1970s and 1980s and would cherish a collection of his work. I regard John's work as on a par with Matt in the *Daily Telegraph*, which is often worth the price of the paper on its own!

Secondly, I did like the article on the *PW* IBP monitoring receiver. I guess that the most expensive part of the project was the case! I write as a buyer for a Satellite Communications company, and even though we buy in bulk, the cases for our equipment often come to about 10% of the cost price. For a one off project they will be much higher. That said, it's a very attractive piece of equipment, and as is often the case, good packaging often makes it look so much better. Regards

Geoff Theasby G8BMI
Keighley
West Yorkshire

Editor's comment: Request noted Geoff! The *PW* team are also delighted you're enjoying Oliver Tillet G3TPJ's unusual and unique project - part 2 this month.

Worthington & Water!

● **Dear Sir**
I write with reference to the cartoons by John Worthington GW3COJ featuring two downed airman in a rubber dinghy using a kite antenna, published in *Short Wave Magazine* in October 1949. One of the chaps in the dinghy was saying to the other..."He says we have a chirpy note"! It was very funny. What I like about John's work was is that it reflects our hobby so well. Cheerio and thanks for the memories!

John Tye G4BYV
Dereham
Norfolk

Editor: Please see Keylines for the cartoon and further comments.

Up The Ladder

● **Dear Sir**
I'm writing with reference to Up The Ladder by Allan Wightman in the March issue of *PW*. Following the excellent article on TDTV and antennas by Allan, I thought I'd let you know of the problems I had setting up a TDTV system for my parents.

For Christmas my wife and I treated my parents to a digital set top box. On Christmas Day, my mother unwrapped the box and I plugged it into the TV and followed the instructions for tuning up. One or two stations tuned in but not the great range of promised programmes and After checking the appropriate websites, I realised that I would have to replace the antenna for a wide band version.

My parents live just outside St Andrews, high on a hill. Traditionally, the TV signals into the area came from the massive site at Durris, just south of Aberdeen and once the home of the Aberdeen Amateur v.h.f. repeater. To keep their stock to a minimum, antenna erectors in the area only keep u.h.f. antenna for the Durris channel groups, as signals from the Angus transmitter can't be received in St. Andrews. (Signals from Durris cut across the edge of the Sidlaw Hills and over the Tay estuary and into St Andrews and North Fife).

Therefore the existing antenna was for Durris and I think the set-top box was being 'confused' with two sets of signals from both Durris and Angus. (Their home is high enough for signals from Durris, Angus and Craigkelly to be received on a simple u.h.f. dipole.

A few days into the New Year on a freezing cold day, I was up on the roof replacing the existing system with the wide band antenna recommended for the area to pick up digital signals from Angus. I also replaced the coaxial cable while I was at it. Checked the OS map and pointed the antenna in the direction of Angus. I then re-tuned the terrestrial channels on the TV and VCR and then switched on the set top box. Result? Much the same as before with several memories storing BBC1, etc.

I gave the matter a bit of thought over the next few days and then realised that there was the possibility that the set-top box might be receiving signals not only from Durris and Angus, but also Craigkelly on the back of the beam.

The cure was to remove the set top box, take it over to my brother's house where only the signal from Angus is received and allow the box to auto-tune there. On returning to my parent's, the set worked perfectly. This process has since been repeated with other set-top boxes bought by parent's friends!

I hope this will be of interest to readers and Allan himself.

Colin Topping
GM6HGW/MM3ACL
Fife
Scotland

Editor's comment: Thanks Colin! those readers who live on Britain's east coast (where long u.h.f. Band V and V sea pathways are available) may also find your technique very helpful.

amateur radio rallies

Radio rallies are held throughout the UK. They're hard work to organise so visit one soon and support your clubs and organisations.

* March 16
The Norbreck Amateur Radio, Electronics & Computing Exhibition
Contact: Peter Denton G6CGF
Tel: 0151-630 5790
The Norbreck Amateur Radio, Electronics & Computing Exhibition, organised by the Northern Amateur Radio Societies Association (NARSA), is being held at the Norbreck Castle Exhibition Centre, Blackpool. Don't miss the largest single day exhibition in the country. Morse tests will be available on-demand.

March 16
Bournemouth Radio Society's Annual Sale
Contact: Olive & Frank G0GOX
Tel: (01202) 887721
The Bournemouth Radio Society's 15th Annual Sale is to be held at Kinson Community Association Centre, Pelhams Park, Millhams Road, Kinson, Bournemouth. Admission is just £1 and doors open 1000 till 1600. Talk-in from G1BRS on 144MHz S22, Amateur Radio, Computer Traders, Antenna Suppliers, Bring & Buy stall, also Specialist Groups and Clubs and there will be home-made refreshments.

March 22
Junction 28 QRP Convention
Contact: Duncan Walters G4DFV/Russell Bradley G0OKD
Tel: (01623) 465443/(01773) 783394
E-mail: pentode@ntlworld.com / russel.bradley@ntlworld.com
The South Normanton, Alfreton & District Amateur Radio Club, in association with the G-QRP Club, are holding their third Junction 28 QRP Convention. The venue once again is the Village Hall Community Centre, Market Street, South Normanton, near Alfreton in Derbyshire, just five minutes from M1 Junction 28 and the A38. This popular event features talks by guest radio personalities, a Bring & Buy and Special Interest Group stalls.

April 6
22nd Enniskillen Amateur Radio Show
Contact: Herbie GI6JPO
Tel: 028-6638 7761
E-mail: h.graham@bigfoot.com
Lough Erne Amateur Radio Club hosts the 22nd Enniskillen Amateur Radio Show in the Killyhevlin Hotel, Enniskillen, Co Fermanagh, Northern Ireland. Admission £3, includes free raffle ticket, Doors open at 12 noon. Big car park, bar and good food. Bring & Buy, with no fee, raffle with valuable prizes. Amateur Radio, Electronics, Computers, traders big and small, equipment, accessories, components, new surplus and second-hand, and traditional attendance from all over Ireland, north and south.

April 6
The 46th Northern Mobile Rally
Contact: Gerald Brady G0UFI
Tel: (01765) 640695/(07734) 478080
E-mail: webmaster@harrogaterally.co.uk
The 46th Northern Mobile Rally (Harrogate Rally) will take place at Harrogate Ladies College. Doors open at 1030. Entry is by programme at £2.50. More information from **Gerald Brady G0UFI** as above.

April 13
The Cambridgeshire Repeater Group Annual Rally
Contact: Paul Dyke G0LUC
Tel: (01462) 683574
E-mail: g0luc@btinternet.com
The Cambridgeshire Repeater Group are holding their Annual Rally at Bottisham Village College, Bottisham, which is six miles east of Cambridge. Access is via A14 and A1303. Features will include a large hall, car boot sale and a Bring & Buy. Doors open at 1030 and admission is £1.50. Refreshments will be available and there will be a Talk-in on S22.

*** Look out for a representative from PW Publishing Ltd at this rally. Go along to the stand for great deals on subscriptions to *Practical Wireless, Radio Active* and *Short Wave Magazine*, clearance books and a selection of back issues.**

Please Note!
If you're travelling a long distance to a rally, it could be worth 'phoning the contact number to check all is well, before setting off.

amateur radio news

A comprehensive look at what's new in our hobby this month.

Dundee Club News

Coast Call

In a change from their usual meetings, members of the Dundee Amateur Radio Club recently visited the Fife Ness Coastguard Station.

The **Dundee Amateur Radio Club** meet on Tuesdays at 1930hours, usually at The Dundee College, Graham Street Annex, Dundee but recently 13 members enjoyed a visit to the Fife Ness Coastguard Station based at Crail. While there the club members were treated to a full tour of the communications equipment and computer operations of the station and were made very welcome by the staff based there.

If you'd like to find out more about becoming a member of the Dundee ARC please contact **Martin Higgins MM3WM**, Honorary Secretary at:

c/o 60 Duns Crescent,
Dundee
DD4 0RZ
Website: http://www.dundee-amateur-radio.co.uk

Repeater News

On Air Again!

The West Devon Repeater GB3WD is now back on the air.

West Devon Repeater **GB3WD** is now back on the air from its new home on the University of Plymouth Building in Plymouth City Centre. The output is 145.700MHz and the input 145.100MHz.

The repeater is equipped with CTCSS frequency 77Hz and offers excellent coverage throughout Plymouth and the surrounding area. The repeater group looks forward to welcoming new and old users and wish to say a vote of special thanks to the University of Plymouth for the use of the site and the support they have given to the group.

New Director

Stockley At Your Service!

There's nothing like keeping Amateur Radio in the family and Icom (UK) Ltd., are certainly following that tradition.....

Andy Stockley has recently joined the Icom (UK) Ltd Board of Directors, which already comprises of his father **Dave Stockley** (Chairman), his brother **Bob Stockley** (Sales & Marketing Director) and **Philip Hadler** (Managing Director).

Andy joined Icom (UK) Ltd., on 23 May 1980 when it was then called Thanet Electronics Ltd. Talking to **Ian Lockyer**, Icom's Marketing Manager Andy said "I started working as a packer and the volume was quite different from what it is today, I think then you could have put all of our deliveries in a supermarket trolley!

"I went on to do a number of other jobs which included modifying radios, adding radio crystals and entering radio frequencies. I also got involved with taking calls which was a great experience for my eventual move into sales".

When Icom moved to Sea Street the sales staff were strictly divided into departments. This is in complete contrast to today where the sales staff have to have a general sales knowledge about all the markets, as well as their specialist subjects.

Andy got his Amateur Radio Licence in 1989 and his father passed on his callsign, **G8ELP** to him. His first Amateur rig was an IC-215 (of course!), which was just about portable enough for him to take and use at college.

Andy comments "Dad has always encouraged me with the hobby and I can remember fondly doing Fox hunts with him" and goes on to say, "I still participate in the hobby today but with a large family I find it sometimes difficult to get on the air. I have an IC-207 v.h.f/u.h.f. f.m. transceiver in the kitchen and whilst it may not be the best of places to keep it, it works really well... it is just a case of finding a quiet time to get on air".

You may have seen Andy on the Icom stand at rallies over the years and in particular he recalls "going down to Longleat in the late seventies with trestle tables, which is a complete contrast with the fantastic stands that the major manufacturers use today".

When asked about his future with Icom Andy said "I am pleased to have been appointed as a director of Icom UK. There are a lot of innovative and exciting things going on at Icom and I feel that the company has a very bright future and I am very pleased to be part of it".

Consumer PMR-446

Funkey Family

If you're interested in Private Mobile Radio then this new range from Kenwood will be worth a look.....

The UBZ-LJ8 - Funkey446 is the first PMR446 product to be launched by Kewood aimed at the consumer market. Developed from the UBZ-LH68 430MHz transceiver, used for the Low Power Device market in Europe but operating on the UK/European standard PMR446 channels, the UBX-LJ8 compliments Kenwood's TK-3101T which is aimed at the Business market.

The Funkey446 is available in a range of colours: silver, black and yellow and is the first product in the Kenwood range to be marketed by Kenwood and its dealers under its own model name - Funkey446. It's been designed to offer better r.f. performance and better audio than the cheaper competitors already on sale and preliminary company tests have confirmed this.

For more information check out **www.funkey446.com** or contact your local Kenwood Amateur Radio or Business Radio/PMR Dealer, or Kenwood UK direct.

Kenwood Electronics UK Ltd., Kenwood House, Dwight Road, Watford, Herts WD1 9EB. Tel: (01923) 655284

Football Radio

A Harmonious Relationship

Football and Amateur Radio may seem an unlikely combination but for Ukranian footballer Sergei Rebrov M0SDX/UT5UDX... the two sit together in harmony.

Following a move from Tottenham Hotspur Football club to Turkish club Fenerbahçe, Ukranian international footballer **Sergei Rebrov M0SDX/UT5UDX**, is now keen to get on the air from his new home in Turkey. Having recently signed an 18-month loan deal with Fenerbahçe the Ukranian international footballer who moved to Tottenham Hotspur in an £11-million deal in 2000, is a keen h.f. contester and during his time in the Uk has been very active on the bands as M0SDX from his home in Essex.

Sergei is now in the process of applying for a Turkish Licence and hopes to be active very soon. So, keep an ear out for him and don't forget to let the Newsdesk know if you 'work' him!

New from Palstar

It's All About Balance!

Most of the tuners available today match balanced fed, open wire or twin feeder type antennas after the 4:1 input balun, but this is not so with the new Palstar AT1500 BAL.

The method adopted by most tuners of balancing after the 4:1 input balun can be inefficient and causing large losses - especially on 1.8MHz. The balun is often completely mismatched on the antenna side. Instead the Palstar AT1500 Balanced Tuner matches the open wire and twin wire feeders **before** the balun, ensuring it 'sees' the correct input and output impedance to give maximum power transfer and efficiency.

As it uses a pair of huge edge wound silver plated inductors capacitor, the AT1500BAL tuner can handle 1kW of r.f. power. Other features include:

- Dual roller balanced L-antenna tuner
- Switchable Hi-Z/Low-Z impedance ranges
- Total inductance of 44µH for extended range on 1.8MHz
- Switchable 500pF fixed capacitor for 1.8MHz
- 1500W p.e.p.
- Large vernier control for the variable cabpacitor tuning

The Palstar AT1500 BAL is priced at £599 plus P&P and is available now from UK distributors, Nevada.
Nevada
Tel : 0239-231 3090
Website: www.palstar.co.uk

Community Service

Sign-up For RAYNET

Have you ever thought about putting your Amateur Radio skills to good use, helping your community at the same time? If so, then why not join RAYNET?

The Radio Amateurs Emergency Network (RAYNET) is looking to enlist new members for its various groups around the country. If you are not currently a RAYNET member, but would like to assist your local community in times of emergency and disaster, at the same time as providing useful communication facilities during training exercises, you really ought to consider joining in.

To get involved you can speak to a local exisiting RAYNET member or alternatively e-mail your name, callsign, address and telephone number to **info@raynet-uk.net** and your details will be passed to the appropriate local controller. Check out the website at **www.raynet-uk.net** for more details on the activities of RAYNET.

Distribution Deal

Nevada & Worldspace

India's largest Radio & TV Manufacturer BPL has appointed Nevada to distribute its range of Worldspace Radios in the UK and Europe.

The new range of BPL Worldspace radios will be available from mid-March 2003 direct from Nevada and the first in the range to be released will be the Celeste 11. The Celeste 11 is a portable radio coveing Worldspace Satellite, as well as the regular a.m./f.m. radio programmes.

Featuring a PC data interface which allows data downloads from the satellite with suitable software and a pair of large speakers designed to give outstanding audio reproduction, the Celeste 11 will no doubt be popular. The Celeste is expected to retail at £139.

The Worldspace Satellite system broadcasts digital high quality radio programes to almost two thirds of the world. Full information on the system and the radios available can be found at **www.worldspaceradios.co.uk**
Nevada
Tel: 0239-231 3090

Pictured with the new Celeste 11 Radio are from left to right Nevada's Mike Devereux G3SED with BPL's Julian Smith (Head of European marketing) and Dale Bradley (Business manager of Worldspace UK), concluding the appointment of Nevada as European distirbutors for the BPL Worldspace Radios

Club News

Chelmsford Champions

Ever active and keen to build foundations, the Chelmsford Amateur Radio Society have been busy again.

Pictured here is **Srinivasan Sampathkuma**r (Sam) operating under the supervision of **Martyn G1EFL** on 21MHz using the club call

New Rally

West London Radio & Electronics Show

A new national Radio event, organised by Radio Fairs takes place this spring at Kempton Park Racecourse, Sunbury-on-Thames. So, read on to find out more and make sure you make a note in your diary to go along.

The West London & Electronics Show takes place on Sunday 27 April at Kempton Park Racecourse, Sunbury-on-Thames, Middlesex. The event is being organised by **Radio Fairs** and is being supported by several major radio traders including Martin Lynch & Sons, Waters & Stanton, RSGB, Icom, Yaesu, Kenwood, Sycom, Moonraker, Sandpiper and bhi to name a few.

Other features of this new and 'exciting' event will include a Bring-& Buy sale manned by the Echelford Amateur Radio Society, Morse code testing, local RSGB Regional and Deputy Managers will also be on hand to discuss issues of the day with visitors. The Whitton Amateur Radio Group will be providing a talk-in on S22 using the callsign **GB2KRT**.

The location offers a large trading area, good parking facilities, bars and restuarants as well as outdoor seating and picnic area. Admission: £3.50 (£3 after 12.30pm), free for under 16s.

So why not go along, lend your support to this new radio rally, and enjoy a good day out? You never know what bargains you may pick-up along the way too! More information is available from:

Paul Berkeley M0CJX
Tel: (01737) 279108
E-mail: m0cjx@lineone.net Website: www.kemptonrally.co.uk

More Happy Foundationeers

Wigtownshire Winners

The Wigtownshire Amateur Radio Club has just completed the running of another Foundation Course as can be seen here from the successful candiditates proudly showing off their certificates.

The club are running another Foundation Course, which is scheduled to take place over the weekend of May 31/June 1. They are also planning to start offering Intermediate Courses as well as becoming a regisitered satellite examination centre.

If you are interested in joining in with the activities of the Wigtownshire Amateur Radio Club they meet on Thursdays at 1930hours at the Aird Unit, Stranraer Academy, Stranrear.

More information on the courses etc offered by the Wigtownshire ARC is available from Senior Instructor, **Ian Macdonald MM5WIG, Tel: (01988) 403364.**

Building Foundations

The *PW* team welcome another M3 to the fold....

Whether working behind the scenes or in the 'firing line' at PW Publishing Ltd., we like to encourage as many staff members as possible to take an interest in Amateur Radio and gain a basic understanding of the subject. So, we are pleased to welcome another M3 on staff...

Eileen Saunders has worked in the PW Publishing Advertising Department since 1999 and dealing with all things 'radio' obviously raised her curiosity, as she finally decided (with a little encouragment from **Clive Hardy G4SLU**) to take the plunge and go for her M3!

A course taking place over two Saturdays in January was found locally with the help of **Phil Mayer G0KKL** and before long Eileen was on her way to discovering the joys of Amateur Radio. The course, run by **Richard Newton G0RSN** (ably assisted by G4SLU) took place at Summerbee Junior School and was attended by nine eager students.

After successfully completing the course Eileen had hoped to get a callsign in memory of her late father, (who, although not a Radio Amateur had written for *PW* in the 1950s whilst serving in the RAF) unfortunately the combination she wanted had already been issued so she setted for **M3TTO**.

Well done Eileen! We look forward to hearing you on the bands.

GX0MWT. Sam was being tutored as the part of the Foundation assessments in which candidates have to carry out QSOs on the h.f. and v.h.f/u.h.f bands.

The Chelmsford Amateur Radio Society runs Foundation evening courses every two months and an Intermediate course is due to start on 15 May. The club meet on the 1st Tuesday of every month at The Marconi Social Club, Beehive Lane, Great Baddow, Chelmsford. Doors open at 1915 hours and the meeting gets underway at 1930. For further information contact the secretary:

David Bradley M0BQC
Tel: (01245) 602838
E-mail: cars@g0mwt.org.uk
Website: www.g0mwt.org.uk

In Memory

Amateurs On Board *Columbia*

Many of us watched and listened in horror and disbelief on 1 February as Space Shuttle Columbia met with an untimely fate upon its re-entry to earth.

As a mark of respect to the crew, families and all NASA staff involved in *Colombia's* Shuttle Misson STS-107 the *PW* team would like to remember all those on board and in particular the three Radio Amateurs, **Kalpana 'KC' Chawla KD5ESI, Laurel Clark KC5ZSU and David Brown KC5ZTC.**

Many Radio Amateurs monitor Shuttle Missions and with organisations like AMSAT supporting the advances in space exploration we felt it appropriate to offer our condolences and pay tribute to those who in fulfilling dreams and playing a role in scientific advancement unfortuntately did not get the chance to pass on the knowledge gained on Mission STS-107.

The STS-107 crew from left to right: Mission Specialist, David Brown, Commander Rick Husband, Mission Specialists Laurel Clark, Kalpana Chawlam Michael Anderson, Pilot William McCool and Payload Specialist Illan Ramon. They'll not be forgotten.

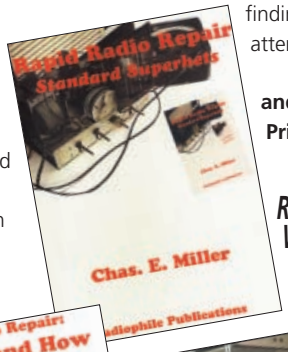
amateur radio **books**

Valved & Vintage Repairs

Rob Mannion G3XFD has been busy reading three interesting books dealing with vintage valved radio equipment repairs. Our Editor considers that the books, written by PW author Charles Miller, will be extremely useful for our many Valve & Vintage enthusiasts.

Charles Miller is a deservedly very popular and well known author through his work for the *PW* Valve & Vintage series. And although he's equally well appreciated for his wry sense of humour in his writing...his work as Editor and Publisher of the subscription only quarterly edition magazine *The Radiophile* is not perhaps so widely known.

Charles' magazine is aimed directly at the specialist who longs for the days when the bedside radio kept you warm...in other words by using valves and plenty of them! It's a fascinating read and every issue is packed with technical articles on the vintage theme, along with historical features, etc. The magazine is published quarterly with striking, period-flavour colour front covers which are produced in-house by Mrs Miller! One glance at the covers, very reminiscent of those evocative vintage railway travel posters, immediately provides a flavour of what's to come. Well done Jo' Miller!



As a direct result of his work on *Radiophile* and his many years of experience in wireless repair techniques Charles has published various books. Those of special interest to our readers include the *Valve Radio & Audio Repair Handbook* (Second Edition), ISBN 0 7506 3995 4, is published by Newnes. Slightly smaller than the A4 size, this softback publication provides excellent reading, a great deal of technical information, together with techniques and workshop practice.

The 30 or so chapters include much helpful information (and reflect the 'Miller' approach!). They are: What you need to know about real life resistors, condensers, tuning, valves, the superhet, etc. Tools and techniques for servicing are also covered, along with special sections on fault finding, American Midget receivers, car radios, and battery portables.

It's an extremely comprehensive book and was in much demand before the original 1st edition (published in 1982) sold out. The book is profusely illustrated with line drawings although the quality of reproduction often reflects their vintage origins. Despite this I thoroughly recommend this title and I've no doubt that the many readers who've asked me when it would be available again will be delighted by the appearance of the 2nd edition. Priced at **£23 including P&P.**

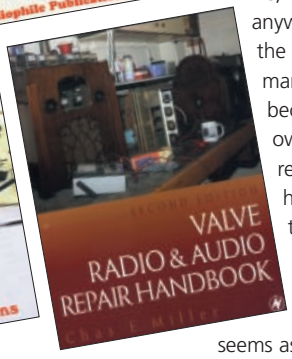
Rapid Radio Repair - Standard Superhets

Next there comes two very helpful little soft-backed booklets from Radiophile Publications themselves. The first is an A5 sized glossy fronted booklet entitled *Rapid Radio Repair - Standard Superhets,* ISBN 1 902866 00 2, has 62 pages and contains circuits, hints tips, typical superhet circuits and advice on spares and valve replacement.

Remember - this advice comes from someone who's been **professionally** working on wireless equipment since 1948! Again, the illustration quality in the book often reflects their vintage nature although they're perfectly acceptable and useful. Incidentally, the adverts within the rear of the book also provide a specialist contact directory for finding those rare parts, and attending vintage shows, etc. **Recommended reading and a useful reference source. Priced at £2.95**.

Rapid Radio Repair: The Why & How of Alignment

The second soft-back booklet fills, in my opinion anyway, a real gap in the information market. I say this because I've never owned a vintage receiver which hasn't suffered at the hands of the dreaded 'IF Transformer Twiddler'! It seems as though at the first electrical hiccup previous owners would automatically have a go at tuning those i.f. transformer cores. And to help you to retune your affected set this 62-paged booklet covers the principles behind tuning and alignment and the techniques used.



It's an excellent little publication and I think it has all the information the keen amateur restorer would need. However, again because of the historical nature of most of the illustrations, they do reflect the reproduction quality of the time. An excellent reference source...every 'twiddler' should have one in their library! **Price £2.95.**

Further details on all the books described here, and information on how to subscribe to *The Radiophile* are available from: **Radiophile Publications, Larkhill, Newport Road, Woodseaves, Stafford ST20 0NP**. (You can also be placed on their mailing list if you enclose two 1st Class stamps).

amateur radio **clubs**

Keep up-to-date with your local club's activities and meet new friends by joining in!

DERBYSHIRE

Derby & District ARS
Contact: Martin Shardlow G3SZJ
Tel: (01332) 556875
E-mail: martin@martinshardlow.demon.co.uk
The Derby & District Amateur Radio Society meet on Tuesdays at 1930hours in the hall at the Carlton Road, United Reformed Church, Littleover, Derby. Forthcoming meetings are: **March 18:** Annual General Meeting; 25th: 'DX-pedition to Ascension and Saint Helena' - an illustrated talk by **Keith Orchard G3TTC; April 1:** Foolish Junk Sale!; **8th:** Committee Meeting and **15th:** Video Show.

LANCASHIRE

Chorley & District ARS
Contact: Sean Flanagan M1SMF
E-mail: sean1226 @hotmail.com
Website: http:\\www.sean1226.pwp.blueyonder.co.uk
Members of the Chorley & Distrct Amateur Radio Society are made up of a group of enthusiastic radio operators who meet every Wednesday at St James's Bowling Club on Eaves Lane in Chorley. Meetings start at 1900hours and visitors are always assured of a warm welcome. The club is also a satellite centre for all radio Amateur examinations and they run a varied programme of talks and activities. Their programme works on a revolving system along the lines of: Week 1: Instruction in a radio related topic; Wk 2: Construction & Computers; Wk 3: A talk by an invited guest; Wk 4: On the Air night. So why not go along and join in the fun?

MERSEYSIDE

Wirral & District ARC
Contact: Tom G4BKF
Tel: (07050) 291850
E-mail: secretary@wadarc.com
Website: www.wadarc.com
The Wirral & District Amateur Radio Club meet at the clubhouse of the Irby Cricket Club, which is located on the easterly side of Mill Hill Road, Irby. Meetings take place on the 2nd & 4th Wednesdays of the month at 2000hours. Meetings to look out for are: **March 19th** - D&W (Drink & Waffle) - The Bridge Inn, Port Sunlight, 26th 'Web Page Design Part 2' by **Phil G0JSB**; **April 2:** D&W at the Fox & Hounds, Barnston; **9th:** 'Hilbre's Radar' by Dr. Paul Bell, Proudman Institute and **16th:** D&W - The Hotel Victoria, Lower Heswall.

NORTHERN IRELAND

Bangor and District ARS
Contact: Mike GI4XSF
Tel: 0284-277 2383
E-mail: mike@gi4xsf.com
Website: http://welcome.to/bdars
Bangor and District Amateur Radio Society meet on the first Wednesday of every month in 'The Stables', Groomsport, County Down at 2000hours. On April 2 the club are holding their annual constructors contest as well as hosting a talk on vintage radio restoration by **Norman GI3YMY.** As always, visitors and new members are most welcome. The Bangor club are also holding their summer radio rally on **June 22** where there will be a good selection of radio and computer traders in attendance as well an excellent bring & buy stand. The rally is taking place at the Crawfordsburn Country Club, which is near Bangor, County Down. Doors open at 12 noon.

WILTSHIRE

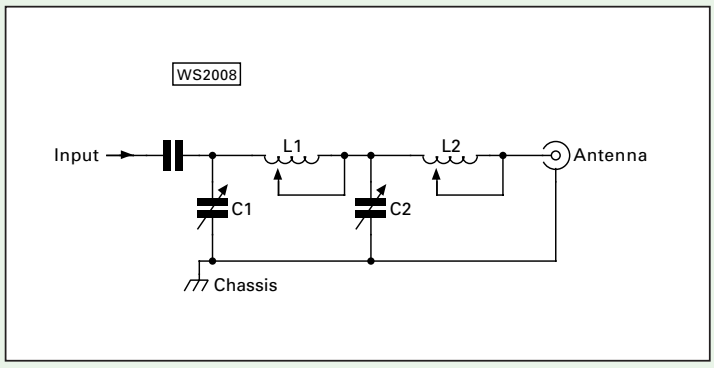
Trowbridge & District ARC
Contact: The Secretary
Tel: (01225) 864698
E-mail: g0gri@btinternet.com
Website: www.gertdarc.pwp.blueyonder.co.uk
The club meets at the Southwick Village Hall, Southwick, unless stated otherwise. Main meetings commence at 2000hours unless otherwise stated. All main meetings may be subject to change depending on availability of guest speaker please watch for up-dates via the club website. Visitors and new members are always welcome. **March 19:** Natter night; **April 2**: RSGB Videos: *A52A Bhutan 2000 Dxpedition and Marconi at Poldhu*; **16th:** Natter night.

Keep those details coming in!

Errors & Updates

Looking At... Antenna Loading Part 2 *PW* March 2003

The illustration on page 23, **Fig. 3,** of the March 2003 issue of *PW* was incorrect as shown. That illustration should be replaced with the new circuit diagram shown here. The caption on page 23 of the March issue is though, correct and should now make sense with the new illustration replacing the original. *My apologies for this silly error.* Editor



If you are missing any copies of *PW* and wish to build a complete reference source of **Gordon King G4VFV**'s Looking At.... series, it has been running on a bi-monthly system since March 1999. Subjects covered have included: The IF Amplifier, AM Detectors, Local Oscillator, The Mixer, Audio Stages and Signal Strength Meter (Check the *PW* Annual Index in the December issues for complete details).

Back issues are available at £2.50 quoting Looking At from the *PW* Book Store.

TEX'S TIPS & TOPICS

Hello and welcome to the occasional column that, although it's called Tex's Tips and Topics, it's really about your ideas, tips and (this month) porridge drawers! So, here's a few suggestions from readers seeking to win book vouchers for every tip published!

Back in the March 2001 issue of *PW* there was an article by **Dave Allen G8XRS** titled An Off-Air 198kHz Frequency Source. This article used a simple and cheap phase locked loop oscillator to create a stable 198kHz signal, that was suitable for use in checking digital counters and other equipment.

As a project, **Don Beech G8JMP** obviously found Dave's design useful, though he found it needed a buffer stage for the output signal. So, Don set about making one. The circuit of Don's simple design is shown in **Fig. 1**. He suggests that it could be built up on a small section of stripboard or 'ugly-bug' style on a small piece of p.c.b. material.

Don didn't say if it would work from the internal 9V battery pack of Dave's prototype, though I suspect that it would. So the extra circuit could be built into the original project itself. Thanks Don!

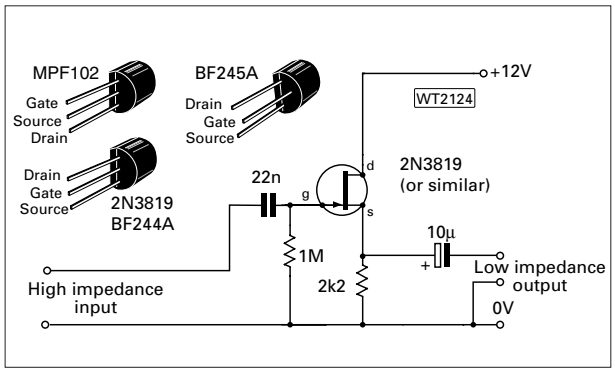


Fig. 1: A simple buffer stage amplifier improves the output signal of a reference oscillator under loading conditions.

Antenna Designs

Now let's look at two antenna designs. The first one is from **Duncan Trout G0VIW**, who says that, as he lives in a terraced cottage, a loft-mounted antenna is his only option. Drawing on the article in *PW* July 1994 by **Vic Westmoreland G3HKQ**, Duncan has settled on the design shown here **Fig. 2**, which differs slightly from Vic's original.

The antenna works so well, that Duncan can now work c.w. at up to 50W on all bands from 7 up to 24MHz, Although Duncan makes no mention of 28MHz I would imagine that it's also a possibility. Thanks for the tip Duncan.

Now from **P. Burson G3ORE**, we have the second antenna tip. (Sorry for the formality, but there were no other details in the letter). The antenna design is shown, **Fig. 3**, with dimensions for both the 50 and the 70MHz bands. Spacing for the folded elements, which G3ORE says may be of any conductive material, and does not seem to be very critical.

The design shown is based on the 'Slim Jim' designed originally as a 144MHz antenna by the late **Fred Judd G2BCX** and is suitable for coaxial feed. When attaching the 50Ω coaxial cable to the antenna, the inner is connected to feed-point A and the screen should be connected to feed-point B.

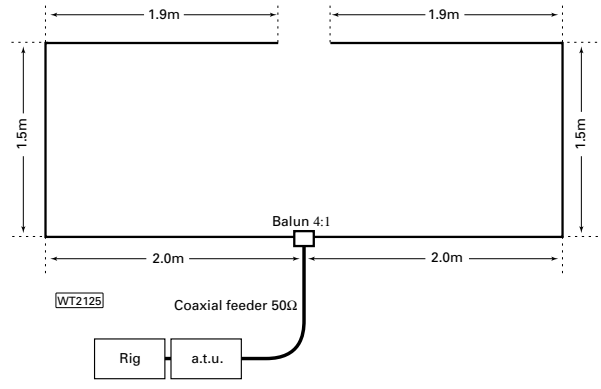


Fig. 2: When the only opportunity for an antenna is a loft-mounted one, then this design from Duncan G0VIW may be useful to you.

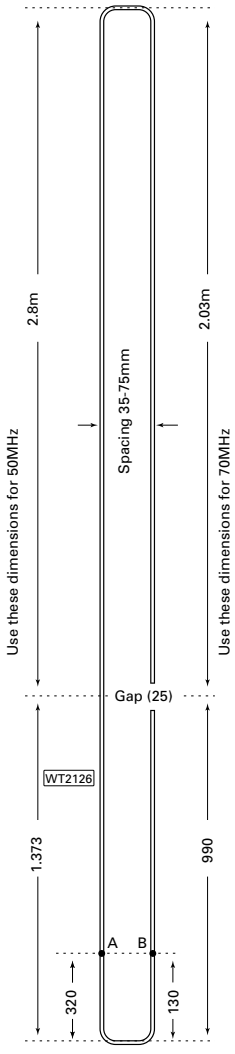


Fig. 3: One design, two band dimensions for the 'Slim Jim' design from G3ORE.

Porridge Drawers

Now for the 'Welsh porridge drawers'! Well not quite, but **Wyn Mainwaring GW8AWT** delights in using unusual items productively. Have a look at the two drawers, made from an old oatmeal biscuit box, **Fig. 4** and an old match-box, **Fig. 5**. I just couldn't leave that one out this time. Now there's recycling for you!

My thanks go to G3ORE, Wyn, Don and Duncan for those ideas, they're all very useful. Book vouchers on the way to all of them. **So, if you want a book voucher for an idea - you've got to write in first! - What are you waiting for?**

Tex

Fig. 4: Is this the original Welsh Porridge Drawer?

Fig. 5: Recycling an old Match box into a component drawer.

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2m	7ele (boom 60"/12.5dBd)	£54.95
2m	12ele (boom 126"/14.5dBd)	£79.95
70cm	7ele (boom 28"/12.5dBd)	£39.95
70cm	12ele (boom 48"/14.5dBd)	£59.95

Q-TEK YAGIS

Delivery £10.00

2m	5ele (boom 63"/10.5dBd)	£49.95
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2m	11ele (boom 156"/13.5dBd)	£94.95
2m	5ele crossed (boom 64"/10.5dBd)	£79.95
2m	8ele crossed (boom 126"/13dBd)	£99.95
4m	3ele (boom 45"/8.5dBd)	£56.95
4m	5ele (boom 128"/11.5dBd)	£69.95
6m	3ele (boom 72"/8.5dBd)	£59.95
6m	5ele (boom 142"/11.5dBd)	£79.95
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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
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A4S	4 ele beam (10-20m)	~~£599.95~~	£529.95
R-6000	Vertical 6, 10, 12, 15, 17, 20m	~~£349.95~~	£315.95
R-8E	Vertical (40-10m)	~~£499.95~~	£449.95
X-7	7 ele 10, 15, 20m	~~£699.00~~	£599.95

Q-TEK COLINEARS

P&P £10.00

QT-100 GF 144/70, 3/6dB (1.1m) glassfibre	£39.95
QT-200 GF 144/70, 4.5/7.2dB (1.7m) glassfibre	£54.95
QT-300 GF 144/70,6.5/9dB (3m) glassfibre	£69.95
QT-500 GF 144/70, 8.5/11dB (5.4m) glassfibre	£149.95
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New, PLT-5MHz	5MHz mobile whip	£27.95
PLT-259	PL-259 converter for above	£5.95

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Flexweave (PVC coated 18 mtrs)	£18.95 P&P £5
Flexweave (PVC coated 50 mtrs)	£40.00 P&P £6
Special 200mtr roll PVC coated flexweave	£99.00 P&P £10
Copper plated earth rod (4ft)	£13.00 P&P £6
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4 way CX-401 (0-500MHz) SO239	£69.95
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RS-502 1.8-525MHz (200W)	£79.95 P&P £5
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RS-3000 1.8-60MHz (3kW) Incls mod meter	£79.95 P&P £5
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CW-160S	(160-10m) 40m long	£139.00 P&P £8.50
CW-160	(160-10m) 80m long	£134.95 P&P £8.50
CW-80	(80-10m) 40m long	£99.95 P&P £8.50
CW-80S	(80-10m) 20m long	£119.95 P&P £8.50
CW-40	(40-10m) 20m long	£94.95 P&P £8.50

SP-350 STATIC PROTECTOR

Designed to reduce static build-up during electrical storms. (Gas discharge fuse is replaceable). DC-500MHz (SO-239 sockets). PWR up to 400W. **£24.95**

LOW LOSS PATCH LEADS

Connectors	Length	Price
PL-259 - PL-259	0.6m	£5.99
PL-259 - PL-259	4m	£9.99
BNC - BNC	1m	£6.99
BNC - BNC	1.5m	£8.99

+ £2.50 P&P

TELESCOPIC MASTS

6 section telescopic masts. Starting at 2½" in diameter and finishing with a top section of 1¼" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and 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 8 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

8 mtrs **£109.95** 12 mtrs **£149.95** *Carriage £12.00.*

Telescopic mast lengths are approx.

Tripod for telescopic masts £89.95

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.

OUR PRICE **£44.95** Del £10

TWO FOR £79.95 THREE FOR £109.95

2 for £79.95 Del £12.50

3 for £109.95 Del £15.00

NEW 20' (approx) SLOT TOGETHER MAST SET

A heavy duty-sleeved, mast set that will tightly slot together. 4 x 5' (2" dia) 16 guage heavy duty aluminuim tubes (dim. approx).

£49.99 Del £10.00. TWO FOR £90.00

ALUMINIUM POLES

ALL MEASUREMENTS ARE APPROX.

2" x 1.5m length	2mm wall thickness	£12.50 P&P £10
2" x 2.5m length	2mm wall thickness	£24.99 P&P £10
2" x 10ft collection only	2mm wall thickness	£29.99
2" x 12ft collection only	2mm wall thickness	£29.99
2" x 20ft collection only	2mm wall thickness	£39.99

FIBRE GLASS POLES

Del £10.00

	1½"	1¾"	2"
1m	£8.50	£10.50	£12.50
2m	£16.00	£20.00	£24.00

NEW EASY FIT WALL PULLEY

Pulley will hang freely and take most rope up to 6mm. (Wall bracket not supplied).

PULLEY **£8.99** + P&P £2.50

Wall bracket, screws not supplied. Simply screw to outside wall and hang pulley on

WALL BRACKET **£2.99** P&P £1.00

MAST HEAD PULLEY

A simple to fit but very handy mast pulley with rope guides to avoid tangling. (Fits up to 2" mast).

£8.99 + P&P £2.50

METAL WORK & BITS

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

10mm fixing bolts (needs 8mm hole)	£1.40 each
U bolts (1¼" or 2")	£1.20 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)	£24.95 P&P £6
Heavy duty guy kits (with wire)	£29.95 P&P £6
Ground fixing spikes (3 set) powdered coated	£24.00 P&P £8
30m pack nylon guy 4.4m/B/load 480kg	£10.00 P&P £2
30m pack (3mm dia) winch wire	£16.00 P&P £4
Self amalgamating tape (roll)	£6.50
'Nylon' dog bone insulators	£1.00 each
Chimney lashing kit	£12.99

scanners

BEARCT UBC-9000XLT

25-1300MHz wideband desktop scanner with turbo scan. (Selectable AM/FM/WFM). Selectable tunning steps + alpha-numeric tagging. "Our best selling desk-top scanner". Incl's PSU.

OUR PRICE **£235.00**

NEW ICOM IC-R5

New pocket hand-held scanner (0.1-1310MHz) AM/FM/WFM. Superb high-speed scanning featuring alpha tag and much more. Includes nicads & charger.

NOW IN STOCK **£159.00**

P&P £10.00

BATTERIES AND CHARGER INCLUDED

IC-R3 with TV screen .....SALE PRICE £349.99

AOR AR8600MkII

Extremely versatile all mode receiver (100kHz-3GHz). "Superb HF performance".

£649.95

Optional power supply/8600 .....£19.95
AR5000 .....£1275
AR5000+3 .....£1399
SDU5500 .....£769
AR3000A £699

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.

OUR PRICE **£199.95**

Soft case for 7100EU/9000 - specify £19.99

MVT-9000 MkII .....Sale price £325.00
MVT-7300 .....Sale price £219.95

ICOM IC-8500

Next generation wideband receiver. 0.1-2GHz. (All mode) 2 YR G'EE

Latest UK version

FREE PSU

OUR PRICE **£1149.95**

SP-21 extention speaker £74.99
UT-102 speech synthysiser £34.99

ALINCO X-2000

The intelligent scanner! 100kHz-2.15GHz. All mode incl's SSB, "Flash Tune" reads frequency of nearly of nearby signal & tunes the handie for you. Incl's battery, charger & loads more.

Includes 8.33kHz spacing

£449.95

Optional case £15.99
Optional battery box £14.99
Alinco DJ-X3 .....Sale price £99.95
Alinco DJ-X10 .....£269.95

portable receivers

NEW - EVOKE-1

SEND SAE FOR COLOUR BROCHURE

Using the latest third-generation D.A.B. technology, Evoke-1 delivers outstanding digital sound quality at an affordable price. A stylish, mains powered receiver without the normal hiss, crackle and fade of old AM/FM broadcast. Transform your radio listening.

OUR PRICE **£99.95** P&P £10.00

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 ★ Incl's compact antenna/earphones/case.

£159.95 P&P £10

ACE-30 Power supply unit for above £26.95
AN-100 Active antenna £64.95

SANGEAN ATS-505

DUAL CONVERSION

BEST BUY

NEW! Wins Dutch "Automobile" award. Excellent small short wave receiver (digital). 0.15-30MHz (AM, USB, LSB, CW). 88-108MHz FM stereo. Includes carry case.

OUR PRICE **£89.00** P&P £10

Optional power supply.....£16.95

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".

OUR PRICE **£139.95**

Optional power supply £16.95
HD-1010 optional mono/stereo h/phones £9.99

REALISTIC DX-394

★ Superb performance SW receiver ★ 0.2-30MHz (all mode) ★ Selectable tuning steps

OUR BEST SELLING LOW PRICED RECEIVER

OUR PRICE **£199.95**

ICOM IC-R75

The short wave receiver for the true enthusiast. Includes free power unit.

● 0.03-60MHz (all mode)

OUR BEST SELLING RECEIVER

OUR PRICE **£589.00**

JRC NRD-545 DSP

The ultimate short wave receiver with DSP - for the real perfectionist. (Incl's PC software).

OUR PRICE **£1299.00**

desktop receivers

special interest

REGULAR-GAINER RH-770

BNC 21cm flexible whip that is ideal as replacement.

Rx:- 25MHz-2GHz.
Tx:- 2m/70cm

OUR PRICE **£16.95** P&P £1.50

SUPER-GAINER RH-9000

BNC 40cm flexible whip for the ultimate in gain. (Rx:- 25MHz-2GHz).
Tx:- 2m/70cm

OUR PRICE **£21.95** P&P £1.50

QS-300

A fully adjustable desk top stand for use with all hand-helds. Fitted coxial lead with BNC + SO239 connections.

OUR PRICE **£10.00** P&P £3.00

AR788 *NEW MODEL*

Quality rotator for VHF/UHF. Superb for most VHF-UHF yagis, 3 core cable required. £49.99. 3 core cable 50p per mtr.

OUR PRICE **£39.99**

AR-201 .....Thrust bearing for above only £13.99

MM-1

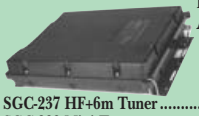
MICRO MAG ANTENNA

Micro magnetic base with (19") whip. Rx:- 0.5MHz-2GHz. Ideal for all scanners supplied with minature coax lead & BNC (all fitted). Tx:- 2m/70cm.

OUR PRICE **£24.95** P&P £5.00

SGC SALE

SGC-230



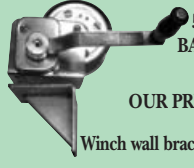
200W instant auto ATU. Tune any length of wire with this superb ATU. (Minimum length applies.)

Connect a wire and away you go!

£329.95

SGC-237 HF+6m Tuner £289.95
SGC-239 Mini Tower £179.95
SGC-231 HF + 6m.....£329.95

BARGAIN WINCH



500kg brake winch.
BARGAIN PRICE ~~£129.95~~.

OUR PRICE **£59.95** del £8.50

Winch wall bracket.....£19.99

gizmos

M-75 SCANNER PRE-AMP

Superb BNC in-line amplifier to boost signals! Fits on top of your scanner and away you go. (Powered by PP-3 battery - not supplied). Freq: 24MHz–2.1GHz. Gain: -10dB to +20dB.

OUR PRICE **£79.95** P&P £5.00

STREET PILOT III DELUXE

Includes 128 meg card

Now with "voice prompts" as well as direction indication. Incl's: Map CD, 128 meg cart & data card, power lead & mount. The ultimate in talking GPS's.

OUR PRICE **£1099.99**

T-127 ROTATOR KIT

Easy, rapid fit aerial rotator for domestic and mobile application. Ideal for lightweight antennas/cameras. Supplied with:- fitting hardware, 10m cable & control box. (requires 4AA or 6V DC).

OUR PRICE **£25.00** P&P £5

Radio Basics

This month, because of feedback from readers, Rob Mannion G3XFD takes a look at the dip meter. The idea is to get you fully prepared before you attempt the constructional side of latest receiver project.

Fortunately, although the prototype development, building and other project work is done many months ahead...the actual writing preparation for the Radio Basics (RB) series is not usually until the magazine itself is being worked on. This means that I can make the articles as topical as possible and also incorporate any feedback from our readers.

This month I've had so many comments arrive that a re-think on what I was planning to do was necessary. So, firstly I have to say "Thank you" to those readers who've been in contact, and for your comments, which have led to the re-think.

Generally, RB readers found that the last month's article on toroid inductors and winding them was interesting, practical and helpful. However, it appears that the mention of the dip meter brought some of you to a sudden halt! "Do I really need a dip meter"?.... was the most often asked question coming my way...which was duly answered by my reply .... **"Yes you do"**!

My reply then led to further questions...and it seems that quite a few of our readers have only been following the series fairly recently - so they missed the 'Tinny Dipper' project. This dip-meter was aimed at providing the constructor with a simple but reliable test instrument covering the range of (approximately) 180kHz to 35 to 40MHz. However, for the purposes of the receiver project I'm leading you into now...I can assure you that although you do need a dip meter - it need only cover the frequencies your project receiver will cover.

In other words the dip meter you're using need only have a limited coverage. Build it to do what you want...and then expand its coverage as your needs increase. It's as simple as that...so let's now take a look at some practical ideas.

Simple Dipper

Although I have repeated the following advice very many times...I'll repeat it once again and also promise it will not be the last time: **You really do need a dip meter in your shack!** I say this because they're so versatile, often saving you many hours of fruitless 'wind that coil and try it out in the circuit' jobs. Instead, with the traditional dipper you'll be able to check the tuning ranges of the various inductance and capacitance combinations you're using.

Some dip meter circuits include a simple modulator to help with alignment, and to assist in identifying the test signal. But for building the RB projects you'll not need this refinement. (You can add it later if you so wish).

The 'Tinny Dipper' project I've mentioned appeared in the December 1998 (preliminary construction information and construction details of the coils which were fabricated from printed circuit board laminate), and February 1999 (the circuit. **Fig. 1**, and all essential construction information, running to four pages) issues. The instrument used the ubiquitous MPF102 f.e.t.

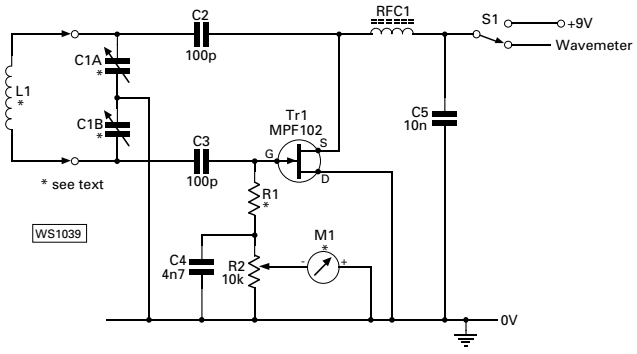


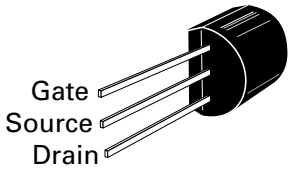
Fig. 1: The single f.e.t. dip meter circuit used by G3XFD in the 'Tinny Dipper' project (see text).

If you did decide to build the Tinny Dipper (so-called because it's built-into an aluminium tin that once held naturally wood smoked Irish kippers!) - it's a decision that would not be regretted. However, I'm now going to describe another, equally simple circuit, which uses the MPF102 and the BC183 device. Both are cheap and plentiful!

The G3RJV Dipper

In the days before the Rev. George Dobbs G3RJV's column became Carrying On The Practical Way - at my request he prepared a neat little dipper design for Getting Started The Practical Way. Covering 1.6 to 34MHz or so, the meter uses an MPF102 f.e.t and a single BC183 transistor.

The circuit uses a Hartley oscillator and its origins are shown in **Fig. 2**. The final circuit, **Fig. 3**, is a clever design where the BC183, Tr2, is set up to actually provide an indication of the strength of the oscillations of the MPF102 rather than sensing the dip in the gate current. In practice it's a very reliable circuit and despite using coils which require a tapping point...is very easy to build. The full project - details on how to get photocopies of the article are provided in the Information Panel on page 23



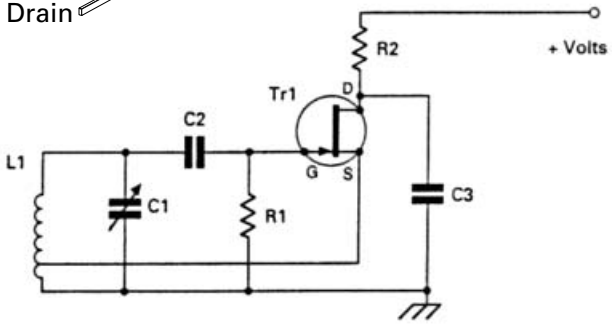
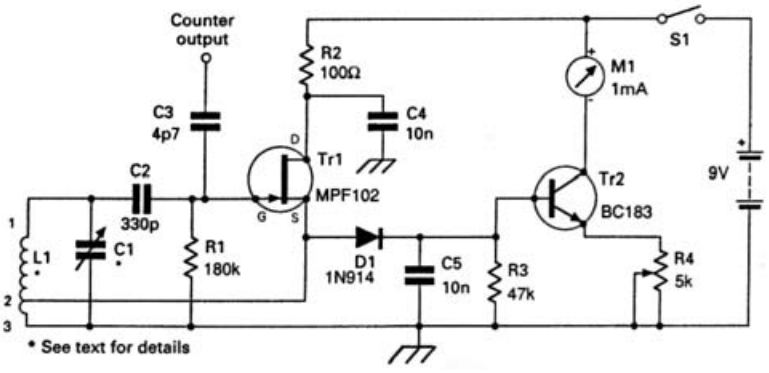


Fig. 2: The dip meter circuit from G3RJV's 1992 article is developed from the Hartley oscillator circuit. The tuned frequency is selected by L1 and C1.



● Fig. 3: The G3RJV circuit uses a Hartley oscillator and a clever design where the BC183, Tr2, is set-up to actually provide an indication of the strength of the oscillations of the MPF102 rather than sensing the dip in the gate current (See text).

- also has a suitable p.c.b. track design lay-out for those of you who'd like to home-brew their own boards.

Coils for the G3RJV project are made up from 15mm (outer diameter) plastic conduit available in lengths from diy stores. It's usually white in colour and the pin DIN plugs can be cemented onto one end to provide a plug-in coil former. The corresponded three pin DIN socket is mounted on the dip-meter itself. **Note:** The original article also contains a full shopping list which should prove useful if this is to be one of your first projects.

Band (MHz)	Turns (1 - 2)	Turns (2 - 3)	Wire size (mm/s.w.g.)
1.6 - 2.6	60t	12t	0.45 / 26
2.6 - 6.6	40t	10t	0.45 / 26
6.1 - 15.2	16t	4t	0.70 / 22
13.8 - 34.7	4t	2t	0.70 / 22

● Table 1: Winding details for the dip meter coils. All coils are wound on 15mm external diameter plastic tubing (See text).

Winding The Coils

Winding the coils isn't that difficult - and in the full article G3RJV provides his usual friendly advice on how it should be done. You can almost see the pipe smoke rising up from his bench as he explains it to you!

When it comes to preparing and winding the coils, we've reproduced Table 1, for you here. This gives you the winding details of the coils, complete with tappings. The figures 1-2 and 2-3 refer to the numbered points which are indicated on the circuit diagram.

Please note that exact coverage cannot be guaranteed! The final tuning range of your individual sets of coils depends on too many variables to be quoted. But rest assured...the G3RJV dip-meter project will enable you to wind, and adjust your own toroidal inductors to the frequency coverage you require.

Testing & Calibrating

When you've wound the coils and completed the dip-meter itself you can then start the process of setting-up and calibrating the instrument. You now have a choice-depending on how you're mounting/encasing the using-as to how you mark up the tuning dial.

In his original article G3RJV used a simple rotary pointer dial and a fixed tuning/calibration scale. However, you can also choose to use a larger scale with a longer pointer with the separate ranges marked.

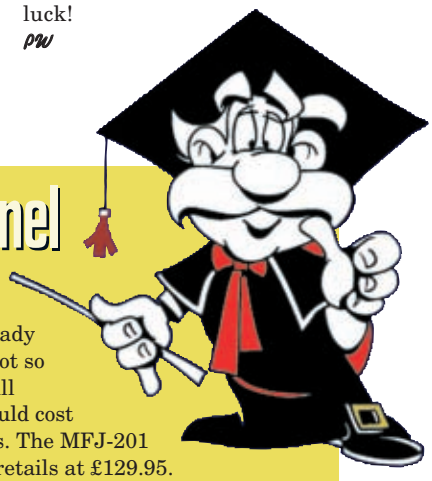
Calibration is simple - with the dip meter placed close to the receiver, all you do is to listen for the 'swish' as the dip-meter's signals tunes past other signals as you tune it. Mark the positions on the meter's dial- and note the frequency on your receiver.

Warning: Be careful (especially above 4MHz) that you are observing the fundamental and not the harmonic signal! The fundamental is usually stronger on the receiver's S-meter, but if in doubt (let's consider you're hearing a signal on 4MHz from the dip-meter), tune the receiver to 2MHz). If you hear the signal on 2MHz, you were most likely listening to a harmonic on 4MHz (Receiver blocking is another possibility).

The best method is to start testing and calibrating from the first range, or lowest frequencies and work your way up. This is the best way to avoid listening to harmonics. Only experience can help you learn to judge what is what...so why not have a go?

Once you've calibrated the dip meter you'll then be able to start to experiment with different coils/capacitors circuits to find their resonant frequencies and obtain the best 'dip'. At the same time you'll learn all about coupling, and how effective it can be in transferring/receiving energy. Once you've done that...you can use last month's article and experiment with toroids....so good luck!

PW



Information Panel

Buying a dip meter:
Although dip meters are very simple in electronic terms as ready built-ready-to-go units they're not so cheap. The Altai dip meter is still available as older stock and should cost around £80 or so in some outlets. The MFJ-201 (Stocked by Waters & Stanton) retails at £129.95.

Building a dip meter is relatively simple, although winding the coils is something you'll have to do! (But please don't let this fact put you off- it's easier than you think and you'll learn a great deal). Nowadays, setting the tuning ranges and adjusting the frequency coverage is a simple task because most constructors have a receiver with a digital frequency read-out display. Even if you haven't -the job can still be done!

Although back numbers of the issue it was published in aren't available, the G3RJV - from Getting Started The Practical Way - GSTPW dip meter project described this month is available as a fully - detailed photocopy from the PW Book Store on **(01202) 659930**. Please telephone to order, prices, £3 (£1 extra for overseas) asking for "GSTPW Dip Meter Project from the April 1992 issue of *PW*".

The Tinny Dipper project was published in December 1998, and February 1999. Back issues are also unavailable, although **Clive Hardy G4SLU** in the Book Store will make photocopies for you! (£3 UK, £4 overseas)

The booklet *Simple Test Equipment for the QRPer* by **Graham Firth G3MFJ** and **Tony Fishpool G4WIF** can be ordered from **Mr. G. Firth, 13 Wynmore Drive, Leeds, LS16 9DQ** at a price of **£6** post paid to the UK. The EU & DX (surface mail) price is **£6.50** post paid. For airmail DX orders please add an extra £1. Only cheques drawn on a British bank can be accepted, and for EU and DX orders only International Money Order in Pounds Sterling can be accepted. Please make all cheques or money orders payable to G. Firth.

Amongst a number of projects - ideal for the RB reader-they've included a gate dip meter using (wait for it)....the MPF102 f.e.t. which is of course a favourite of mine. *G3XFD*

Licensed & Ready To

Have you just got your M3 licence? Keen to get on the air and enjoy the hobby on a strict budget? If so...Rob Mannion G3XFD has some advice on suitable rigs, and next month he'll be looking at antennas and associated equipment.

During my visits to clubs in various parts of the UK following the introduction of the Foundation Licence (FL) I've often found myself chatting to newly-licensed M3 operators who ask questions such as: "Okay...I've got my licence, I'm ready to go on the air from home - after using our club station under supervision...but I'd like your advice on what rig to buy". This is then just as likely to be followed by questions regarding antennas, antenna tuners, feeders, etc.

With all the questions asked in mind, I've prepared this guide in an attempt to provide as much information as possible for our many keen new M3 operators. Additionally, to help those with a limited budget, I've looked at what I consider to be a good cross-section of the rigs which will be suitable, taking into account the price and availability.

It would not be honest for me to start off this guide without mentioning my all-time favourite rigs and I make no apology for doing just that! However, some of the equipment I'm going to mention will probably not be available from your local Amateur Radio dealer's shelves any more - mainly because of the problems associated with getting necessary spare parts.

But don't let the fact that the rig you fancy - or is available only via Bargain Basement type adverts - put you off buying an older rig. After all if you only pay out £100 or so on an older 'classic' and it provides you with some time on the air, it'll have been a worthwhile investment. There's no substitute for experience in my opinion!

So, without further ado let's take a look at some of the rigs which I think will be suitable. And as promised...I'll start off with my all time favourites.

Rob's Favourites

The first rig in 'Rob's Favourites' category goes right back to the late 1960s and early 1970s. Although the only time you'll see them for sale nowadays is on rally Bring & Buy counters...I must honour the Yaesu FT-75, s.s.b. and c.w. 30W p.e.p. mobile transceiver as being as true pioneer. Even though it only had variable crystal oscillator tuning (VXO) tuning - it still opened a new world with h.f. mobile operating.

Indeed, if you ever see an FT-75 or the higher powered version the FT-75B on sale...buy it! Although only based on a single conversion superhet design, they perform remarkably well. (But first make sure that the audio side works okay because the original audio output i.c. was prone to accidental damage and is no longer available, an LM380 audio chip having to be wired into place).

The semiconductor and valved p.a. stage FT-75 is worth looking at because you'll see just how much our equipment has changed in the last 30 years! Compare it even to the late FT-7 (another QRP classic) and you'll see just how quickly things changed between that and the FT-75. Progress in design was at a gallop even then!

Although I've never owned an FT-7 myself (**A review from *PW* March 1980 is available as a reprint**), I have used one and they're excellent transceivers for their age...and

Fig. 1: The Trio-Kenwood TS-120V low power c.w. and s.s.b. 3.5 to 28MHz (no WARC bands or 1.8MHz) transceiver. This 10W rig performs very well and is also extremely reliable. The photograph shows one in use in the shack belonging to Kevin Nice G7TZC/M3SWM, Editor of *Short Wave Magazine*.
Photo courtesy of G7TZC/M3SWM

Fig. 2: The Alinco DX-70 transceiver - undoubtedly G3XFD's favourite general purpose transceiver. The model shown is the original (10W on 50MHz) model. The later DX-70TH is capable of 100W on 50MHz. Note: the front panel on both models is marked 'DX-70'. (Check in the accompanying handbook to see which model is on offer).

Go!

along with the FT-75 they may be rare...so it you find one consider it carefully.

Next, there's the delightful Trio TS-120V, **Fig. 1**, which many people refer to quite rightly in my opinion as the Trio-Kenwood '120V as the latter company absorbed the former early in the production stages of the rig. The TS-120V is a 10W low power h.f. transceiver, based on a single conversion superhet, which covers 3.5 to 28MHz. However, this s.s.b. and c.w. transceiver does not cover the WARC bands (10, 18 and 24MHz). Despite this, it's a superb little performer as **Kevin Nice G7TZC/M3SWM** the Editor of *Short Wave Magazine* can confirm, he's using one in his shack at the moment, as you can see in Fig. 1. Thanks for the photo Kevin!

I've got two TS-120Vs, one of which Kevin is using - and we both like the rig very much indeed. Perhaps I'm old fashioned...but I really like the combination of digital frequency read-out together with the analogue tuning dial. It's a really good combination. Despite only being a single conversion superhet using a 9MHz i.f. ,the receiver is surprisingly good and both Kevin and I think it's a good performer on 7MHz.

My original TS-120V eventually got a narrow band c.w. filter (thanks to **Martin Lynch G4HKS** who said he'd look out for one on my behalf) and if you can obtain one to go with a '120V you've bought...you'll have an even better receiver. It's exceptionally easy to use, is very portable and is exceptionally well made. In other words...it's a little classic!

Note: All information in bold within brackets in this feature indicate that review reprints are available. Please contact the Book Store on 01202 659930 to order.

The Alinco DX-70

Coming up to date now there can't be many *PW* readers who aren't aware of just how much I think of my Alinco DX-70 transceivers, **Fig. 2**. I like them so much I've got three (one '70 and two TH versions) - and think that they still offer superb value-for-money. The built-in (fitted as standard) narrow bandwidth filters may be ceramic types rather than quartz crystals...but they work extremely well. The rigs will operate at the 10W level for the FL operator.

I use my DX-70s for various jobs - one is fitted permanently in my car for mobile/portable operating, I use one as my main station at home, and the other is kept in my Irish home (my cousin's farm) in County Wexford in Ireland where of course it's kept busy during my visits when EI5IW is on the air. (***PW* August 1995**). The TH is a slightly later model , and indicates that this version has the full 100W on 50MHz rather than the original model's 10W.

The Icom IC-706

Next comes the ubiquitous Icom IC-706, **Fig. 3**, and its variants, and it's certainly a transceiver deserving a section of its own in this article. Available in the same year that the DX-70 was launched, the IC-706 over-shadowed everything else...mainly because of its astounding ground-breaking features.

When first introduced by Icom this transceiver literally eclipsed all the competition overnight - including the unfortunate DX-70 - as it offered a unique package covering h.f. and up to 144MHz in one box.

The original IC-706 was rather 'deaf' on 144MHz but they've improved tremendously over time. This fact was clearly demonstrated to me because over a three or four year period after they were introduced I found that the vast majority of h.f. operators I worked using s.s.b. on the DX bands were using the IC-706 - as proved by the notes in the remarks column of my log book. (The favourite for the c.w. operator - then and now - seems to be the Yaesu FT-1000 and its variants MP, etc.).

It would be a good idea to look out for an IC-706, or the later models MkII, etc.) if you can afford one. A good all rounder performance wise and all models work very well on h.f. But try to buy one which has not been modified too much! I say this because the IC-706 was so popular...a large number of modifications appeared on the web and in Amateur Radio journals throughout the world. **Note:** There's nothing wrong with the majority of most of the modifications...it's the unknown factor...the individual 'modifier' you'll not know about! (**Review on the MkII was published in published in the August 1997 *PW***).

The Pioneering TS-50

When it comes to considering the pioneering Kenwood TS-50 h.f. mobile transceiver for this article, **Fig. 4**, ...I was in a quandary. As it was first available early in the 1990s should it go before the other rigs I've mentioned or later in a category of its own? In the end however, I plumped for the latter choice mainly because this amazingly reliable transceiver is demonstrably very much with us, 24 hours a day, seven days a week as 18 of them are used in the International Beacon Project's (IBP) beacon chain.

The TS-50S version was reviewed by the Rev. George Dobbs G3RJV (***PW* June 1993**). Nowadays, the TS-50S might seem to be overshadowed somewhat by being h.f. only...but its pedigree shows through and you very rarely ever see them on offer second-hand in *PW*'s Bargain

Fig. 3: The Icom IC-706 MkI, the pioneering transceiver which started the 'All in one box' h.f. to v.h.f. Amateur Radio station. This transceiver was, and still is exceptionally popular and the MkI transceivers are often available second-hand as keen owners 'trade up' for later versions (see text).

Fig. 4: Another pioneer - the Kenwood TS-50 has proved to be an exceptionally reliable transceiver. The International Beacon Project system uses 18 TS-50S transceivers which operate 24 hours a day...seven days a week! (See text).

Fig. 5: The Yaesu FT-900AT h.f. mobile/transportable transceiver. The version reviewed by G3XFD was fitted with the auto a.t.u.. The photograph on the left shows the front panel detached - it uses an extension cable for remote operations. (See text).

Fig. 6: The Kenwood TS-570D transceiver which comes fitted with digital signal processing (DSP). This transceiver has an exceptionally large and clear main display (see text).

Basement section. That says something...and by shopping around they can still be bought new for reasonable prices. Read the review and make up your own mind - it's better that way! But George commented "The rig is an ideal mobile transceiver which also make a compact and domestically acceptable fixed station. It's easy to use and performs well".

The Icom IC-737

Also introduced in 1993 (that's why I've placed it in this section!) was the Icom IC-737. This transceiver made quite an impact at the time, especially as it seemed to set the trend for switchable r.f. input attenuator (I commented unfavourably about this at the time) which have now become virtually a standard feature on transceivers.

Despite my comments on the lack of rotary variable r.f. and i.f. gain controls on the IC-737 - which really upset one or two people! - the rig proved itself to be popular. It was sought after because of the large and delightfully clear main display and front panel. (Something else I commented on). I ended the review saying that I thought it would be a popular buy for Amateurs - and I was correct in that assumption. And although you won't see them second-hand very often...take a look at the review (***PW* May 1993**) and decide for yourself.

The Yaesu FT-900AT

The Yaesu FT-900AT transceiver, **Fig. 5** shows the version without the auto antenna tuner, was itself a pioneer as it seemed to set the scene for rigs with demountable front panels. In my review (***PW* March 1995**) I commented very favourably on this rig - in fact I again remarked on my fondness for the original FT-75...mainly because it was felt then (and now) that this '900AT immediately found a place close to my heart!

Yes, I did buy an FT-900AT (with auto a.t.u....but not a new one! I was able to buy one very reasonably a year or so later, and this too forms part of my Amateur Radio station at my cousin's farm in Tagoat, Rosslare in County Wexford in Ireland.

The transceiver's capable of 100W but is adjustable down to FL limits. The double conversion superhet receiver is exceptionally good -with a high first i.f. of 70.4MHz. The general coverage receiver is also excellent. Please read the review before you buy - so you can take all my comments into account. Then you'll have to look for a second-hand FT-900AT (to fit in with the budget approach). Again they're not that common second-hand, but they do appear. As I said in the review...another Yaesu classic design!

Other Recommendations

To try and provide as much information and general advice as possible I've concentrated on a relatively small selection of Amateur Radio transceivers. However, although most of those I've already mentioned have passed through my hands (artistic licence there of course!) and my shack...there are also many others which I have had tried, or seen in use, or have discussed at length with the reviewing author. However, unless stated otherwise - they have not been reviewed. These also must be considered as possibilities for your own shack.

Wherever possible I'll mention the date of the reviews which appeared in *PW*. Most of the reviews (if you purchase them) will come as photocopies, unless of course you do what I recommend in Keylines this month... "Never throw away your old *PW*s...they make good reference material"!

So, my other choices are: The Yaesu FT-100 h.f. to u.h.f. transceiver. It's not a budget rig by any means but an amazing purchase, (***PW*July 1999**) if you can afford one.

The budget-priced Alinco DX-77E is also a worthy transceiver. This attractive rig was reviewed (***PW* May 1998**) by myself and although I commented that its performance wasn't as good as the DX-70...I did recommend it as an ideal and exceptionally good value for money starter rig. Second-hand (when they do appear) you can get one for £300 or so...but they only cost around £500 or so new if you shop around!)

Next comes the Icom IC-707 budget-priced h.f. transceiver. Rare - but interesting (***PW* February 1994**) and reviewed by well known *PW* author and DC-chaser **Ed Taylor G3SQX**. If you're keen on the 'all in one package' the Icom IC-746 h.f. and v.h.f rig might well creep into your budget too (***PW* October 1998**).

The Kenwood TS-450SAT (reviewed April 1992 *PW* by myself) is a worthwhile rig to have - although they too don't appear often on the second-hand market. Next the Kenwood TS-570D (**Reviewed by myself in January 1997 with an up-date in the November 1998 *PW***) is a rig which became very popular indeed with operators who prefer a large and exceptionally clear display. It fits this category very well, and I know several partially sighted Amateurs who use the 'Friendly ' rig - as I nicknamed it in the first review. One TS-570D even ended up in a distillery in Ireland...operated by my good friend **Brian Tansey EI5HV**, where its Digital Signal Processing (DSP) features helped him operate...but whether or not he did so while making the Irish Whiskey...or while enjoying it...I'm not sure. However, I know that Brian bought the transceiver on my recommendation and was not disappointed!

Hopefully I've provided you with some ideas of what's available. To make your final choice you should - wherever possible - discuss the ideas you've got with other Radio Amateurs (How about a club discussion?) and either borrow a copy of *PW* with the review, or get one from our Book Store.

Whatever approach you adopt...I'm sure that with care and a little help from *PW* and your other friends...you'll make the right choice **for your needs**. Next month I'll be looking at antennas and the accessories to help you explore h.f. and get the best results you can...in a simple fashion. *PW*

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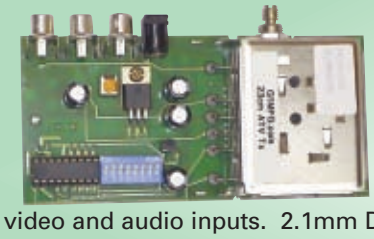

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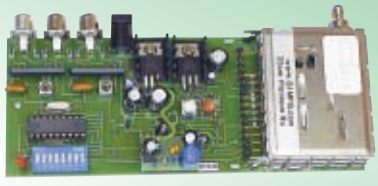

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MGR-4 4mm (maximum load 50 kgs) £14.95
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CONNECTORS & ADAPTERS

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BNC (Screw Type) ..... £1.00 each
BNC (Solder Type) ..... £1.00 each
BNC for 9mm (RG213) £2.50
N TYPE for RG58 ..... £2.50 each
N TYPE for RG213 ..... £2.50 each
SO239 to BNC ..... £1.50 each
PL259 to BNC ..... £2.00 each
N TYPE to SO239 ..... £3.00 each
BNC to N-type £2.50
SMA to BNC £3.95
SMA to SO239 ..... £3.95
SMA to PL259 ..... £3.95
SMA to BNC (male) £3.95
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SO239 double female £1.00
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SO239 double female £1.00

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40 Mtr RADIAL KIT FOR ABOVE £99.00

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OPTIONAL 10-15-20mtr radial kit £34.95

VR5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:4.00m RADIAL LENGTH:2.30m (included). POWER: 500 Watts £169.95

EVX4000 4 BAND VERTICAL FREQ:10-15-20-40 Mtrs GAIN:3.5 dBd HEIGHT:6.50m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) £99.95
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OPTIONAL 40mtr radial kit £12.95

EVX5000 5 BAND VERTICAL FREQ:10-15-20-40-80 Mtrs GAIN:3.5 dBd HEIGHT:7.30m POWER:2000 Watts (without radials) POWER:500 Watts (with optional radials) £139.95
OPTIONAL 10-15-20mtr radial kit £34.95
OPTIONAL 40mtr radial kit £12.95
OPTIONAL 80mtr radial kit £14.95

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10mtr RG213 Mil spec PL259 to PL259 lead £14.95
30mtr RG213 Mil spec PL259 to PL259 lead £29.95
(All other leads and lengths available, ie. BNC to N-type, etc. Please phone for details)

Antenna Workshop

So you want to build an antenna farm and Roger Cooke G3LDI already has one! Now read on for his advice on how to get your own. In this Antenna Workshop, Roger joins the team of authors that bring you designs, projects, ideas, and the theory of antennas.

Roger G3LDI at his operating desk, with equipment covering several 'ages' of Amateur Radio.

If you're newly licensed and don't have too much space for antennas, don't despair, attempting to work DX with a modest power and a modest antenna often hones the skills needed to become a good operator. And from experience, I can say that as a starter antenna, the ubiquitous G5RV antenna is both common and can produce some extremely satisfying results, even with low power.

With low power and a simple antenna, you won't be able to compete with the 'big guns', **but with patience** you will still work the DX. Certainly using Morse (c.w.) helps a lot when DX hunting, and it's surprising what you can do. So, if you are thinking about putting up a tower, a pole or anything over 6m to support an antenna there are routes to take in order to obtain the necessary planning permission. Here's a list of things that can help:

1) Join the **Radio Society of Great Britain** (RSGB). This gives you the credibility of belonging to a professional and scientific body representing our hobby. If you are involved in electronics or a similar profession, the yearly fee is tax-deductable too. The RSGB also has a wealth of experience and offers members help with planning problems. Obviously you will have to become an RSGB member to benefit from their service.
2) Join **Radio Amateurs Emergency Network** (RAYNET) and actively help with some of the events. Make sure your station is available for any emergency. This will show that you are socially responsible.
3) Talk to your neighbours about your proposed tower, poles or plans. Try to get them on your side before you alienate them. Better to have friends than enemies!

Note: Following this introductory article, Roger Cooke G3LDI will return in the August issue when he'll then expand on the theme of planning and building your own antenna systems in detail. He'll be using his own experience to help you get the best out of what you can erect and use in addition to guiding you through the necessary planning procedures and providing advice.
Editor

Primary Advice

As to my primary advice towards your 'antenna farm', you cannot do better than to buy a book or three. There are numerous antenna books, and I find one of the best is *The ARRL Antenna Handbook.* This book comes with a disk with some very useful design software. If you wish to specialise in lower band antennas, then a useful book is *Low-Band DX-ing* by ON4UN.

When experimenting with antennas, some test gear would be useful too, some of which can be home-made. However, that's a topic for another day, I'll go a bit deeper into this aspect of antennas in a later article.

I hope to be reviewing a few antennas from time-to-time and will be comparing them to my TH7 and also a reference dipole over a period of time. Remember, the Americans have a saying; "If your antenna didn't come down last winter, it wasn't big enough".

Cooke's History

Now for a a short overview of the history of how I got to my antenna farm from my first licence back in 1956, when I was just 17. My first QSO was on a borrowed home-brew two-valved transmitter, coupled with my receiver, an R1155. For an antenna, I had a piece of wire, all of about 20m long, running from my father's shed to about 6m high down to the bottom of the garden.

I used this set-up, talking to locals on 'Top-Band' (1.8MHz) for some time, before I became more adventurous and doubled the output frequency in the p.a. stage to transmit on 3.5MHz. It was still Morse-only of course, but for a while, I worked around the UK like this.

Then **Pat Gowen G3IOR** and I took a memorable trip to a wood merchants and bought an 8m pole. We 'walked' with the pole lashed to two bicycles the five miles (8km) back to my parent's house. With Pat at one end and myself at the other, manoeuvering in and out of traffic and across roads, it was an experience to remember!

A couple of years later, while my parents were on holiday, Pat and I again visited the wood merchants. This time, I bought two 12m poles for £2 each. With help from locals we put these in at the ends of my parent's garden. On these poles, I erected a 20m long End Fed Zepp antenna.

I still have those two poles today, as I still remember the look on my parent's faces when they came home! I then tried various rotary dipoles on a 6m metal pole, before putting up a Mosley TA33 Junior beam, a type of antenna not too common in the UK 35 years ago. This beam performed very well indeed compared to a piece of wire.

Some work has to be done at the top of the mast where it can be cold as well as dangerous. Note the heavy safety belt that Roger's wearing while working on his Satgate antenna system.

An antenna is generally more effective at greater height, here you see a 40m tower in the background.

Large Garden

I married in 1966 and moved into a bungalow at Wymondham with a large garden, where my first tower was a Heathkit, extended with a pole, up to 13m. On this, I tried various beams, quads and wire antennas, before selling it and moving up to a Strumech four-section Versatower with a 6m pole out of the top.

The Versatower, held my home-brew 3-element beam for 14MHz and stacked above it a Mosley Elan for 21/28MHz. With this set-up, I was tempting providence, as a Norfolk gale (we get some big ones) blew the lot down. The topmost section buried itself in my neighbour's garden!

Luckily I was able to replace the tower and kept the top two damaged sections, after repairs by the local blacksmith. These sections now form the basis of my small test tower. My son, a skilled welder, made the groundpost, based on the groundpost of another tower. This mast, with an additional head unit and extension mast allows me to raise antennas on test up to about 16m.

After becoming 'single' again in 1982 I spent nearly a year looking for a home, purely to indulge my main hobby. I found - a derelict Old Nursery with eight acres of land, moving here in 1983. On moving, I sold the tower I had at Wymondham, replacing it with a 40m Westower 3EX tower, with a TH7DXX antenna at the top.

Pure heaven! Well not quite, as I'm still clearing the place but it is gradually taking shape! Rome wasn't built in a day! Although I took early retirement from work and, should have plenty of time to indulge, it doesn't seem to work quite that way!

Future Plans?

Considering my future plans now: For the lower bands I've previously used a Delta Loop and worked lots of DX on that. So far though, I've not done much low-band work here at Swardeston, as I have been so involved with Packet and the Satgate. For these bands, I've just used inverted V dipoles from the top of the tower.

I am going to remedy that this year. I shall shunt feed the tower and instal about 150 ground radials so I can use the tower itself on 1.8 and 3.5MHz. I have also just obtained planning permission for three extra towers and I intend to erect a Rhombic, four wavelengths per leg on 14MHz.

I have always wanted to try a Rhombic since listening to **ZL2BE** when I got my R1155 in 1955. Now I have the space I can try this exotic antenna and I am hoping that the results will by worth the hassle.

The antennas work reasonably well but again I suffered in 2002 as they were blown down in another gale. Incidentally, the 40m tower **is never cranked down** and is stayed with nine guys. It has stood up to the 1987 hurricane and all since then. The guy wires are of steel, broken with large insulators to avoid unwanted resonance. I am hoping to replace these eventually with Kevlar or similar if I can find a source, suitably priced and also a suitable diameter. *PW*

Q u a l i t y • I n n o

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VHF/UHF TX/RX including cross-band split operation

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- Large backlit display and keypad
- CTCSS, DCS encode+decode
- DTMF tones and autodial memories
- Tone bursts
- Three scan modes
- Theft Alarm feature
- Wide and narrow FM TX/RX
- 12VDC direct input (5w output)
- High-power NiMH battery (4.5w output VHF/4w UHF)
- Busy Channel Lock Out
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- External Terminal Control
- Wire cloning capability
- Optional digital mode *(where permitted)*

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Alinco has created a new 2 meter HT that sets new standards in features, convenience and easy operation. The DJ-195 sports an alphanumeric display for easy memory management. It has an ergonomic design that's "user friendly" and the 5 watt output battery is standard. You'll be ready to travel the world with CTCSS encode+decode, DCS and European tone bursts, all included at no extra cost.

- New 2 metre (144-146MHz) handheld
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- 40 memory channels + 1 call channel
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Alinco introduces an exciting new VHF/UHF handheld-transceiver that will change the way you think about communications. The new Alinco DJ-V5 can fill a variety of roles and it does them all well. Loaded with technical features, 5 watts of output power and a wide array of operator conveniences, the DJ-V5 is an attractive radio in a compact package.

- New dual band handy transceiver
- 5W/1W/0.5W output power
- Super wide receive (76-999MHz)
- Includes wide FM mode
- CTCSS Encode+decode, DTMF squelch and 4 different European Tone Bursts
- 200 memory channels +2 call channels
- Alphanumeric Display, up to 6 characters
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- 4 scan modes, 5 programmable scan banks
- Input voltage display with over voltage warning
- Automatic high temperature protection feature

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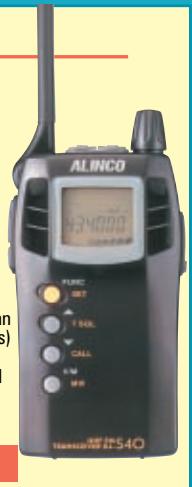
DJ-S40 CQ

UHF Pager Sized Handheld



Alinco has created a new UHF FM Hand held Transceiver that sets new standards in features, convenience and easy operation packed in a compact pager-size package. The DJ-S40T has an ergonomic design that's "user friendly" and capable of 1 watt output with optional Ni-MH battery pack. You'll be ready to travel the world with CTCSS encode/decode and European tone bursts, all included at no extra cost.

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- Large illuminated display
- Loud clear speaker horn system
- 100 memories+1 call channel
- Multi Scan functions
- 38 CTCSS tones for selective calling
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- External device control feature (outputs 3Vdc 5mA signal from an accessory port when squelch opens)
- Additional features, including anti-theft alarm and experimental mosquito repelling tone!
- Huge selection of accessories available

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with 8.33kHz for airband

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- Bug detector
- Stereo FM (with headphones)
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- SMA Antenna
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- Size: 56w x 102h x 23d mm
- Weight: 14.5g (without batteries)
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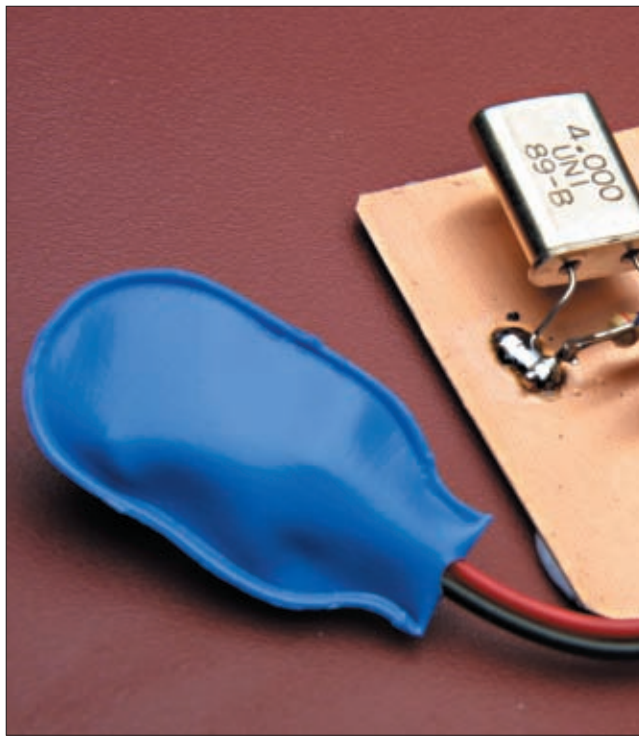
Carrying On The Practical Way

This month the Rev. George Dobbs G3RJV has been dabbling in his scrap box to receive "Short-wave from junk". You'll be intrigued with the quotation, surprised by the project and George's amazing confession!

"Expecting something for nothing is the most popular form of hope".

Arnold H. Glasgow



● You can get yourself listening to short wave radio very quickly with the G3RJV h.f. to medium wave unit. All you need is a medium wave receiver!

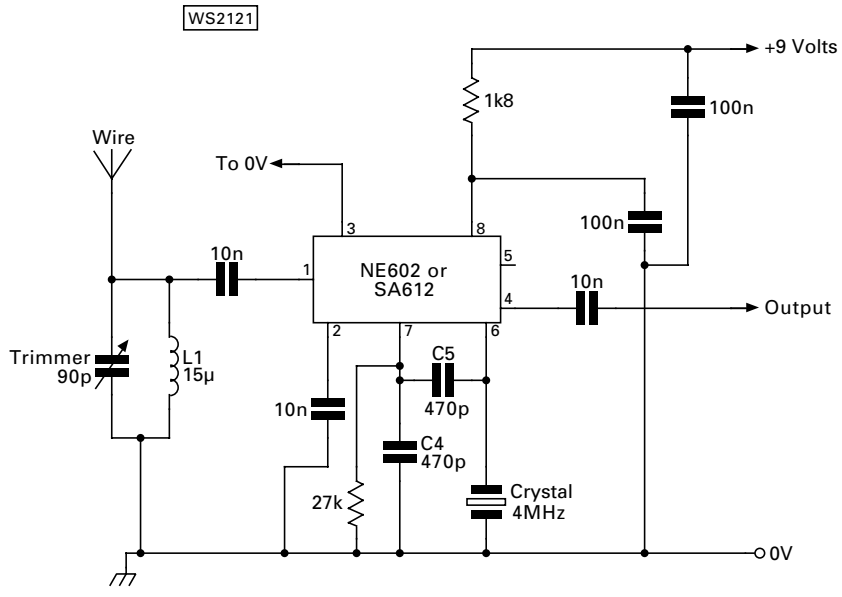
To start off this month....I have a confession to make to the more frugal *PW* readers and it's this: **I rarely, if ever, salvage electronic components!** This is admitted because I know several readers who almost entirely build their hobby projects from parts they've rescued and culled for discarded boards and equipment.

In my defence however, I should also mention that hardware such as; knobs, switches, meters and even attractive small cases are rescued because **they are expensive**. But the thought of spending my precious spare time removing individual components from boards is not attractive.

It's not that the components may be faulty; I could always test them. But I much prefer to spend a little money so I can free up more spare time for the altogether more satisfying pursuit of building the projects.

However, I have always been interested in ideas that use cheap or novel alternatives to buying custom made equipment. One such idea that has appeared from time-to-time, over the years, is using cheap, or discarded a.m. (medium wave) radios to receive the short wave bands.

There are many cheap single band a.m. radios about and most people seem to have an otherwise redundant medium car radio lurking on a shelf in their garage. And usefully, ingenious (well almost!) ideas have appeared over the years for using these receivers on the short wave bands...so let's have a look at some.



● Fig. 1: George G3RJV set himself a modest aim; to pick up short wave broadcast stations on a medium wave radio. The circuit uses the ubiquitous NE602 (SA602), mixer-oscillator chip (See text).

Radical Ideas

Some of the ideas are quite radical, involving replacing the tuned circuits in the local oscillator and the input circuits to change the tuning range of the receiver. This is an interesting idea but rather fiddly and probably too much trouble for the likely results.

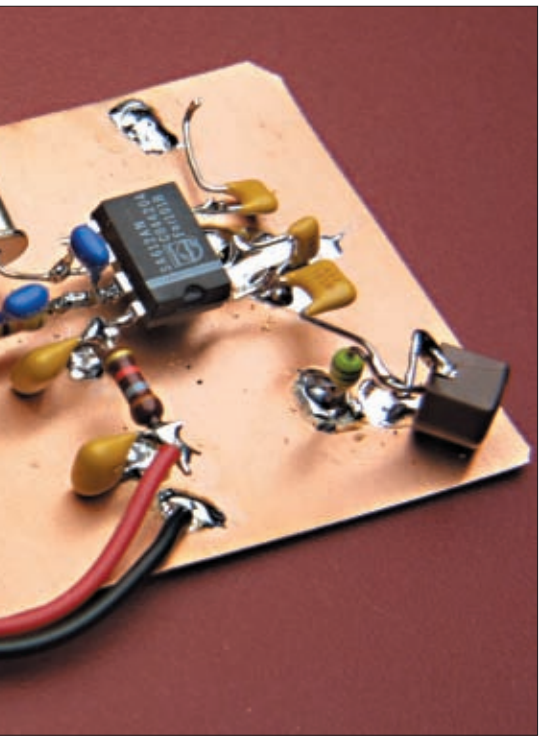
If an a.m. radio uses inductors with adjustable cores, it's sometimes possible to shift the frequency of the radio to the 1.8 to 2MHz band. However, both of the suggested methods would also require the addition of a beat frequency oscillator (b.f.o.) to insert a carrier signal for c.w. or s.s.b. reception.

A simple method is to leave the existing medium wave radio intact and to use it as a tuneable intermediate frequency (i.f.) amplifier and to build a mixer-converter to tune the required frequencies. (I know of some Amateur Radio stations in the Third World that use this arrangement as their main station receiver).

The requirement is to build a mixer, which will accept the required short wave frequencies, mix them with a local oscillator signal to produce an output in the tuning range of the medium receiver. In effect this is converting the original single conversion medium wave superhet into a double conversion short wave superhet – an old, but sound, idea and one which the Editor has used (employing a car radio as a tuneable i.f.) very successfully in Radio Basics.

The Medium Waveband

The medium wave (often incorrectly referred to



as the 'a.m.' band) broadcast band covers 525kHz to 1.605MHz, so in effect this is the frequency range available for the intermediate frequency. However, a real problem is that this part of the spectrum is full of broadcast stations nowadays, some of which are very powerful indeed!

The danger is that the stations at the intermediate frequency could easily swamp the converted short wave signals. This will be compounded by the fact that most cheap a.m. radios use an internal ferrite rod or slab antenna with the sole intent of picking up those stations.

On the face of it, the idea of using a ferrite road antenna is not a very promising. On the other hand, medium wave car radios, use an external antenna's input and are housed in screened metal cases to prevent them picking up electrical noise within the vehicle.

Undaunted, I decided to set myself a modest aim; to pick up short wave broadcast stations on a medium wave radio. The circuit I used for the converter is shown in **Fig. 1**.

Once again I've turned to the ubiquitous NE602, mixer-oscillator chip. I actually used an SA602, which is a complete electrical equivalent of the NE602 (which appears to be dying out). Fortunately I have lots of SA602 chips, which I bought cheaply in the USA. If the reader does not share my good fortune it's possible to use an 8-pin DIL socket so the SA602/NE602 can be used again.

The Circuit

The circuit is as simple as it can be, using a single tuned circuit which accepts the required signals from a modest wire antenna to feed the mixer input. The internal Colpitts-type oscillator has frequency determining components wired around pins 6 and 7.

For simplicity, and stability, I opted for a crystal-controlled oscillator. The mixer product outputs appear at pin 4. The SA602/NE602 requires a supply of some 5V at pin 8. I simply added enough series resistance to drop the voltage from a 9V PP3 battery.

The big question is – what frequencies to use. This applies to the desired short wave frequency, to what part of the medium wave band to use as the i.f. and consequently what frequency to use for the crystal. Although the band tunes from 525 - 1605kHz, in practice I found that the frequencies with the least number of very strong stations were at the higher end, around and above 1605kHz (1.605MHz).

A frequency of around 1.6MHz should give the least trouble from medium wave station break-through and the mixer will produce outputs higher and lower than the local oscillator signal. So, search in the junk box, or the frequency list for cheap crystals, to find a crystal at a frequency, which will, when 1.6MHz is added or subtracted...hit a useful part of the short wave spectrum.

I happened to have some 4MHz crystals and the values shown, Fig. 1., work well at that frequency. The input tuned circuit uses a trimmer and a small 15µH choke to tune in the 5.6MHz range.

Readers opting for other h.f. bands will have to adjust the values of the input tuned circuit to suit their required frequencies. Incidentally, if the chosen crystal frequency is much higher than 4MHz, a smaller value for C4 and C5 will be required, although - from my experience - there appears to be a fair bit of working latitude with these values.

Converter To Receiver

The next problem is how to couple the output of the converter to the medium wave receiver. When a medium wave car radio is used it's a simple process. A screened lead may then be used between the converter and the antenna input socket, **Fig. 2a** .

An alternative to the 'wrapped coil' is to use a radio frequency choke (r.f.c.), **Fig. 2b**, as a coupling inductor. The choke can then be placed near the medium wave winding on the ferrite rod. **Warning:** You should be aware that this technique requires some experimentation, although a choke with an inductance of 120µH taped alongside the ferrite rod winding worked for me. Try it out for yourself!

However, one of those little radios produced in the Far Eastern with a ferrite rod or slab antenna requires a little more ingenuity! The diagram, **Fig. 3**, shows how to use a coil of wire wrapped around the whole case of the radio; three turns seems to work quite well.

Work Successfully?

Does the tuner-converter idea work successfully? Well plainly, the idea is not ground breaking technology! But if you enjoy fiddling about with little circuits...short wave stations do appear.

What really surprised me is that the arrangement I had least faith in (the three turns around the case of a cheap radio), **produced some very loud short wave stations using about three metres of wire as an antenna**. Try it and have fun!

PW

Fig. 2a. WS2122a

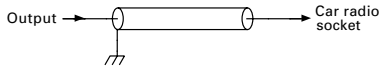


Fig. 2b. WS2122b

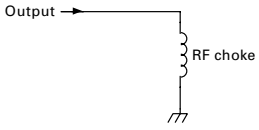


Fig. 2a/b: Coupling the output of the converter to the medium wave receiver should not be a problem. The methods shown here work, but medium wave break-through can be a problem (see text).

WS2122

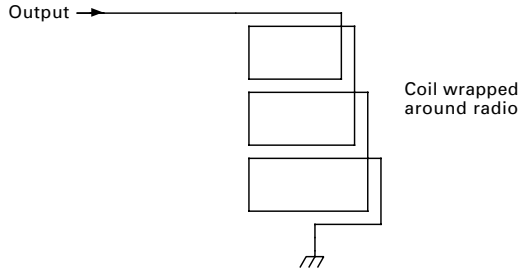


Fig. 3: The diagram illustrates how to use a coil of wire wrapped around the whole case of the radio. Three turns seems to work quite well and G3RJV was surprised at how effect it was in practice (See text).

Operating Portable?

Be Prepared...Plan Ahead!

This month - thanks to a concerned Radio Amateur who works within the Civil Service - *PW* brings you a timely warning. Congestion charges now apply in London ...but did you know you might also have to pay to plan to park, operate when operating 'Portable' in the countryside? Read on and be prepared!

Editorial note: This month, thanks to a very concerned Civil Servant **(who, although a Radio Amateur must remain anonymous, writing under the assumed name of John Brown for obvious reasons)** *PW* brings the news that the implications of a little known Govermnent regulation regarding the institution of paid-for-parking literally anywhere by local authorities (e.g. District Councils) are to be institutued. Additionally, *PW*'s Ministerial Mole also reports that in an effort to limit the reults of the 'Right To Roam' legislation - temporary **planning permisison will be a pre-requisite for any Radio Amateur considering operating a portable station in the areas where the legistaton is introduced**. Read on - to find out the implications for our hobby, in the following report which was compiled by the Editorial team as the result of several long interviews, following the original letter from Westminster. Make of it what you will....but I think we've got reason to be concerned unless common sense prevails.
G3XFD

The new regulations enforcement as visualised by GW3COI

The letter which arrived in the *PW* office didn't look that important as it was hiding within the usual buff envelope which often carries bad news for the tax-payer. However, when it was opened the contents left the *PW* team wondering "Just what is going to happen in the future"? Just what is the Government trying to do?

'John Brown's' letter - was from someone working deep within the real policy and decision making departments of Goverment, from somewhere within the heirarchy of the Permanent Under Secretaries. These are the 'Mandarins' - better known as the 'Sir Humphreys', from the remarkably accurate 'Yes Minister' programme on BBC 1 TV. Our correspondent made it clear that in reality the programe was very close to the mark...the Manadarins do rule the politicians!

'John Brown' was so concerned regarding the plans to introduce 'Pay To Park' regulations - literally anywhere that the participating authorities wish to implement the regulations...he decided to 'Whistle Blow'. During the interviews he explained the plans..."Were made possible by an Act of Parliament which was introduced some years ago". (Although not yet implemented anywhere in England or Wales as far as the *PW* team know) allowing local government to enforce pay-for-parking where employers provide off-street parking. The legislation would then enable local government to raise extra revenue which would then be used to finance better public transport in their areas*****.

It's no joke! Although John Brown was under the impression that the existence of the local government pay-to-park legislation was well known - it turns out that very few members of the general public know of its existence.

Did you know that your local Council could make you pay-to-park if you have an off-road allocated parking space which goes with your job? **Well, they can** - and there's no doubt that it will only take one local authority, unconcerned at the possibility of losing large scale employers with private car parks, to break ranks and they'll all introduce the system. They will also perhaps introduce the other - **hidden but not secret** - regulations aimed at ensuring there aren't too many visitors to the countryside as the Right To Roam debate takes place in the palace of Westminster.

***Note:** This was the stated intention of the original legislation but John Brown mentioned that in the same way the Road Fund Licence is operated...he is of the opinion that the majority of the revenue raised would probably be used for any purpose the authroities wished.*

Bearing in mind that many Radio Amateurs enjoy operating stroke portable/ or like to park their vehicles in locations where there's a good radio take-off point - how does 'John Brown' think it might affect us?

Answering, he said "Well, it seems as though anyone contemplating staying longer than 15 minutes should - in theory - have prior permission to be there. The aim of this is to lessen the possible congestion in the countryside resulting from the Right to Roam plans encouraging too many visitors to the countryside".

Our whistle-blower continued: "And although there seems to be a grey area in the legislation regarding the length of stay, and where you park in the countryside...it's definite that prior permission for temporary planning consent will need to be obtained from the local authority when separate, portable antennas are required". (To help here the *PW* team have been able to obtain a copy of the appropriate form, reproduced in this report. This can be photocopied and presented to your local council when required).

Much Confusion

Unfortunately, there seems to be much confusion regarding the costs of the new system which has to be introduced because of the Countryside Freedom Act (200041). In other words...it's not yet known how much the charges for temporary planning permission would entail. Neither is it yet known whether or not the possible CRAP parking charges will be levied on private land, although the planning permission requirements are very likely to be applied.

'John Brown' - who has access to the Minister involved - seemed to be very concerned but it was rather difficult to judge during the interview because he was wearing dark glasses. At first impression it looked as though he was being dramatically secretive, but after the interview was finished...the smudged multi-coloured hues of a black eye were just discernible. Face-to-face politics may be a more dangerous game than we can possible imagine!

Thinking aloud carefully our informant then suggested that Radio Amateurs should carefully negotiate with landowners - as they've done for many years in relation to operating field days, etc., and then wait to see if local district councils demand that temporary planning permission be applied for.

"That's why" 'John Brown' continued "I've decided to pre-empt any sudden announcement of the implementation of the new regulations by supplying *PW* with a suitable form". He went on to explain that "Armed with a completed form - even though you've not heard of the implementation by your local council - you'll be ready to encounter any officials demanding to know what's going on". Be prepared is the motto - and you'll be able to enjoy our hobby wherever you are!

Dark Green Uniforms

The next question which arose during the interview was: Just how do you recognise the council officials when you're 'in the field'? Answering, 'John Brown' said "Like all local government officials they'll have personal identification cards with their photographs". Checking their credentials would be easy too, because appointments can easily be made at the local planning department office during working hours.

Finally, came the question on identifying the CRAP patrols. Just what are we to expect? Answering this question 'John Brown' said "To save confusion the Government in their wisdom have decided to make the CRAP uniforms the same style whether you're in Northamptonshire or Northumberland, or Hampshire or Herefordshire, Dyfed or Durham".

"The CRAP uniformed officials will wear dark olive green jackets, with matching trousers and their shirts will be brow, with epauletts modelled in the style of leaves. The tie will be green and brown striped, with an oak leaf and acorn cluster motif. Senior staff will wear light olive green forage style caps, and the drivers of parking enforcement and revenue collecting vehicles will wear parking warden style caps.

"All the CRAP officials will have the power to impose fixed penalty tickets for both parking and planning violations - although they won't have the powers of arrest. Instead, they'll have to return to a location, accompanied by the local constabulary to enforce removal, payment of fines. or the removal of illegally erected tents/picnic sites". (He went on to mention that this would presumably also cover temporarily erected Amateur Radio portable antennas or mobile whips).

The Future?

Interview over, 'John Brown' headed back to Whitehall. But just before he left the question "What about the future - what else is coming"...was directed at him. The reply was both interesting and thought-provoking!

"It seems as though the only way to be exempt from any regulation whatsoever is by riding a bicycle" 'John Brown' said. "You can ride a bike into the country, park it where you like, erect antennas, place a tent beside the machine and you'll always be exempt. As far as the law is concerned the bicycle and their riders are invisible. Except that is...when you collide with/or injure a rider when you are in a car, pushing a child's pushchair across a pedestrian crossing or walking on the pavement. My advice is - wherever possible...use a bicycle for your hobby - it's free and beyond the reach of any legislation".

So, there you are readers - some thought provoking warnings and ideas. And the advice from the *PW* Editorial team must be...."Get on your bike" now to absolve yourself from any responsibility to the law! But seriously readers - the *PW* team asks you to do your very best, as usual, be good citizens obey the law, and follow the country code. It'll certainly be cheaper, as well as being the right thing to do! *PW*

Countryside Freedom Act

(Temporary Planning Permission Application)

This form should be fully filled out (it can be photocopied) and sent to your local District Council Planning Department and only covers road layby and other off-road areas not controlled by private land-owners. (Necessary authority to encroach on private land must be dealt with separately by the applicant).

Note [1]:
It is the duty of the TPP applicant to ensure whether or not their local authority has implemented the Right To Roam Conservation Act. The application must also be accompanied with photocopies* of the relevant Land Ranger Ordnance Survey Maps clearly indicating the location of the temporary planning permission site. The TPPA should also ensure that the application clearly identifies the purpose of the application and evidence of the separate application (where necessary) for the payment to the local/county authority, by proving a Mobile Environmental Access Number (MEAN) .

*Note: A licence to photocopy OS maps is available from the Ordnance Survey. The address is provided on the individual maps. this is necessary for Copyright and Protection purposes (CRAP) and the licence number must be quoted. The CRAP number should be entered in the appropriate section below

Name and address of applicant:

Vehicle Registration Number:

Planned Date/Time of Arrival:

Ordnance Survey Grid Reference of location:

Purpose of the visit:

Planned Date/Time of departure:

Number of people in the vehicle:

Public Liability Insurance certificate number:

Note: This application only covers the vehicle and the number of people within the vehicle. Separate applications should be made for any other requirements.

the PW ibp monitoring receiver

Part 2

In part 2 of his project, Oliver Tillet G3TPJ describes further work on his unique receiver. Along with monitoring the IBP beacon frequencies...it displays the name and callsign of the transmitter you're monitoring...all you've got to do is to listen out for it!

We'll start this month by looking at the diode matrix: The 18 lines from the timer module are fed to a diode matrix, **Fig. 8**. Here, depending on which input line is active, a different five line code is fed out. A five pin output means a set of binary coded decimal (b.c.d.) data lines D0 - D4 are available for whatever combination of '0s' and '1s' are required to be sent to the programmable display.

In this application, see **Table 1**, the matrix has to have five sets of five b.c.d. outputs, one for each of the five bands. Each b.c.d. five line output set is coded to be offset by one callsign.

The coded off-set caters for the 10 second difference between a station appearing on one band and then stepping onto the next band. Thus, each of the 18 sequential input lines parallel feeds five b.c.d. output sets. A five wafer switch, **Fig. 9**, is then needed to select just one set of outputs, this will be the set coded for the band being monitored.

In my prototype I used multi-coloured ribbon cable and 0.1 inch pitch pin header connectors throughout the project. Unfortunately, a problem arose whilst making the matrix when I found each housing to be 0.5mm oversize! (Placing two or three side-by-side on a continuous 0.1 pitch is acceptable...but try any more and they'll not fit).

The 18 output lines from the timer board are connected to three 6-way housings. These three connector strips attach to the matrix input. (*The input side of the matrix is the left-hand side of the horizontal part of Fig. 8.* ***Editor***).

Matrix Outputs

The matrix outputs (five lots of b.c.d. lines) are taken via five 5-way headers. The outer two of the five headers have to be spaced to allow for the oversize housings I've already mentioned.

Immediately adjacent to the input headers I mounted an 18-way pin strip. This serves to physically raise the input lines in such a fashion that tinned wire can be run along the top of the matrix diodes. (These wires constitute the

horizontal lines of the matrix). At the far end (right hand side) each wire is taken via a diode to be made available for further processing

Any positive signal on the input lines will thus pass along the tinned wire to the output headers at the right hand end. It's these right hand side headers which are used to feed the external 'Sentinel Box' (I'll be describing this later) via a D connector.

All the matrix diodes are mounted vertically with their cathodes (line or bar) down to the p.c.b. surface. There are 25 other diodes included, so that via a p.c.b. header and push button, a 5V condition is sent to all b.c.d. output lines, signifying a '11111' test condition.

So long as the output connectors, band switch wipers and wiring remains in good condition code 11111 reaches the display memory, this is translated to display the word **LINETEST**. I chose the codes with a view to using the least number of diodes, never-the-less...very many diodes are used!

When using a memory location with a value of less than 16, the binary code must commence with a zero, hence some of the simpler codes can't be used. The final matrix diode configuration stems from that shown in Table 1.

Mem.	Binary $D_4 \ldots D_0$	Call Displayed	Comments (WT2120)
0	0 0 0 0 0	. . .	Not Used
1	0 0 0 0 1	. . .	Not Used
2	0 0 0 1 0	4U1UN	
3	0 0 0 1 1	. . .	Not Used
4	0 0 1 0 0	VE8AT	
5	0 0 1 0 1	. . .	Not Used
6	0 0 1 1 0	W6WX	
7	0 0 1 1 1	. . .	Not Used
8	0 1 0 0 0	KH6WO	
9	0 1 0 0 1	. . .	Not Used
10	0 1 0 1 0	ZL6B	
11	0 1 0 1 1	VK6RBP	
12	0 1 1 0 0	JA2IGY	
13	0 1 1 0 1	RR9O	
14	0 1 1 1 0	VR2HK	
15	0 1 1 1 1	. . .	too many diodes
16	1 0 0 0 0	4S7B	
17	1 0 0 0 1	ZS6DN	
18	1 0 0 1 0	5Z4B	
19	1 0 0 1 1	4X6TU	
20	1 0 1 0 0	OH2B	
21	1 0 1 0 1	CS3B	
22	1 0 1 1 0	LU4AA	
23	1 0 1 1 1	. . .	too many diodes
24	1 1 0 0 0	OA4B	
25	1 1 0 0 1	YV5B	
26	1 1 0 1 0	G3TPJ	That's me! Hard wired on sixth position of band switch.
27	1 1 0 1 1	. . .	too many diodes
28	1 1 1 0 0	. . .	not needed
29	1 1 1 0 1	. . .	too many diodes
30	1 1 1 1 0	. . .	too many diodes
31	1 1 1 1 1	Linetest	5 line 8 char. test, ('TEST' switch)

● Table 1: Memory and binary coding information for the IBP receiver (See text).

Abbreviated Location

In practice, there's space for an abbreviated beacon location to be included on the display, but only the callsigns are shown on the table. The memory module will store 100 messages, although in this project only 20 of them are actually used.

Now let's look at how to select the correct series of b.c.d. outputs. Well, I used a multi-pole switch - shown in Fig. 9. Each of the five D0 lines going to the first wafer of the bandswitch, and each of the five D1 lines to the second wafer, etc. The five wipers are wired in such a way that they convey the selected b.c.d. to the memory module.

For a bit of fun I used a six pole, six-way switch. In position six the receiver relays drop out (no 12V relay feed) and my callsign appears on the display. This is achieved by hard wiring 5V to the 6th position of some of the wafers. I chose to use memory location 25, but you could any spare location. So, you can also put your name in lights!

The Display

To provide the display, a Lascar DMX C4 programmable driver is plugged onto the back of an 8 x 2 display unit (DMX 908). And, as I understand these are designed to be viewed from below (as per a multimeter) I opened mine up and reversed the viewing angle to enhance the view from above. It's dead easy with a fine screwdriver. (**No, you can't just turn the whole thing upside down....the writing will end up that way too!**).

All the same, the display its not very bright or clear in low light. So don't expect any l.c.d. display to beam out anything like as well as they do in the glossy brochures! (Full information comes with the memory module to enable programming via the *Windows Terminal* program).

Incidentally, I'd never noticed this *Terminal* program on my computer before. But having found the necessary serial lead... programming the callsigns and locations onto the display memories was easy.

Initially, however, the thing that threw me was not setting the DMX C4 to accept our parallel b.c.d. input....**I had left it set for serial input!** The result was although it appeared fully programmed on the computer...it failed to respond to the parallel matrix output. (Typing "/P" toggles between parallel and serial input ports). Despite this...I soon corrected my error.

Display Off

Whilst maintaining synchronisation with power provided by the PP3 back-up (i.e. during transportation) it's worth being able to turn off the display. To achieve this both power lines must be switched off otherwise the module partially 'stuffs' itself up from the positive pulses being received from the b.c.d. lines, and this caused it to lock up when re-powered on. However, there's a surface mounted reset button provided on the memory module. I extended this to the front panel until I realised a double-pole power break solved the problem.

When installing the memory module and display into a final product it's a good idea to place them such that a computer serial cable can be easily inserted (through the base plate) for up-dates that become necessary. Unfortunately however, when I originally fitted the display the extra cable caused a little interference. This was cured by re-routing some of the panel wiring and by inserting a piece of plastic wrapped copper-clad board between the memory and display modules!

The Receiver

Let's now take a detailed look at the receiver itself. Here the wafer switch, Fig. 9, - attached to the matrix output - is also used as the band switch. So, the display is always fed the correct b.c.d. lines and so always indicates the correct callsign for the band being monitored.

Having used the 'Epiphyte' (see *Radio Communications* March 1998) receiver section for several projects, I've gained plenty of confidence with the circuitry and spares have been obtained. Used in conjunction with the r.f. amplifier, front end converter and CFJ455K8 filter, I ended up with an admirable beacon receiver.

The IBP receiver's down converter oscillator contains five crystals and five pre-tuned antenna input transformers selected by relays, each pair is

Beacon (MHz)	RF peak	OSC 1 (MHz)	Set with	Osc. 2 (frequency)	Set with	c.i.o (frequency)	Set with
14.10MHz	L1	10.50MHz	C15	4.0556MHz	L8	456.2kHz	C42
18.11MHz	L2	14.51MHz	C16	The actual value of the series inductor L7 will alter the actual pulling range available with the various variable capacitors.			
21.15MHz	L3	17.55MHz	C17				
24.93MHz	L4	21.33MHz	C18				
28.20MHz	L5	24.60MHz	C19				

● Table 2: Receiver alignment chart for the project. Please see text for further details and advice.

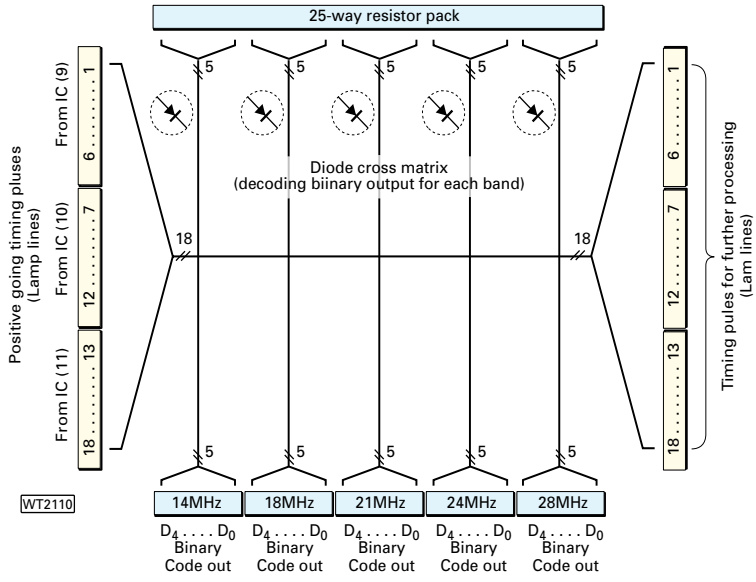


Fig. 8: Skeletonised circuitry of the diode matrix unit used in the IBP monitor receiver (see text).

marked with the same number in Figs. 4 and 5 on page 42 of the March 2003 issue of *PW*. To select a band, a pair of relays is activated: One relay switches the crystal, and the other relay the antenna input circuit.

When in use, tuning the receiver is a simple operation as we're only concerned with a narrow band around each of the five beacon frequencies. Because of this, the receiver tuning is arranged so that only about 5kHz is tuneable using the second oscillator based Tr3 (Fig. 6, page 43 March 2003 issue of *PW*).

The tuning range is amply sufficient to take up any oscillator drift and facilitates monitoring offending signals spreading over the beacons. (However, packet transmissions on 14.1MHz and chit chat on 21.15MHz are a nuisance at times, although these problems pale into insignificance when 28MHz is 'Open' as that band - including the 28.2MHz IBP frequency - is inundated with CB style transmissions from all over Europe and beyond!).

Rejection of image interference is quite satisfactory, although whilst listening to 24.93MHz I have heard a broadcast station. This is perhaps because the r.f. minus twice the i.f. (3.6MHz) equals 17.73MHz. On reflection, an i.f. of 3.9MHz would have shifted the image frequencies away from the broadcast bands* **(See note at end of this section)**. However, since being fully boxed the image signals have not been heard.

The 3.6MHz section could be crystal controlled for both simplicity and stability. However, I have found that the stability of the original circuit was very good indeed.

As an aside, for those of you whose Epiphyte receiver doesn't quite cover all of the 3.5MHz band....try reducing C12 (in its receiver) by 200pF. Incidentally, One in 20 of the MVAM 108 varicaps don't have enough capacity swing. For this project a cheaper varicap, or just an IN4001, etc., could be tried since it's only needed to tune several kHz either side of the beacon frequency. In the same area of the board, C26 is now comprised of two components in parallel. However, in practice, I found the 820pF polystyrenes are rare, although 680pF by itself seems perfectly satisfactory.

The 12V supply through D9 (reverse polarity protection for C49) supplies via connector '12V OUT' band switch on wafer 6. This 12V is switched back in via header 'BAND' to the band selector relays. I used five wire links, which are run on the p.c.b. between the BAND header and relays. The relay pairs themselves are 'Teed' by p.c.b. track.

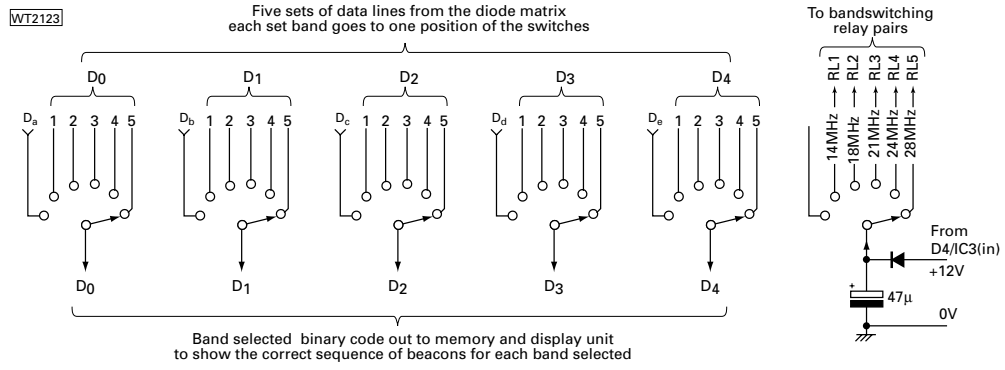


Fig. 9: Switching circuitry for the b.c.d. data lines from the diode matrix (See text).

The inductors L1 to 5 are trimmed for maximum signal on each band whilst C15 to C19 adjust the crystals to give the same audio tone regardless of band monitored. (Trimming L7 helps change the tuning range of the trimmer capacitors). **Note:** A table of tuning components for each band is shown in **Table 2**.

Inductor L7 should be around 2µH and in my prototype was a junk box item found wound on a TOKO 10EZ type former, for which the p.c.b. has been drilled. The earth lugs on the can are used for earth continuity. So, if you make your own winding on an open former...make sure the earth track is linked across.

***Note:** Despite what Oliver says, readers should be aware that unwanted harmonics from broadcasting stations regularly appear on frequencies between 10 and 30MHz. So, it may not be your receiver at fault.* **Editor**.

Mixer & Oscillator

The first mixer/oscillator runs on 6V, and this is derived by R2 and the Zener D1. The 2nd and 3rd mixers however, run from a regulated +5V, generated by the three pin device IC3. The same +5V is used to generate the tuning voltage. Next, the voltage for the 2nd oscillator tuning, necessary for the tuning voltage swing to D4, is reduced by using a pair of resistors either side of the potentiometer, R10, and a further resistor, R12, across it (I used a five-turn Helipot of 5kΩ).

The parallel resistor, R12, is 100Ω and the two end padding resistors, R11 and 13, are each of 4.7kΩ. This arrangement provides about ±2.5kHz of tuning 'swing'.

The inductor L8 (second oscillator) is adjusted to give a mid tuning frequency of 4.0556MHz. (The actual tuning range being 4.0531 to 4.0581MHz). Next, C42 is set to give a third oscillator injection of about 456kHz and required final audio tone.

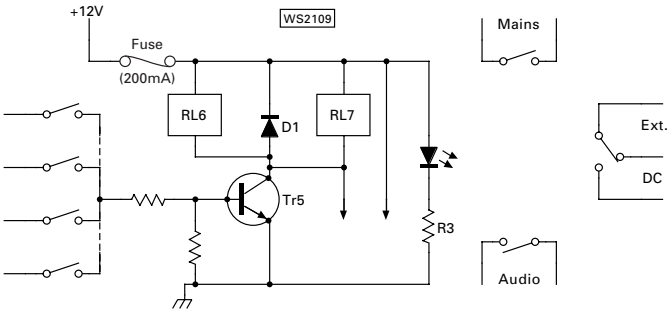
Now to the 600Hz audio amplifier! Rather than use a potentiometer for a volume control in the prototype I used a toggle switch (centre off) and two resistors. The resistors were mounted on the switch, shown to thel eft of IC5 in Fig. 7 (page 43 of the March 2003 issue of *PW*) and 1.8kΩ and 560Ω provides attenuation of around 8 and 16dB respectively.

With a temporary antenna, using 13 metres or so of wire, held up two metres above ground by convenient bushes and with no earth connected...the receiver provided me with plenty of beacons to listen to. The IBP receiver is probably as sensitive as anything you're likely to

buy...so I hope you'll build one for yourself!

The Sentinel

Now let's take a look at an add-on...the Sentinel Unit. The basic circuit is shown in the circuit of **Fig. 10**. Here, each of the 18 lines (having been isolated by diodes on the matrix board) is offered via a toggle switch to a single BC337. Five volts from the matrix (when switched through) turns the transistor and associated relays on. These switches are best labelled simply as 1 to 18.



● Fig. 10: Circuitry of the add-on 'Sentinel' unit used by the author (See text).

At any time it's quite easy to ascertain which switch is active by operating them until the white l.e.d. (or buzzer) comes on. At that moment you simply read the callsign off the display. This facilitates mains, d.c. and audio switching during any chosen time slot or slots.

You could be soldering in the shack and hear or record only a chosen signal (or signals) every three minutes...no need for any display watching! Alternatively, the buzzer can be muted and a high intensity white l.e.d.

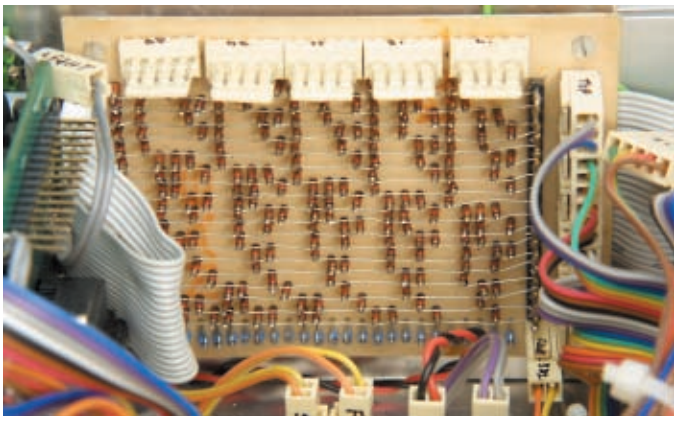
activated instead.

The D connector to the Sentinel unit carries not just the 18 isolated outputs from the matrix but also 12V to power the sentinel box. The 12V is simply picked off from the main unit's 12V input terminal posts, (via an idiot proof diode to provide protection against accidental polarity reversal). Because of this...a 20-way connector (D or otherwise) is a minimum requirement.

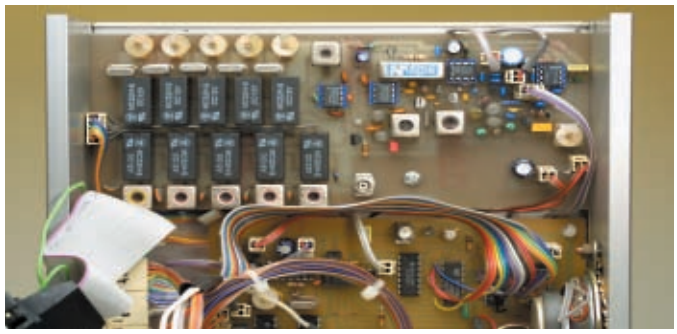
Synchronisation & Display

Now, we must look at the techniques for synchronising the display callsign change with the relevant transmission change. Firstly, the internal clock needs setting to the correct frequency, by setting the clock chip, IC6, an HEF4521, to 4.194304MHz by trimming C47. This action will ensure the basic one second pulses at pin 14 of IC6.

The one second pulses can be counted over time using the Maplin counter, and the sounder will bleep on each second. One second pulses from the timer board can be synchronised with the Rugby GBR transmitter on 60kHz by turning the power off and on, until the clock, and hence the sounder, is in unison with Rugby.



● Photograph of the diode matrix used in the prototype IBP built by G3TPJ (see text).



● Looking down on the oscillator/switching p.c.b. The oscillator crystals are at the top left, with the switching relays between the inductors and the crystals (see text).

Remember though, that Rugby goes silent (doesn't bleep) on the minute. Such accuracy however, is not really needed because the beacons are potentially available for 10 seconds. The timing could be as much as a second out without worrying, so you could forget Rugby and concentrate on the 10 second segments when the callsigns change.

Operating the **HOLD** switch, S2**,** and momentarily pressing the **RESET** switch, S3, freezes the display on 4U1UN on 14.1MHz. You simply wait (for a maximum of three minutes) before releasing the locking the HOLD switch to turn it off again.

If a callsign change is displayed a second or two before it's due....then pressing the HOLD switch for an equal number of seconds will re-sequence the timer. In use the HOLD switch can be operated at any time and released again when the displayed callsign is heard. You'll soon get used to it! Finally, in my prototype, to avoid unwanted operation of the RESET switch, which would lose synchronisation, I've arranged that the RESET button switch is not operational until the key activated HOLD switch has been turned (That's the key shown on the front panel of the unit)..

Another Hobby!

So, that concludes the basic description of the modules built, together they make 'beacon watching' almost a hobby in itself. Hearing the displayed beacons on the receiver from distant parts of the world getting louder while others fade is quite fascinating.

Coupled with the stepped power levels transmitted by the beacons, a good indication of possible DX, etc., is provided in a simple way. **Warning:** Remember to disconnect the IBP receiver from the antenna before transmitting, your pride and joy could go up in smoke!

Finally, anyone contemplating building the IBP Receiver may be interested to know that around 30 A4 sheets of text and PCB details are available from the me. So, I look forward to hearing from you!

PW

Printed Circuit Boards & Information

To further encourage intending constructors the author, Oliver Tillett G3TPJ, is offering a source of ready-to-assemble printed circuit boards for this project. Additionally, Oliver also has further constructional information and advice in the form of printed A4 sheets. Readers interested in building the *PW* IBP monitor receiver are asked to write directly to him at: **27 Cranbrook Drive, Gidea Park, Romford RM2 6AP, Essex. Please enclose an A5 sized self-addressed envelope with a 1st class stamp for return postage, to enable Oliver to advise you of the costs of the p.c.b.s, etc.**

Please do not write to the Editorial offices on this matter. Thank you. Editor.

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zero DEPOSIT

now with FM!

This is an excellent starter radio is sadly discontinued so we are offering the TS-50S from Kenwood at £629 or we have a few used units available.

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YAESU FT-817

choose a package to suit you

The Yaesu masterpiece! This little radio offers 160m to 70cms For less than £600 you can have a take away shack !

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FT-817,Nicads,Charger,DC lead,Microphone,Shoulder strap & AA cell tray. Only £595.00

Package 2

As package 1 but with Miracle whip,Case,PSU and a choice of Palm Mini Paddle or DTMF Microphone! Only £799

Package 3

Package 1 plus 50 watt Tokyo Hi power amp, LDG Z11 ATU,SP-817 Speaker Plus Samlex SEC-1223 PSU. All for £1199

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HL-50B 50 watt amp	£229.00
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YAESU FT-920AFC

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For the same price most other manufacturers offer a twin band Yaesu offer a full blown Dual band mobile. With CTCSS, switchable deviation, dual receive, Built in Duplexer plus remote head *(requires YSK-7100 at £39)*

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27th April 2003

West London Radio & Electronics Show

Taking place at the Kempton Park Race Course, Sunbury-on-Thames, Middlesex

Managing the very successful Epsom Rally, 'Radio Fairs' announce a new London Show in April

- All major manufacturers, Yaesu Kenwood & Icom
- RSGB, PW & RAIBC plus many more club stands
- Just off of Junction 1 of the M3
- Main traders and the 'small hard to find retailers' will be there
- Bars and hot food available thoughout the day
- Free entry for under 16yrs
- Normal entry £3.50 and £3.00 after 12.30pm
- Morse testing with free entry for those taking part
- Exceptionally good parking facilities on site
- Bars and restaurants
- Free tables for charities and subsidised tables for clubs
- 2 metre talk-in managed by the Whitton Radio club
- Bring & Buy operated by Echelford Radio Society
- Seating and picnic area outside

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NEW!

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- *High Speed Automatic Antenna Tuning System*
- *Dual Receive With Independent AGC Systems*
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- *Selectable SSB Pattern Contour Filters*
- *Industry-Leading RF Front End Design*
- *3 RF Preamp Modes+ IPO (Direct Mixer Feed)*
- *Outstanding IF Filter Chain*
- *Full Breaking CW and Electronic Keyer*
- *Multifunction Display with Improved Contrast*
- *Enhanced Shuttle Jog Tuning Dial*
- *Direct Keypad Frequency Entry*
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- *Easy Digital Mode Interfacing*
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YAESU FT-897

At last the New Multiband Yaesu has arrived. 160m-70cms all mode with DSP. Designed by the same team that gave us the amazing FT-817 - you know it will be good. Options available are:- Internal PSU, Internal batteries, Matching bolt on ATU, Collins CW filter, Collins SSB Filter,DTMF Microphone.

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LOOK! New Miracle Antenna Mk2 has arrived!

MIRACLE WHIP MkII

This antenna has been designed with the FT-817 in mind and is a 55 inch whip with a tuning box at the base. The performance is staggering and it will work with any radio from 3.5-460MHz (25W max). It even works without a counter poise. Call for full details!

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The new 3 band hand held from Icom is long over due and well worth the wait. The buttons have a very positive feel and audio is good on both TX and RX. With lithium Ion Battery giving 5 watts on 2,70 & 6 "Another winner from the Icom stable"
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When I first saw the IC-2725 I thought it was just another dual band radio! When I connected it to an ariel I soon discovered it was the Dual Band Radio. The first radio I have seen to be able to monitor 2 Airband signals at the same time. Pagers do not seem to bother it at all. The remote head puts all the controls where you want them. The mike can completely operate the radio (including frequency entry and DTMF). If you want a serious dual band radio with excellent scanning facilities then the IC-2725 is ideal. ML&S price £349.ZERO DEPOSIT, 36 x £12.69

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Book Profiles

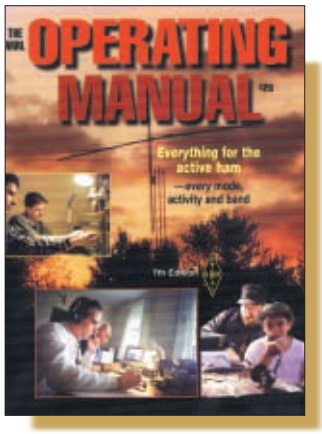
TO ORDER ANY OF THE TITLES MENTIONED ON THESE PAGES PLEASE USE THE ORDER FORM IN THIS ISSUE OR TELEPHONE CLIVE HARDY ON (01202) 659930.

The *PW* team has found some interesting books for you this time. There's something for everyone...including keen new h.f. operators!

The ARRL Operating Manual

7th Edition
Chuck Hutchinson K8CH. £18.50

Although this book is very much American orientated, it is also one of the most useful titles aimed specifically at the keen operator...whatever bands they're interested in. And, if you are actively involved in American county hunting or want to know the exact location of the station which you've just worked for the first time...all the information is provided in the USA State and counties directory.



The manual also provides valuable information on various call areas for major countries - this alone being an extremely useful service. There are also many pages devoted to the various awards to trophy hunters.

This heavyweight, approximately 300 paged, softback book claims to provide information on operating in every mode and activity on all the bands and seems to do just that! If you're new to Amateur Radio it will also provide an insight to the tremendous scope provided by the hobby - even a quick glance will show you what an exciting and multi-faceted pastime we have.

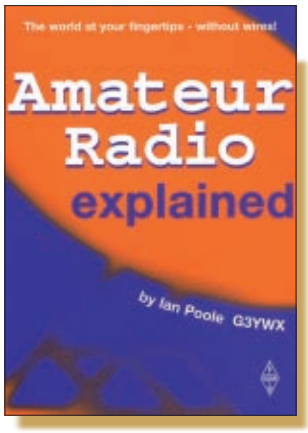
Essential reading and reference - it should be on everyone's operating desk.

Order Code: **RROPM**

Amateur Radio Explained

Ian Poole G3YWX. £9.90

Are you very new to Amateur Radio? Just got your M3 Licence and now want to learn more about the hobby before contemplating preparing for the Intermediate Licence? If you are,



Amateur Radio Explained by **Ian Poole G3YWX** is absolutely ideal for your use.

This 150 page A5 sized soft-back book is a very convenient size, packed with information and is presented with the usual easy-to-read and informative style adopted by this well known author. It has 12 chapters which include types of transmission, jargon, codes and callsigns, propagation, setting up the station and much more. In effect it's a miniature manual and will prove extremely useful to any new, or intending Radio Amateur.

Looking for a birthday gift for someone about to take the Foundation Licence examination? Look no further...you've found it!

Very clearly and concisely written, and highly recommended.
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World Radio TV Handbook 2003

£19.95

There aren't many keen short wave listeners around in the hobby nowadays who haven't heard of the internationally renowned *WRTH*. It's become a standard, annually published reference work for anyone interested in broadcasting.

The handbook's maps and equipment reviews are always enjoyed by its readers. Ever wondered what that faint co-channel station is that you can hear in the background of BBC Radio 4 on 198kHz? You'll know what it is if you have this book! And if you've ever been puzzled by the strange eastern-style music which appears on medium wave at night in England...it's this book which will tell you how to find out that it's coming from somewhere in the UK! You may not have found DX...as it could be one of the many 'Ethnic' stations which are coming on air all over Europe and with this book you'll find all the relevant details.

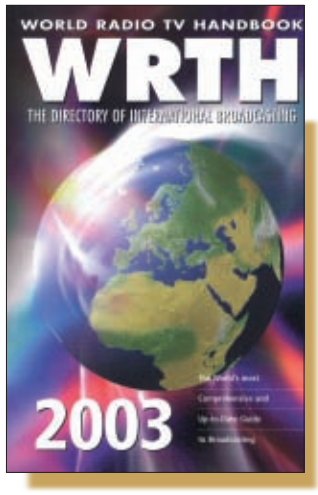
Additionally, you can track down the information on the smallest station in far away Oceania, along with the largest broadcasters. There are 672 pages in this soft-backed book, packed with excellent reading and reference material for both the listener and DX television chaser. **Recommend reference book.**

Order Code: WRTH23

Radio Communication Handbook

7th Edition. £29.99

This book is the softback version of the British classic published by the RSGB. Although somewhat dated now (this version goes back to 1976) this is the

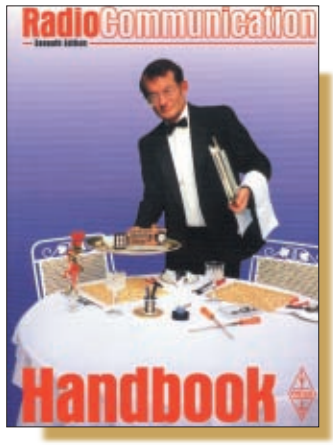


latest reprint and it's still a splendid source of information for the Radio Amateur. With 600 plus pages, all copiously illustrated with the well known *RadCom* style of diagrams, the printing and presentation is very clear and easy-to-read. This is helped by the crisp white paper stock.

If you haven't got this book in your library...you're missing out in the opinion of the Editorial team! With 23 chapters the subjects include: Principles, semiconductors (this book's coverage of basic semiconductors has not yet been surpassed in the opinion of our Editor), electronic tubes and valves, v.h.f and u.h.f. receivers, power supplies, measurements and test gear.

Incidentally, readers who enjoy our Radio Basics column will find the latter section particularly useful - it's often quoted as being the best down-to-earth approach available for the home constructor. The dip meter section is of great help and there's a p.c.b. lay-out drawing provided in the rear of the book to encourage the reader. And yes...the construction and workshop practice chapter does show you how to make your own p.c.b.s! The complete package.

A super reading and reference source, an essential for your library. Very highly recommended.
Order Code: RCOMHB



To order any book from these pages please use the Order Form on page 73 or call the Credit Card Hotline on (01202) 659930. Please quote the codes.

The *PW* Lowfer

A Low Frequency Receiver With A Ferrite Antenna

Do you fancy listening to the 136kHz band - but are unsure what to use as a receiver? Why not try this idea from Harry King? It's effective, simple and cheap to build.

Before I start, I have to say that, sadly my prototype was mistakenly disposed of in a recent house 'reorganisation'. So, without a prototype to photograph, this article is more of an idea for a project rather than a 'build-it-just-so' project. But it's my hope that in describing the circuit to you that you'll be encouraged to experiment with such devices yourselves.

This idea for this l.f. receiver project, had a long gestation period. I'd originally devised the circuit during early 1993, as a way of detecting ultrasonic sounds due to 'Cavitation' in high temperature, high-pressure pipes. The sensors used were specially constructed 'microphones'.

Supersonic Cavitation

As the original effect was sonic, special supersonic microphones sensed the sounds of cavitation. These signals were amplified using high quality circuit and were used to monitor frequencies between 100kHz to 120kHz. This was, I felt, close enough to the then 'new' band of 76kHz and the later 136kHz to allow some modifications to work in these bands.

Although, the circuit contains standard building blocks, the 'front-end' of the device is my original idea and has not been taken from any published article other than general component data books.

The circuit was devised when the low-noise wide-band SSM2017 audio chip became available. The one chip amplifier suited my original purpose well, but would it work on the nearby low frequency (l.f.) bands that had just become available?

What was needed, was a small redesign to the circuit for the 136kHz band. The resulting circuit is shown in the diagrams of **Fig. 1**, the preselector and preamplifer, and **Fig. 2**, the direct conversion receiver. The various i.c.s used are described elsewhere, so, I will not elaborate here.

Initially, I had had problems finding a suitable antenna for the l.f. band and I tried several with various degrees of success. Then, while reading an article by Peter Dodd[§] I found an almost 'throw-way' reference to tuned antennas that could be quite small. [§] Getting The 'Low Down' On LF - Operating On 136kHz, by Peter Dodd G3LDO, *PW* p32 February 2000.

Improve It

So, I returned to the project again to try and improve it. I decided to try the project with the long wave windings of a ferrite rod antenna tuned to that part of the band. The initial results were very promising.

The pass-band filter, comprising of T1 and T2 and various capacitors, was found to work very well. Although the values of capacitors C10 and C12 will look very peculiar, not being part of the standard range. Each of these capacitors is made up of parallel combinations to give a total value of 370pF in both cases.

The two Toko coils and associated capacitors in the pass-band tuned circuit, had to be retuned upwards from my original design frequency, to

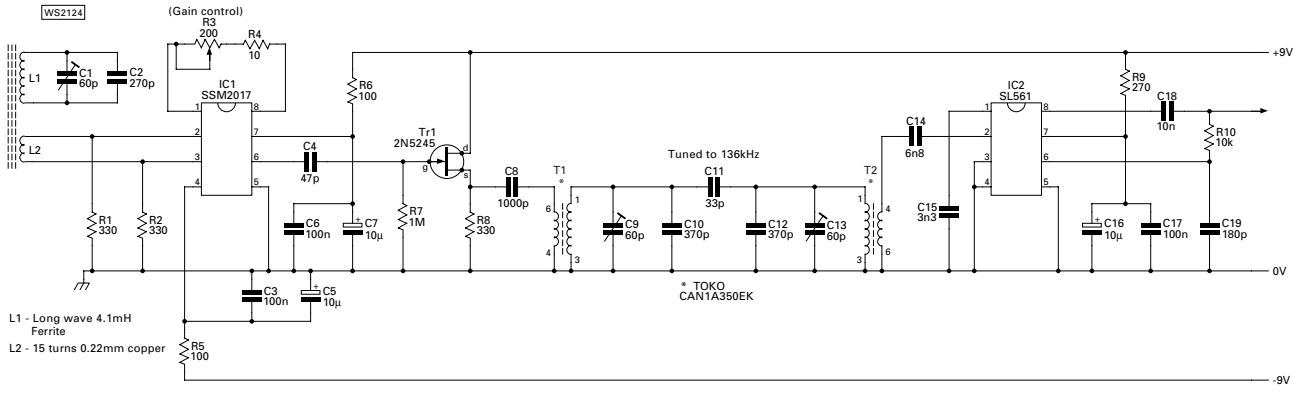


Fig. 1: This circuit is both antenna and preselector/band-pass filtering, as well as providing a large but variable signal gain. See text for more detail.

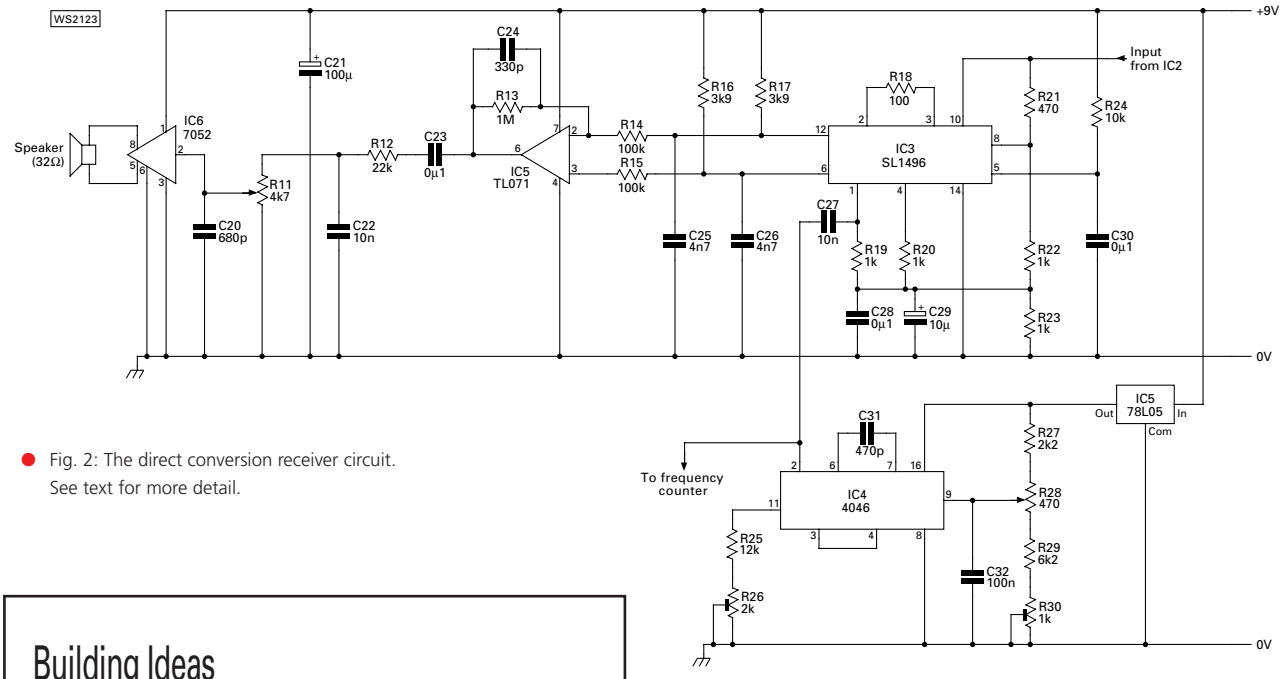


Fig. 2: The direct conversion receiver circuit. See text for more detail.

Building Ideas

You'll find your own ideas when building your Lowfer receiver. The following notes are from the experience of building mine.

- Initially the bandpass filter of T1 - T2 was set up by inserting a suitable signal across R7 on the gate of Tr1. The output was monitored at pin 10 of IC3 (SL1496).
- The band-pass centre frequency was set to 136kHz, tuned with cores of T1/T2 and trimmer capacitors C9/C13.
- An audio low-pass or narrow band-pass filter would be useful.
- The audio amp tends to oscillate with poor layout.
- Using a speaker of less than 36Ω results in IC6 getting warm. Also Pins 3 and 6 require good earthing points.
- The oscillator could be crystal controlled, even going as far as using an appropriate divider chain.
- Variations of frequency with control voltage were found on different i.c.s in position IC4, as well as temperature variations. There is also a definite frequency/supply variations. The supply to the oscillator must be stabilised

Though the project (that I built) is no longer in existence, it would please me to think that this project has been put to use, in the field of Amateur Radio by you the reader.

136kHz. Although I found that when bypassing the two coils I was able to use the circuit to listen to signals over the range of about 160kHz down to 60kHz.

The stations that I was able to receive and hear without the pass-band tuning were numerous. But not being an absolute 'radio buff' myself, I was only really able to recognise the various time signals, such as Rugby, ticking away.

When I was developing the circuit, I was initially using ultrasonic frequencies and suitable audio transducers. Again to carry out some of this work, the band-pass filter had to be bypassed.

My original circuit was tested without the bandpass coils (L3/L4) at a frequency of 40kHz, because suitable audio transmitter/receiver transducers are cheap and freely available. In testing, the transmitter transducer was driven by a stable signal generator, and physically separated from the receiver transducer by about six or seven metres.

Suitable Level

Driving the transducer with a supersonic signal, varying up to 0.25V, peak-to-peak, some received signal noise began to appear in the receiver. I found that when the transmitter was being driven with a signal of below 0.15V peak-to-peak the signal could still be heard on the receiver.

During these tests, the receiver transducer was matched to the SSM2017 with an f.e.t. source follower. This allowed me to obtain the best match to the input of the audio amplifier IC1.

Satisfied with my initial tests, I then tested the full radio frequency tuned circuit. I then found that a 'normal' house is a very noisy (fluorescent lights, television, etc) environment. In spite of this noise, I had what I considered to be reasonable results.

The circuit could, I believe, be improved considerably by the use of a tuned frame antenna, or the use of an outside tuned wire antenna system, both with the correct matching coils.

Improved Selectivity

The audio selectivity could be also improved with a narrow band low-pass audio circuit This noise reducing add-on, could be made up from one or more of the many published designs.

The original project was built in two parts, one on a piece of

double-sided PC board up to the SL561 output; the remaining circuits on strip board. The 'front-end' components including d.i.l. sockets were surface mounted on the board using the 'Island' system. with interlinking 'runs' etched onto the board.

The pattern for the etched lines were drawn on the copper with a 'Dalo Pen'. Size and layout affect the efficiency of the circuit, and the usual r.f., high-gain, and screening techniques should be used. *PW*

Integrated Circuits Used

You may not be familiar with some of the i.c.s used in this project, as they're not often found in Amateur Radio gear. The TL071 op-amp shown as IC5, along with the audio amplifier, IC6, are standard configuration circuits and should require little explanation. As the i.c. has appeared in *PW* projects before, the SL1496 mixer (IC3) I wont elaborate on either.

The Burr-Brown SSM2017 (or the replacement INA217) high specification instrumentation amplifier contains a network of three operational amplifiers (op-amps) in a low noise, low distortion format as shown , **Fig. 3**. It's ideally suited to a balanced input circuit. It has an 800kHz bandwidth with a gain level of 100 and is ideally suited as the low-noise front-end to the receiver.

The first stage voltage gain, can be simply set with a single variable resistor (combination of R3 and R4), from about 50 (R3 maximum) to the maximum gain of the i.c. (1000 times), when R3 is at a minimum.

The gainblock IC2, an SL561, is a low-noise video amplifier with high gain and a 6MHz bandwidth **Fig. 4**. It can achieve these parameters in spite if running at 5V drawing only around 2-3mA. The Feedback network of R10 and C19, set both the overall gain and the bandwidth. The reduction in bandwidth helps to keep extraneous signal to a minimum.

Finally, the oscillator chip IC4, is an unusual use of a 4046 phase-lock loop chip, in that the phase-lock comparator isn't used. The controlling voltage is created directly in the potentiometer components of R27 to R30. overall frequency and range are set by components C31 and R25/26.

I made a graph of the output frequency versus control voltage for my original project, and this is shown in **Fig 5**. I encourage you to make your own up, as it will help with setting the tuning range.

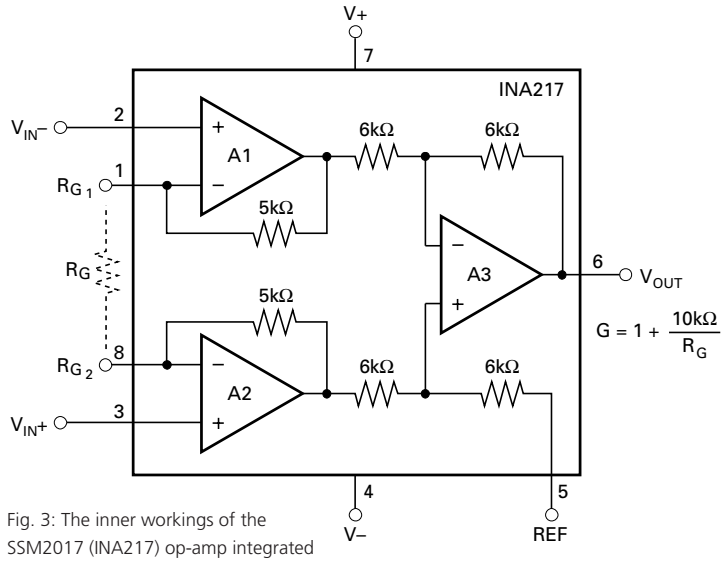


Fig. 3: The inner workings of the SSM2017 (INA217) op-amp integrated circuit. See text for details.

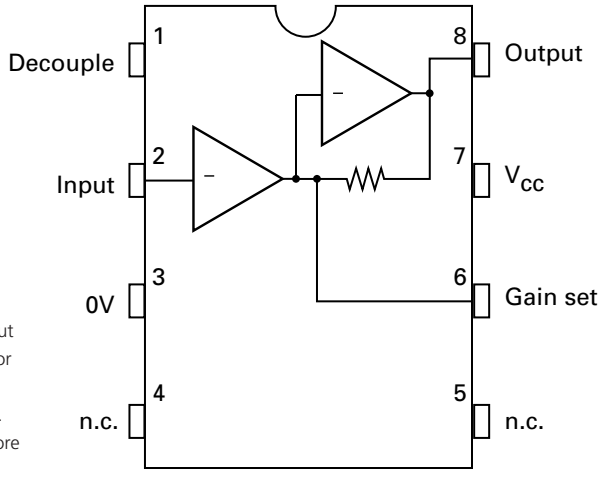


Fig. 4: Pin layout and function for IC2 the SL561 video amplifier. See text for more detail.

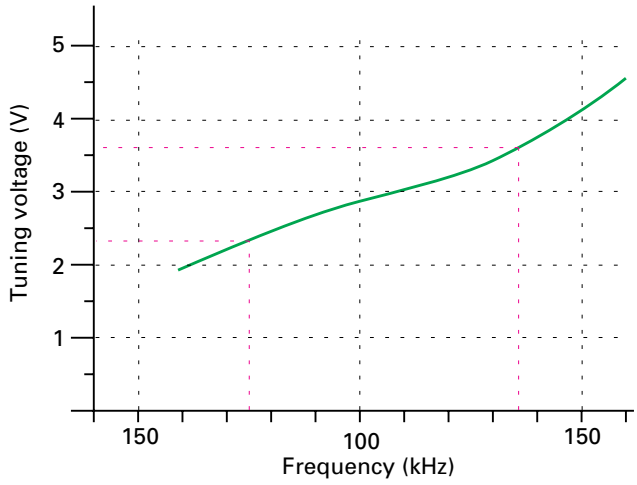


Fig 5: Control voltage charted against the oscillator frequency for the 4046's internal oscillator. See text for more detail.

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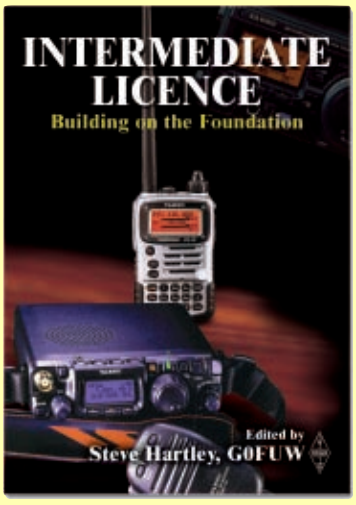

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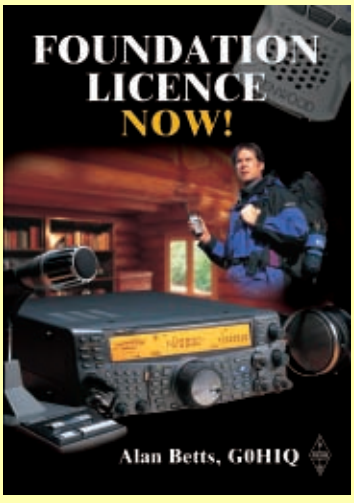

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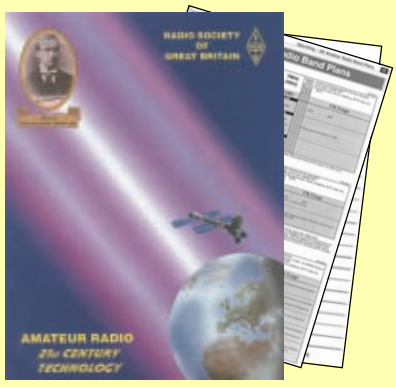

For those wanting to know more about the new Foundation Licence the RSGB has produced *'Foundation Licence - Now!'*. The book contains all that is required to obtain this first step into Amateur Radio. Not only covering the basic course the book also provides a useful insight into the technical basics, receivers, transmitters and antennas. Attention is also paid to good operating, licence conditions, safety and EMC. Written in an easy to use and understand style this is the ideal book for young and old alike.

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50MHz Oper

Following a trip to Sao Tomé in Africa Henryk Kotowski SM0JHF discovered that the 50MHz band only seemed to be 'open' on a Friday! During his visit Henryk combined his love of radio with a curiousity to experience a location that held a fascination for him.

Henryk's S92JHF's station set-up comprising of an IC-746 on the left with the antenna tuner also just visible.

As an ardent lover of Capeverdian music and my interest in the number one song of Cape Verde, *Sodade*, in which the lyrics "..way to Sao Tomé.." my curiosity and a desire to visit had been stirred, and this time radio was not the main objective. I'd also read that the best coffee in the world is grown in Sao Tomé and that Amateur Radio licences are easily granted there too.

So, one chilly Sunday in January 2002 I was soon on (in the middle of the night) on to Sao Tomé, Africa. The island is covered with clouds most of the time but fortunately they have good pilots at Air Portugal so I landed safely on the Monday morning, and was met by a driver that **Luis Beirao S92LB** had arranged to meet me.

Luis S92LB is 71 years old and has lived on Sao Tomé all his life. At the age of 15 he used to go and listen to radio communications at the local maritime station, until a few years later he got 'on air' himself as CR5LB. In those days Sao Tomé was a very prosperous part of the Portugese Empire.

I recall talking to **Angelo D44BS** of Sao Tiago, Cape Verde more than a year ago. Angelo was stationed for a few years in Sao Tomé in the 1960s and lived next door to CR5SP (now a Silent Key), who was a very active Amateur. It was this that prompted Angelo to become a Radio Amateur.

At that time, contacting Portugese overseas possessions on air was easier to work than Portugal itself. I still remember countless CR6s from Angola and CR7's from Mozambique that were on air in the 1960 and 70s. After 1975, when the colonies became independent, Amateur Radio ceased to exist in these countries. Luis Beirao was in trouble then, he had to turn in his equipment to the authorities and went QRT.

A few years later, when the Russian and Cuban advisers disappeared from this region, Luis met the President of the country and said: "I remember when you were born, I remember when you were kicking a ball in the street, and now you forbid me to use my radio"?. Eventually Luis became S92LB as the national ITU prefix changed in the meantime from CR5 to S92.

Callsign Granted

For my radio operations from Sao Tomé I was granted, for a small fee, the callsign **S92JHF**, by the Telecom Company in Sao Tomé. So I was all set to begin working the bands.

At first I simply 'threw' a wire from the balcony of the apartment I was renting. This resulted in a very few QSOs and poor reports.

There were electric power lines running in front of the house and I wondered if this was adding to the poor results and had been thinking about

You can obtain a valid Amateur Radio Licence from the CST to operate from Sao Tomé.

n on Fridays!

changing this QTH. However, on at the back of the house I'd noticed a large bread fruit tree.

The next day I asked a young boy to climb the tree and tie the end of my wire as high as he could. "I do nothing for nothing" - was his response. "Ok, how much do you want ?" - I asked. "I want a dollar" - he said after a while.

So, the young boy climbed the tree, broke a few branches that in his opinion hampered my antenna wire from being straightened and eventually I had what I considered to be a decent antenna. I gave him two dollars!

So I set about trying the 30m wire and found it tuned on all bands except 1.8MHz. I also let a few wires of various length drop down from the window - to act as a ground counterpoise as my connnection to the water tap was quite lengthy and the water pipes are not always filled with water in Sao Tomé!

Luis Catulo S92LC in Lisbon, Portugal where he operates as CT1CTZ.

When Travelling

When travelling I use an Icom automatic antenna tuner and an Icom Transceiver. On my trip to Sao Tomé I took two Icom radios with me as I wanted to help **Tom S92TX** get on the 50MHz band while I was staying in the island.

Tom S92TX had told me in an E-mail before my trip that he had a Yagi antenna for 50MHz but no equipment. So, I'd decided to take both my IC-746 and IC-706 with me.

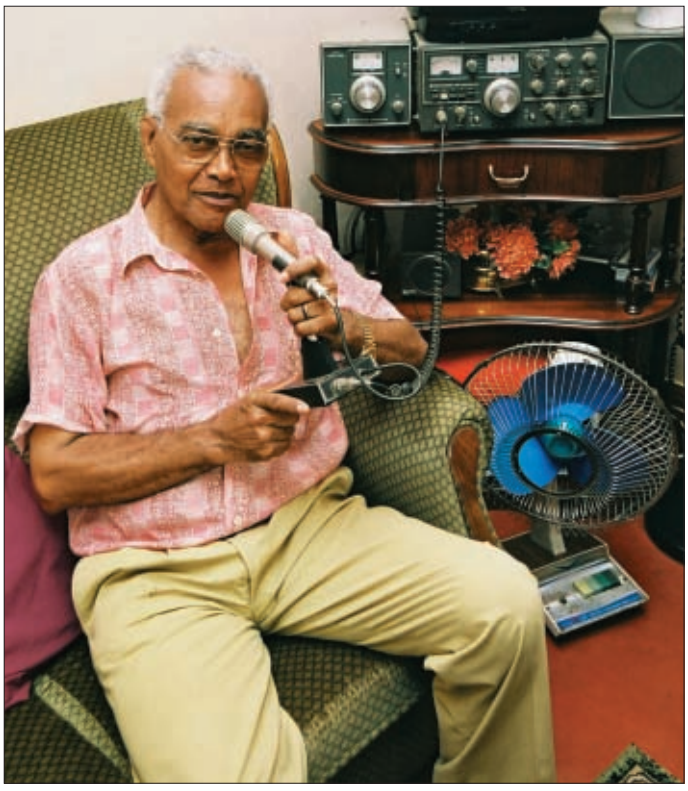
Once I'd settled in I phoned Tom to arrange a meet. He suggested a meeting on the steps of the local Cathedral and I began to wonder if was in 'a B-class spy-thriller or something"?

As it turned out Tom works for Voice of America and it seems that working for an United States government agency makes people really paranoid these days. He declined my offer of lending him my Icom IC-706 and I never saw him again. Oh well, God Bless America!

Nevertheless, I always try to help local Amateurs to get on the air. While in Sao Tomé I went to the roof of

Henryk's antenna proved popular among the local dragonflies!

Early morning in Sao Tomé boarding the Air Portugal aircraft to Lisbon.



Luis Beirao S92LB at home with his radio gear.

Luis S92LB's house twice, where he has quite a few antennas. Unfortunately during my visit the coaxial cable to his Fritzel Yagi was off and the v.h.f. antenna, (and I mean 156MHz), is fed with a microphone cable instead of coaxial!

The 156MHz band is quite popular in Sao Tomé, as it's a marine band and there are many boats that visit. Unfortunately our 144MHz band is useless there, unless you operate illegally.

A lot of illegal transmissions can be intercepted on the Amateur Radio bands in Africa. I didn't listen on the 144MHz band while I was there, but I did see a few 144MHz radios being used.

The most difficult band to find a clear frequency on is 10MHz. Maybe two or three spots will be free when this band opens.

Other, exclusive Amateur, bands are openly violated. Fishing vessels talk on the 7MHz c.w. sub-band and business conversations are conducted on the 28MHz DX edge. In fact all the Amateur bands are full of intruders with the exception of 50MHz.

I often listened and called CQ on 50.110MHz. The Maximum Useable Frequency (MUF) is high along the Equator but the skip is short and there are not many Amateur Radio stations in Africa.

However, Friday appeared to be the day that the 50MHz band opened up! On Friday 18 January I experienced a good opening to Europe on 50MHz and again on the following Friday the 25th I could hear a number of non-Amateur signals around and some traces of Amateur beacons. But no QSOs.

The ambiance of Sao Tomé is unfortunately not encouraging for Amateur Radio. Within the line of sight from the capital, in Praia Meláo, there is a 1MW h.f. transmitting site which belongs to the Voice of America. Additionally, The Voice of America broadcast station runs 600kW suppressed side-band on 1.530MHz and four additional 100kW transmitters on different shortwave bands - that's a lof of r.f. energy in the ground waves.

Intermodulation and front-end overloading creates a havoc in a sensitive radio receiver. Some of the broadcasting frequencies are dangerously close to Amateur Radio bands.

I used all the Amateur Radio bands except 1.8MHz ('Top Band'). Next time, and I'm sure there will be next time, I will pay more attention to 'Top-band'. There is a possibility of setting-up an Amateur Radio station on the west coast of the island and be separated from the VOA's ground wave by the 2024 metre high Pico de Sao Tomé. I really do have serious plans of returning to S9 in the future!

Equator On-Air

Funny things happen when you're on the air from the Equator. Once, I was working Europe on 7MHz and a station from South Sandwich Islands, **VP8THU**, **called me!** Normally, half of the world's Amateur Radio population would like to get through to such rarity and if you're in a strategic spot like Sao Tomé you can easily work both poles of the Earth.

The operator of VP8THU was **Trey N5KO**, who I'd talked to previously in November 2001 when he was on the Galapagos Islands (HC8N) and I was on the Cape Verde Islands (D44CF). And it's that that makes Amateur Radio such great fun - meeting friends on the air. Some of these friends I know personally, others I have never met but contacted many times, one of them is **Carl GW0VSW,** *PW*'s HF Highlights columnist.

Unlike previous trips, I did not sit by the radio all the time. My sightseeing included going for a jungle walk, visiting the coffee plantation, listening to live music and watching the fisherman landing their catch.

All too soon my two weeks on Sao Tomé was up and it was time for me to leave and head back to Lisbon. I spent my last night on the air, not so much because of my love of radio but simply becuase I had to leave for the airport at 0500hours and I knew I would never get up that early!

So, I ate a couple of cola nuts in the evening and I stayed awake all day and all night. The following evening I met **Luis S92LC** in Lisbon, Portugal (he's CT1CTZ now), he's spent some 15 years in Sao Tomé and still holds this callsign S92LC. Old Timers might remember his callsign as CR8LC in Goa, India over 40 years ago!

Then it was time to fly home. During my trip I'd met all present **permanent** S9 Amateur Radio operators, S92LB, S92LC, S92TX and experienced the joys of operating from Sao Tomé. Once again... Amateur Radio had forged and renewed friendships and enhanced an interesting trip.

PW

Luis Mario, my guide, clears the way through the rain forest with a machete.

Trader's Table

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Valve & Vintage

Charles Miller continues his story of his life with wireless and now reaches the point where he exchanged Royal Air Force Blue to the famous 'De-mob' suits. He was about to leave defence radar for domestic radio.

It's good to be back readers! I left off the story in the January issue where I shared RAF High Street's UFO story and I'll continue onwards from there. In the Autumn of 1951 the powers that be decided that the Chain Home (CH) transmitters at RAF High Street should be modified to quadruple their power output. This involved scrapping the existing water-cooled output valves (CATs) and replacing them with forced-air cooled types.

The work was carried out by Redifon Ltd., an off-shoot of Rediffusion Ltd., the 'wired wireless' company. Out with the CATs went all the associated plumbing, the Redifon engineers piling the redundant copper piping in a huge heap at one end of the transmitter hall, near the antenna feeders.

None of us thought much about the piles of piping at the time but it provided some spectacular firework displays when Redifon eventually handed over the transmitters to us as we ran them up to full power. With 2.7MW (megawatts) of r.f. power being pumped out in close proximity...sparks flew all around the bits of piping and provided hours of entertainment!

I wonder what the protesters who nowadays kick up a fuss about radiation from mobile telephone transmitters would have made of it? Anyway, I'm here to say that irradiation from all that energy did not render us impotent or infertile!

Autumn Into Winter

Autumn then slid gently into Winter and when Christmas had come and gone, the yearned-for prospect of demobilisation suddenly became only weeks distant. The first sign that it was happening was the summoning to High Street's parent station at Horsham St. Faith for a medical check-up.

The 'medical' was a precaution on the part of the RAF against an ex-airman claiming a pension for indisposition alleged to been incurred during his period of service. Personally, I imagine that anyone would have been passed A1...even if they'd crawled into the doctor's presence on hands and knees.

Logical minds might have imagined that the full 'demob' procedure, including getting the famous suits of clothing, would have been carried out at the same place and time, but this being the RAF I then had to report to another establishment in, of all places, Church Fenton, Yorkshire. To get there necessitated an extraordinarily complicated railway journey which I doubt could be repeated today. (**In those days we could get from literally anywhere to anywhere on trains that ran on time, and when the entire system was not shut down willy-nilly if a few leaves fell onto the track"!**).

Church Fenton

My only recollection of Church Fenton was of it having a small railway station, seemingly perched on top of an uncommon number of running tracks. How I got from there to home remains a mystery to me and I only have one clue remaining in my mind....and that was having to change at Sheffield on a tight schedule.

I remember asking a group of civilian fellow travellers if they would be so good as to warn me when the train was approaching Sheffield so that I might prepare for a speedy descent. My request was answered with general mirth: "Eeh, lad"...said one of them..."Just look out of t'window and when all tha can see is muck, tha's in Sheffield"!

Earning A Living

The initial euphoria of being a civilian again wore off quickly with the realisation that I now had to go back to earning a living again. I'd no capital with which to start up my own radio repair business so I looked around for a job which might give me the chance of saving a few pounds.

Almost at once I was offered what initially appeared to be an attractive position in the service department of the Midland Electricity Board's Radio department in Stoke-on-Trent. Pay and conditions were reasonable and I all but accepted - until I was informed that I would have to start work from 8am to 5.30pm, which was definitely unreasonable as would have meant getting up at 6am and returning home at around 7pm, and the idea of a 13 hour day did not appeal one bit.

I turned the job down in favour of another offer from a local radio shop, known in the vernacular as "Hambone's", which was about to open a new branch, again in Stoke-on-Trent. This time, however, I had only to report to the local shop at 9am, drive the firm's van to Stoke and then return in it before the shop closed at 5.30pm, which struck me as a great deal more civilised.

Reporting to the shop on the first morning I found that an old school friend, **Peter Ingram**, ensconced in the service department, and he too was also keen to start up in business on his own. However, as things turned out, neither of us was destined to stay long in Hambone's employ.

Pleasant Mode?

Standing outside the shop was a nearly new Ford 5cwt van based on the (then) current Ford Anglia car, which struck me as being a rather pleasant mode of transport to and from Stoke. Alas for false hopes! Parked a little distance away was an elderly Ford 5cwt of c1936, based on the old Model Y car, known to fame as Britain's first to sell at £100. This van had a battered, raffish appearance that spoke of a long, hard life and I anticipated tantrums from it when I took it over.

Used as I was to driving my own old Ford, I did not expect wonderful things of the braking system, which was just as well because from 30m.p.h., with your knee jammed under the dash board for maximum leverage, a stopping distance of around 80 feet (24m) might be achieved on a good road surface and with a strong head wind. The shock absorbers had long since given up the unequal struggle to restrain the transverse springs and the ride was an interesting mixture of

".....Logical minds might have imagined that the full demob procedure, including getting the famous suits of clothing, would have been carried out at the same place and time...but being the RAF....."

sustained bouncing and occasional thunderous bangs as the suspension bottomed on rough surfaces.

There were, of course, no MOT tests then, and I had a hunch that this van was going to get someone into trouble, and I was right. Fortunately I was not on the receiving end!

Incidentally - here's an interesting thought: that van was about 15 years old and I considered it to be ancient. Nowadays though, the youngest vehicle I now own, a Range Rover, is twice that age and going strong. I also have a splendid Bedford ambulance which is 39 years old, while the two Land Rovers are each 1961 vintage and good for years yet. **So, don't let anyone ever tell you that Britain could not make reliable cars in the post-war years**.

Most Strenuous Aspect

I discovered that the most strenuous aspect of working for Hambone would be driving to and from the Stoke shop, which was situated on a long street of terraced houses near the local football ground. Presumably all those houses must have been occupied, but where their inhabitants went during the day I know not, except that they never came near the shop!

In fact, the only time I saw much sign of life was on Saturday afternoons, when the queue for the football ground snaked out from the entrance and down a side street opposite the shop. It soon became obvious to me that neither the shop nor I could possibly be a paying proposition for Hambone's, particularly after I had taken a telephone call from the Sheriff of Stoke enquiring after the whereabouts of the previous tenant, who had disappeared suddenly, owing money all around the district.

To try to keep me occupied one of the partners in Hambone's used to drive to Stoke in his own private car, then use the van to collect repair jobs. On one of these excursions he parked the van on a very slight incline and whilst he was in the customer's house by pure ill fortune a beat policeman* paused to use the roof of the van as an impromptu desk whilst writing up his report.

The hand brake on the van was so feeble that the Policeman's mere act leaning on the van caused it to move off down the street, resulting in an expensive court appearance for Hambone. I think that this was the final straw as regards the Stoke shop and at the end of the month the venture and my employment came to an end.

Note: *They were a common sight in those days!

No Bad Thing!

Actually, losing my job was not at all a bad thing, because it gave me the impetus to start up my own business. And although there were half a dozen established radio shops in the town the prospects looked good because it had, per capita, the largest ownership of television sets in the country.

Additionally, the reliability factor of sets in those days was so low as to overwhelm the existing dealers' service departments and to assure me of steady work. All I needed was a workshop, some test gear and transport.

I already had the old Ford Ten as transport and by removing the front passenger seat it was possible to accommodate the generally small-screen TV sets of the day, although this practice, as I soon discovered, was actually illegal. Apparently some Act about Construction and Use of Vehicles specifically forbade the removal of seats from private cars for the purpose of carrying goods and in fact my friend Peter did eventually fall foul of the Law in this respect. For the time being, though, I had no option but to risk the practice.

As for the workshop, I visited a local ex-Government dealer and bought a bolt-together frame for a large tent made of inch steel tubes, plus a big empty wooden crate. The frame was erected in the garden of my house and clad and roofed with asbestos sheets whilst the crate was taken apart and used to make the floor and door.

A bench was then constructed from an old door mounted on legs made from the remaining bits of the crate. I was in business and raring to go! **(To be continued)**.

PW

VHF DXER

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LOWER MAESCOED
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REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

THIS MONTH DAVID BUTLER G4ASR TAKES A LOOK AT THE EARTH, THE SUN AND THE MOON!

Propagation was poor during January and for much of the month very little was reported on any of the v.h.f. and u.h.f. bands. Ionospheric propagation on the 50MHz band was bleak with only a handful of Sporadic-E (Sp-E), Auroral-E (Au-Es), Aurora (Au) and meteor scatter (m.s.) events being noted.

The Sp-E openings on the 50MHz band were all quite brief with none lasting more than 30 minutes. From reports received the only countries worked were the Czech Republic (OK), Italy (I), Poland (SP) and Yugoslavia (YU). Conditions on the 144MHz band were slightly better consisting of a transitory mix of aurora, meteor scatter and short-range tropo openings.

Auroral openings were spotted on January 3, 7, 10, 30 and 31 but all were weak events with no long distance contacts being made. Scottish stations however reported making QSOs on the 144MHz band into Finland, Norway, Sweden and the nearer parts of continental Europe such as Germany and Holland.

Clive O'Hennessy GM4VVX reports making c.w. contacts between 1630-1830UTC on January 3 with the stations of DL1SUN (JO53), DG5YIL (JO32), DG9YIH (JO32) and SM0LQB (JO89). Another auroral back-scatter event occurred one solar rotation (27 days) later on January 30. At the station of GM4VVX c.w. contacts were made between 1645-1900UTC with DG5YIL, DG9YIH (Germany), PD0RFU, PD1ANQ (Holland), OH1CJS (Finland), SM2CEW and SM5CUI (Sweden).

The 27-day repeat aurora experienced by GM4VVX is indicative of a coronal hole but what exactly is a coronal hole? Coronal holes appear as an ominous dark shape sprawling across the face of the active Sun. The large hole area is a low density region extending above the surface where the solar magnetic field opens freely into interplanetary space.

Studied extensively from space since the 1960s in ultraviolet and x-ray light, coronal holes are known to be the source of the high-speed solar wind, atoms and electrons which flow outward along the open magnetic field lines. It's these strong solar wind gusts carrying charged solar particles into space that can lead to auroral back-scatter propagation on Earth. Although coronal holes are usually located near the poles of the Sun they can occur in other places as well.

The coronal hole shown in the photograph, **Fig. 1**, extended from the south pole (bottom) well into the central meridian and was the cause of a number of widespread auroral openings during September 2002. Coronal holes like this one may last for a number of solar rotations before the magnetic fields shift and change configuration. It is therefore easy to predict an increased likelihood of when auroral propagation may occur.

All you do is add 27 days to the date of the last reported auroral opening. Clive noted re-occurring auroras on January 3 and 30. Adding 27-days to these dates indicates that there may be an auroral opening during the late afternoon of February 26.

A further 27-day rotation period brings you to Tuesday March 25. Assuming that the coronal hole is still active (some last for 4 or 5 rotations) then there is every chance that an auroral opening will occur on this date. I'll let you know in the coming months whether these predictions came true!

January is not a month renowned for long-distance tropospheric propagation. Nevertheless there are always transitory enhancements, some lasting a few minutes at a time, which will extend your range on the v.h.f. and u.h.f. bands. Stations in England and Wales will typically make s.s.b. contacts with operators in Belgium, France, Netherlands and Germany.

A number of readers including **Daniel Lee MW1MFY** reported making contacts especially in the period January 11-14. Daniel's 144MHz s.s.b. QSOs included the stations of EI5FK, HB9RDE, ON1DNF, ON2BFV, ON4ZN, ON6AB, PA5KM and PD4HDB. He also mentions working the station of EB1HAL (Spain) at 1740UTC on January 24.

It was not all plain sailing though. **David Dodds GM4WLL** reports that on January 12 he was active on the 1.3GHz band. Despite operating from an excellent hilltop site he only managed to contact one station, GM6CMQ over a distance of less than 30km. However, he did hear G8XVJ on s.s.b. at around 250km and the c.w. station of G3XDY at 500km so the receive side appears to be working correctly.

David mentions that he clearly needs to run more power as presently he is obtaining less than 10W output from a solid-state amplifier. Even so, when tropo conditions are really good this power level can travel many hundreds of kilometres.

Tropospheric propagation was good on the north-south path in the period January 19-25 and there appears to be more activity from Scotland with the stations of MM0CIN, MM0CEZ, MM0CKK, MM0CTT and MM1BXF all making 144MHz contacts with operators in central and southern England. The station of **Keith Tatnall GM4ODA/P** was also active at the beginning of the month from the Isle of Mull (IO66) making numerous contacts on the v.h.f. and u.h.f. bands with UK stations and others much further afield.

At the beginning of the month the Earth encountered the annual Quadrantids meteor shower. Amongst the DX reported on the 50MHz band were the s.s.b. stations of HV0A (Vatican City), I0SNY, IW3RI, OK1DDO, S51IV, S52SK and S57RR (Slovenia). Many more long-distance contacts were reported on the 144MHz band.

A growing band of UK operators are now using FSK441, a new machine generated modulation (m.g.m.) data mode. The following list is just a small selection of stations contacted via this mode but it will give you a flavour of what is possible with low power and a small Yagi antenna.

Contacts on the 144MHz band included the stations of DH0AII, ES6RQ, HA5KDQ, HB9TMC, IK2DDR, OE5MPL, OH1JCS, OK1VT, RX1AS, SM2CEW, SP5QWB and S59F. Many QSOs of course were also made by UK operators using the more traditional mode of s.s.b. and included the stations of DJ8MS, IK2YXK, LX1DB, OE1SOW, OH5LK, OH6HFX and S51MQ.

DIGITAL MODE

I've mentioned FSK441 which has been designed for short duration meteor scatter work but there is another more powerful program written by **Joe Taylor K1JT** which also comes with the WSJT software package. The digital JT44 mode is specifically tailored for weak-signal troposcatter communications and can provide an enhancement of up to

16dB compared to a weak c.w. signal.

What it means in practice is that you can make contact with stations that are totally inaudible to you in the receiver loudspeaker. It really is an amazing program! The latest WSJT software and information can be downloaded free of charge from **http://pulsar.princeton.edu/~joe/K1JT/**

Having installed the software on your computer the only hardware you need is a simple interface unit connecting the audio lines from the sound card to your s.s.b. transceiver and a p.t.t. line to key your rig from the computer. The interface is exactly the same as that used for the popular PSK31 mode.

The computer (many stations use a laptop) generates precisely encoded messages that are sent out through the transmitter's microphone socket as frequency shift keying (f.s.k.) transmissions. Similarly, the sound card in the computer processes incoming audio signals from the station receiver and decodes the text messages.

Because of the remarkable weak signal decoding performance JT44 also makes it possible for stations that are not so well equipped with high transmit power and large antennas to make world-wide moonbounce contacts on the v.h.f. and u.h.f. bands. In the past e.m.e. operation has been thought of as only being the territory of stations with many acres of land filled with huge antenna arrays. While these are still very much an asset to the v.h.f. operator the JT44 mode of WSJT lets anyone with a computer coupled to a multi-mode v.h.f. transceiver and a modest antenna system literally work the world.

In December 2002 Hal ZS6WB (South Africa) contacted the station of W5UN (USA) via the Moon on the 144MHz band. What made this JT44 contact remarkable was the low power and small antenna used at the South African end of the path. The output power used at ZS6WB was only 50W and the antenna a small 7-element Yagi on a 2.75M boom at a height of 5M above ground.

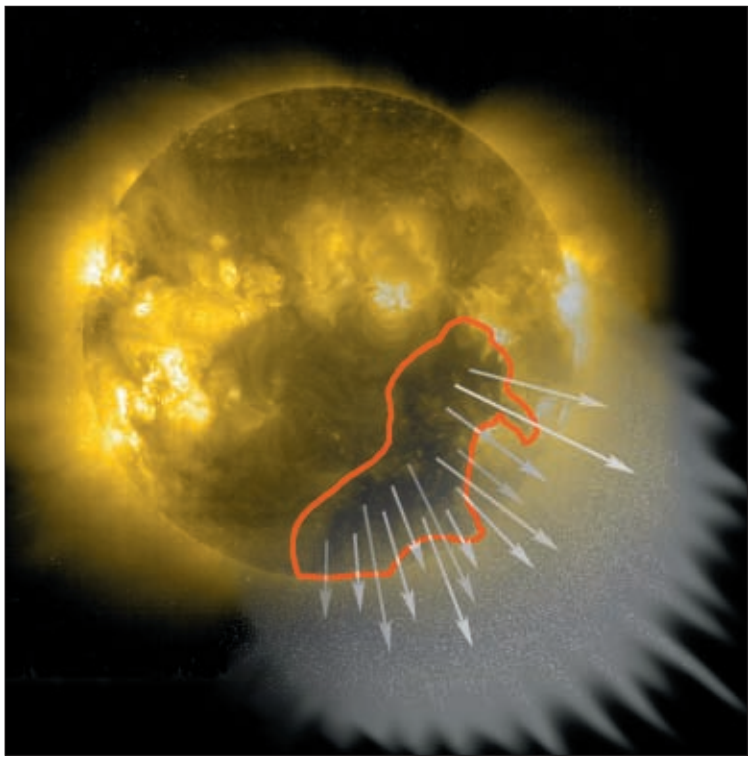
Peter Frenning OZ1PIF also reports making his first e.m.e. contact with the station of W5UN. He was using a Yaesu FT-847 transceiver driving a home-made amplifier into a single 9-element Yagi.

Despite the Yagi having no elevation facility Peter was able to decode signals from W5UN when the Moon was setting from 22° right down to the horizon. During this time W5UN managed to work a number of low power European stations including PE1OPK running 80W into a 15-element Yagi, DL1GGT with a 9-element Yagi, DJ8MS with a pair of 7-element Yagis and EA1CRK using a single 17-element Yagi.

Enrico IK0BZY mentions that he made the first digital e.m.e. contact between Italy and the USA when he recently contacted K9KNW. Enrico reports that the maximum signal strength was -19dB below noise level on his 6-element Yagi!

According to the DX Cluster a few UK stations have also been making JT44 moonbounce contacts on the 144MHz band.

Fig. 1: A coronal hole streaming solar wind.
(Photo courtesy of Nasa Solar & Heliospheric Observatory, www//soho.nascom.nasa.gov)



These include GW3LEW who contacted OH1FA, GW8IZR to DJ3LE, KJ9I, S52LM and G4PBP to I2FAK.

Although most digital e.m.e. activity is carried out on the 144MHz band there have also been a number of contacts made on 50MHz and higher frequency bands. Making e.m.e. QSOs on the 50MHz band has always been difficult due to the high ground noise at this frequency and also to the mechanical problems associated with large antenna arrays previously thought necessary.

Even if you did run very high power into a big antenna system the received c.w. signals were invariably extremely weak and contacts were always unpredictable. However, that's all changed now with the use of JT44.

Ian M0BCG has been experimenting with JT44 mode for some time and reports that he managed to make a 50MHz moonbounce contact last year with the station of W7GJ. Ian used an Icom IC-756 transceiver driving a modified Heathkit SB220 amplifier. It is run on the lower voltage settings and is provided with extra air cooling. This is needed to cope with the 100% duty cycle of JT44.

An external 20dB gain low-noise preamplifier is located near the antenna. Ian found that this was essential to enable signals to be heard with his 8-element Yagi antenna. In common with most stations no antenna elevation was provided and it was necessary to wait for the Moon to appear within the beamwidth of the horizontally polarised antenna during moonset. Indeed this method is very successful as you can obtain up to 6dB extra gain if there is uncluttered ground in front of the antenna.

The technique is called ground gain and if correctly utilised can make a single-Yagi station sound as loud as a four-Yagi station, but only as long as ground reflections allow. This reinforcement may last only for a few of minutes but is often enough time to make a complete e.m.e. contact.

INTERNET CHAT ROOMS

Daniel MW1MFY passes on the news that **Tim K1MIA** has been working hard to improve his Internet Chat facilities. These pages allow two-way text messaging to be passed via the Internet between like minded enthusiasts. It is available for any band from 1.8MHz through to 10GHz including 70MHz as well as contest, moonbounce, digital and general chat pages. Anything can be discussed relating to the 'page' to which you are connected. Many stations use it to set up schedules, via FSK441 or JT44 for example, or to discussing propagation matters.

Tim has connected 50 world-wide cluster links to the pages so you are guaranteed not to miss any DX. (Unless of course you spend all your time playing with computers instead of being on the radio!) Go to **http://chat.dxers.info/** and the system will guide you through the introductory process.

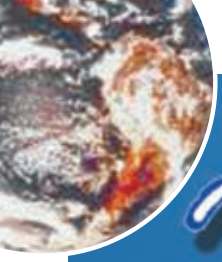
Alternatively you can log into the European chat page run by **Alain ON4KST.** You can find it at **http://www.on4kst.com/chat/index.html** It has separate pages for 1.8, 3.5, 50, 144MHz and the Microwave bands. Just like the K1MIA chat facilities it is linked to many DX Clusters and additionally to the World Wide Converse (WWC) channels 14345 and 10368.

DEADLINES

That's it again for another month. Please forward any news, views, comments or photographs to the address and by the date given at the top of the column.

Thanks for your letters and good luck with the DX. See you again next month.

73, David G4ASR



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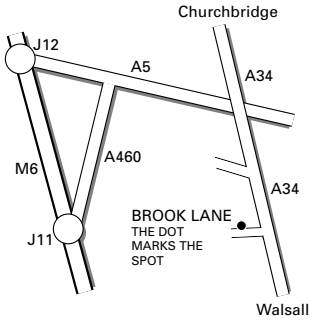

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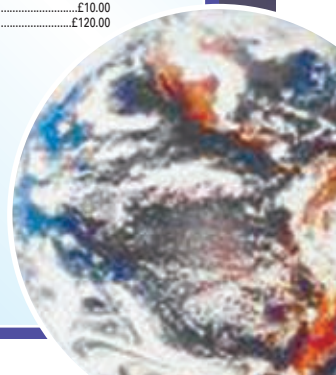
ICOM	IC-275E	25W TRANSCEIVER	£525.00
ICOM	IC-471E	70CM BASE MULITMODE TRANSCEIVER	£299.00
ICOM	IC-706MK1	HF / 6M / 2M (10w) TRANSCEIVER	£450.00
ICOM	IC-706MK11	HF / 6M/ 2M TRANSCEIVER	£550.00
ICOM	IC-706MKIIG	HF / VHF / UHF TRANSCEIVER	£699.00
ICOM	IC-706mkIIG	HF / 6M/ 70CMS / 2M TRANSCEIVER	£750.00
ICOM	IC-728	HF TRANSCEIVER	£399.00
ICOM	IC-737	HF inc ATU BASE STATION TRANSCEIVER	£575.00
ICOM	IC-756	HF / 6m All Band Transceiver	£999.00
ICOM	IC-756PRO	ICOM TRANSCEIVER	£1,600.00
ICOM	IC-756ProII	HF / 6M DSP BUILT IN ATU	£2,000.00
ICOM	IC-775DSP	HF 200W BASE STATION TRANSCEIVER	£1,499.00
ICOM	IC-8500	WIDE BAND RECEIVER	£899.00
ICOM	IC-910	2/70 CM BASE TRANSCEIVER	£999.00
ICOM	IC-R2	HANDY SCANNER	£99.00
ICOM	IC-R3	HANDHELD RECEIVER	£299.00
ICOM	IC-R7000	RECEIVER MINT! CONDITION	£550.00
ICOM	IC-R71E	RECEIVER	£399.00
ICOM	IC-R72	RECEIVER	£399.00
ICOM	IC-R75	HF / 6m RECEIVER	£475.00
ICOM	IC-T81E	QUAD BAND HANDY 2m/6m/23cm/70cm	£250.00
ICOM	IC-T8E	HANDY TRANSCEIVER	£175.00
ICOM	ICT-7E	2/70CM HANDY TRANSCEIVER	£170.00
ICOM	PCR-1000	COMPUTER SCANNER	£200.00
ICOM	PS-15	20A POWER SUPPLY FITS ALL ICOM	£110.00
ICOM	RC-7000	REMOTE CONTROL	£40.00
ICOM	UT-84	TONE SQUELCH UNIT	£25.00
JRC	JST-245	HF 50MHz 1500w AC BASE TRANSCEIVER	£1,295.00
JRC	NRD-345	RECEIVER	£299.00
JRC	NRD-535	HF RECEIVER	£600.00
KENWOOD	AT-120	ANTENNA TUNER	£75.00
KENWOOD	AT-230	ANTENNA TUNER	£120.00
KENWOOD	DFC-230	FREQUENCY CONTROLLER	£70.00
KENWOOD	PS-430	POWER SUPPLY	£100.00
KENWOOD	PS-50	POWER SUPPLY	£145.00
KENWOOD	PS-52	POWER SUPPLY	£175.00
KENWOOD	R-2000	RECEIVER	£225.00
KENWOOD	R-5000	RECEIVER + CONVERTER	£600.00
KENWOOD	R-5000	RECEIVER	£499.00
KENWOOD	SM-220	SCOPE - TS-940 etc.	£200.00
KENWOOD	SP-31	SPEAKER	£60.00
KENWOOD	SW-100E	SWR METER	£25.00
KENWOOD	TH-22E	2M HANDY TRANSCEIVER	£99.00
KENWOOD	TH-251E	HANDHELD 2M	£140.00
KENWOOD	TH-77E	DUALBAND 2M/70CMS HANDHELD	£130.00
KENWOOD	TH-79E	HANDY TRANSCEIVER	£189.00
KENWOOD	TL-120	LINEAR LOW DRIVE AMPLIFIER 100W HF	£150.00
KENWOOD	TM-231E	2M MOBILE TRANSCEIVER	£120.00
KENWOOD	TM-241E	2M MOBILE TRANSCEIVER	£120.00
KENWOOD	TM-251E	MOBILE TRANSCEIVER	£140.00
KENWOOD	TM-255E	TRANSCEIVER 2M MULTIMODE	£395.00
KENWOOD	TM-455E	70CM MULTIMODE MOBILE TRANSCEIVER	£450.00
KENWOOD	TM-741E	DUALBAND TRANSCEIVER WITH DETATCHABLE FRONT	£275.00
KENWOOD	TM-751E	TRANSCEIVER 2M MULTIMODE	£325.00
KENWOOD	TR-751E	2M MULTIMODE TRANSCEIVER	£350.00
KENWOOD	TR-851E	70CM MULTIMODE MOBILE TRANSCEIVER	£395.00
KENWOOD	TS-2000	HF / VHF / UHF ALL MODE MULTIBANDER	£1,350.00
KENWOOD	TS-440SAT	TRANSCEIVER WITH BUILT IN ATU	£499.00
KENWOOD	TS-50	HF TRANSCEIVER	£425.00
KENWOOD	TS-570D	TRANSCEIVER HF DSP ATU MOBILE/BASE	£650.00
KENWOOD	TS-680	HF 6M MOBILE/BASE TRANSCEIVER	£400.00
KENWOOD	TS-690	HF 6M Inc ATU	£550.00
KENWOOD	TS-711E	SM BASE STATION TRANSCEIVER	£399.00
KENWOOD	TS-790E	2/70CM BASE STATION TRANSCEIVER	£699.00
KENWOOD	TS-790E	2m / 70cm/23cm BASE TRANSCEIVER	£999.00
KENWOOD	TS-850SAT	HF TRANSCEIVER - MINT!	£800.00
KENWOOD	TS-950SD	HF/ 150W DSP BASE TRANSCEIVER	£1,100.00
KENWOOD	TS-950SDX	HF 150W DSP FULLY LOADED LATE S.NUMBER	£1,700.00
KENWOOD	VFO-120	TS120 VFO	£50.00
KENWOOD	VS-1	VOICE SYTHESISER	£30.00
KENWOOD	VS-2	VOICE SYTHESISER	£30.00
KENWOOD	YG-455CN-1	270Hz CW CRYSTAL FILTER	£100.00
KENWOOD	YK-88A-1	AM FILTER	£40.00
KENWOOD	YK-88C-1	500Hz CW NARROW FILTER	£40.00
KENWOOD	YK-88CN1	270Hz CW FILTER 8.83MHz IF	£40.00
KENWOOD	YK-88S-1	2.4KHz SSB NARROW FILTER 8.83MHz IF	£40.00
KENWOOD	YK-88SN	1.8K SSB FILTER (TS-440 /R5000)	£40.00
KENWOOD	YK-88SN-1	1.8KHz SSB NARROW FILTER 8.83MHz IF	£40.00
MAGNUM	DELTAFORCE	10M MOBILE AM/FM/USB/LSB/CW	£149.00
MICROSET	RU-20	70 CMS AMP	£60.00
MICROWAVE MODULES	28/144	TRANSVERTER 28/144 £125.00	£125.00
MIDLAND	MIDLAND 48	80 CHANNEL CB	£55.00
PACCOM	TINY 11	TNC	£99.00
PACCOM	TNC-320	TNC	£90.00
PLESSEY	PR-2250	HF RECEIVER BEST QUALITY CLASSIC!	£1,200.00
REALISTIC	PRO-2006	400 CHANNEL SCANNER	£110.00
REALISTIC	PRO-394	HF RECIEVER	£99.00
SGC	SGC-2020	HF TRANSCEIVER	£450.00
SOMMERKAMP	FT290R	2m MULTI-MODE TRANSCEIVER	£180.00
SONY	ICF-SW77	FM/SW/MW/LW PORTABLE AS NEW!	£250.00
SONY	SW-100E	FM/SW/MW/LW PORTABLE	£90.00
SYNCRON	PS-1220VU	20 AMP POWER SUPPLY	£60.00
TOKYO HY-POWER	HL-30V	2M and 25W AMPLIFIER	£75.00
TOKYO HY-POWER	HL-37V	LINEAR AMPLIFIER	£60.00
TONNA	7000E	TERMINAL	£130.00
TRANSVERTER	QM 70	28/144 TRANSVERTER	£100.00
TRIO	R-2000	RECEIVER + CONVERTER	£300.00
TRIO	TR-2300	TRANSCEIVER PLUS AMPLIFIER 2M	£99.00
TRIO	TR-9000	2M MULTI MODE	£199.00
TRIO	TR-9130	2M ALL MODE TRANSCEIVER	£250.00
TRIO	TS-780	DUAL BAND BASE TRANSCEIVER	£275.00
WELZ	AC-38M	200W MOBILE MATCHING NETWORK	£50.00
YAESU	FP-757HD	HEAVY DUTY POWER SUPPLY	£120.00
YAESU	FP700	POWER SUPPLY	£100.00
YAESU	FRG-100	HF RECEIVER	£300.00
YAESU	FRG-7700	HF RECEIVER	£220.00
YAESU	FRG-8800	RECEIVER INCLUDES CONVERTER	£399.00
YAESU	FRG-9600	RECEIVER	£200.00
YAESU	FT-100	HF / VHF / UHF ALL MODE TRANSCEIVER	£599.00
YAESU	FT-1000MK5	200W DSP HF TRANSCEIVER	£2,000.00
YAESU	FT-1000MP AC	HF BASE DSP TRANSCEIVER(Late serial no)	£1,550.00
YAESU	FT-1000MP	BASE TRANSCEIVER	£1,300.00
YAESU	FT-1000MP V	200W DSP HF TRANSCEIVER	£1,900.00
YAESU	FT-101Z	MINT CONDITION!!	£250.00
YAESU	FT-101ZDmkIII	HF TRANSCEIVER inc FM	£375.00
YAESU	FT-225RD	2M BASE MULTIMODE CLASSIC!	£399.00
YAESU	FT-23R	HANDY TRANSCEIVER	£180.00
YAESU	FT-2500M	MOBILE TRANSCEIVER	£190.00
YAESU	FT-290RMKII	2M ALL MODE TRANSCEIVER	£180.00
YAESU	FT-290RMKII	MOBILE 2M MULTIMODE TRANSCEIVER	£275.00
YAESU	FT-41R	HANDY TRANSCEIVER	£120.00
YAESU	FT-470	2/70CM HANDY TRANSCEIVER	£140.00
YAESU	FT-480R	2M TRANSCEIVER	£199.00
YAESU	FT-650AC	26-50MHz 100w BASE SATATION TRANSCEIVER	£599.00
YAESU	FT-690RMKI	6M MULTIMODE MOBILE TRANSCEIVER	£250.00
YAESU	FT-690RMKII	6M PORTABLE	£375.00
YAESU	FT-7100	2M / 70CMS DUALBAND TRANSCEIVER	£249.00
YAESU	FT-726R	2 / 70 / 6m TRANSCEIVER	£575.00
YAESU	FT-726R	2 / 70 / HF TRANSCEIVER	£400.00
YAESU	FT-730R	70CM MOBILE TRANSCEIVER	£120.00
YAESU	FT-736R	2m / 70cm / 6m TRANSCEIVER	£750.00
YAESU	FT-736R	2m / 70cm TRANSCEIVER	£650.00
YAESU	FT-747GX	TRANSCEIVER	£299.00
YAESU	FT-757GXMKII	TRANSCEIVER	£395.00
YAESU	FT-757MK1GX	HF TRANSCEIVER	£375.00
YAESU	FT-767GX	HF BASE 100watt built-in ATU	£599.00
YAESU	FT-77	INCLUDES FM MINT!	£275.00
YAESU	FT-790R	70CM MULTIMODE MOBILE TRANSCEIVER	£225.00
YAESU	FT-80C	0-30MHz COMMERCIAL TRANSCEIVER	£375.00
YAESU	FT-840	HF TRANSCEIVER	£425.00
YAESU	FT-847	HF / 2 / 6 / 70cm BASE TRANSCEIVER	£900.00
YAESU	FT-920AF	HF/6M BASE WITH DSP	£899.00
YAESU	FT-ONE	HF BASE TRANSCEIVER	£450.00
YAESU	FTV-901	TRANSVERTER Inc 2m Mod	£165.00
YAESU	FV-707	VFO UNIT	£99.00
YAESU	MD-100A8X	DESK MICROPHONE	£80.00
YAESU	MH-34B4B	SPEAKER MICROPHONE For VX5R VX-1R	£15.00
YAESU	MH-35	SPEAKER MICROPHONE	£10.00
YAESU	MMB-16	MOUNTING BRACKET	£20.00
YAESU	NT-29	CHARGER	£30.00
YAESU	PA11U	PSU FOR FRG-100	£20.00
YAESU	VR-120	RECEIVER FM /WFM/AM	£99.00
YAESU	VR-5000	TOP RANGE SCANNER RECEIVER	£450.00
YAESU	VX-1R	HANDHELD TRANSCEIVER	£120.00
YAESU	VX-5R	2 / 70 / 6 HANDIE 5W	£220.00
YAESU	XF-114SN	2KHz SSB FILTER	£60.00
YAESU	YO-100	SCOPE VERY RARE!	£150.00
YUPITERU	MVT-225	AIRBAND SCANNER	£150.00
YUPITERU	MVT-7300	MULTIBAND HANDHELD SCANNER	£199.00
YUPITERU	OP-90	CASE	£10.00
YUPITERU	VT-125	AIRBAND SCANNER	£120.00

Please note, the equipment listed may

have been sold / updated, please ring

01922-414796 to check availabilty



HF HIGHLIGHTS

CARL MASON GW0VSW
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CRYMLYN PARC
SKEWEN
WEST GLAMORGAN
SA10 6DZ
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E-MAIL: carl@gw0vsw.freeserve.co.uk

REPORTS, INFORMATION AND PHOTOGRAPHS TO ME PLEASE BY THE 15TH OF EACH MONTH.

Collecting awards is one area of our hobby that many people enjoy, myself included. A while ago I purchased *K1BV's Award Directory* from **Ted Melinosky** in the USA and found it to be a valuable reference source for awards from all over the world.

This book is continually updated and the latest version has just been released. It now covers 3265 different awards from 123 DXCC countries and runs to 288 pages. The variety is enormous and there is a real education in history and geography contained in all those pages.

The awards recognise many things including famous people and events, contacting every sort of geographical region or division, recognising the ability to communicate using different bands and modes as well as those that award you for working the members of thousands of different clubs and societies. You now have the option of having the printed version at US$27 Internet access or a password for Internet accesses, which lasts one year, and costs just $6.

A check through your QSL collection should provide you with enough cards or contacts to start applying for some of the awards straight away. No matter how long you have been operating.

Check out Ted's new website at **www.dxawards.com/book.html** for further details or write to **Ted Melinosky K1BV, 12 Wells Woods Road, Columbia, CT. 06237-1525, USA.**

DX NEWS

On to some DX now, and news of several calls that will be active over the next few months. **ZS90SAP** will be the special callsign used to celebrate the 90th anniversary of the establishment of the South African Police Service (SAPS). The SAPS was formed in 1913 to enforce law and order and ensure there would be a safe and secure environment for all the people of South Africa.

Members of the **Vaal Triangle Amateur Radio Club**, under the leadership of **Jan Swanepole ZS6ZYM**, will operate until the end of the year on 3.5, 7, 14 and 28MHz. QSL cards will be sent when yours is received either via the bureau or direct to **Jan Swanepoel, PO Box 14393, Zuurfontein 1912, South Africa**.

Michal Horecky OM2DX is the newest operator at the Slovak Embassy in Baghdad and will be using the callsign **YI9OM** until he gets another callsign, which he hopes will be **YI9DX**. His equipment includes a TS-850SAT and an IC-706 and the antennas include a long wire for 'Top Band', an inverted dipole for 3.5 and 7MHz and log periodic for 10-28MHz.

You can expect to find Mike using several modes including c.w., s.s.b., RTTY and PSK31. He does operate every day around 1.832MHz after 2030UTC and as he is in Iraq for several years you should stand a good chance of working him. The QSL Manager for YI9OM beginning 28 November 2002 is his father Stefan OM3JW.

Husband and wife team **June Sim VK4SJ** and **Doug VK4BP** will return to the **South Cook Islands** this month and stay until May. They will be active as **ZK1AYL** and **ZK1SIM** respectively and will operate from Aitutaki Island (OC-083) from April 27 to May 14 and Rarotonga Island (OC-013) from May 15-26th.

June was part of the All YL DXpedition that operated on Aitutaki and Rarotonga last year. She had such an enjoyable time then that she vowed to return as soon as possible. Because of the Solar disturbances while on Aitutaki, the bands were dead for quite a few days so hopefully those that missed out last time will not be disappointed. Activity will be s.s.b. only on all bands from 7 to 28MHz and QSL cards should be sent via the bureau to VK4SJ or direct to **June Sim, P.O. Box 406, Caloundra, Queensland 4551, Australia**.

CARL GW0VSW HAS LOTS TO REPORT THIS MONTH, AS YOUR LOGS JUST KEEP ON COMING!

YOUR REPORTS

On to your reports now and the first comes from **Eric Masters G0KRT** in Worcester Park, Surrey who participated in the Original QRP Contest over the Christmas holiday. Running just 750mW c.w. from his Index QRP Plus into a 22m long wire antenna Eric worked six countries on 7MHz, DF5LW (Germany) 0801, PA0RDT (Netherlands) 1002, F6EVG (France) 1039, EI0CZ (Ireland) 1027, ON6LB (Belgium) 1429 and SM5SMO (Sweden) at 1705UTC.

In Liverpool **Steve Bainbridge M3SWB** used an IC-706 and home made vertical dipole or inverted 'L' wire to work 7X2RO (Algeria) at 1550 and PY5XT (Brazil) at 2150UTC using his favourite mode, PSK31.

Welcome now to new reporter **Douglas Nixon M3BKC** who lives Cinderford, Gloucestershire and uses a Kenwood TS-570DGE and end-fed wire 130 feet long. Doug is obviously enjoying himself judging by his large log which includes contacts with EI7GK (Ireland) 1127, LX0LT (Luxembourg) 1323 and GI0LGV (Northern Ireland) at 1455UTC.

THE 10MHz BAND

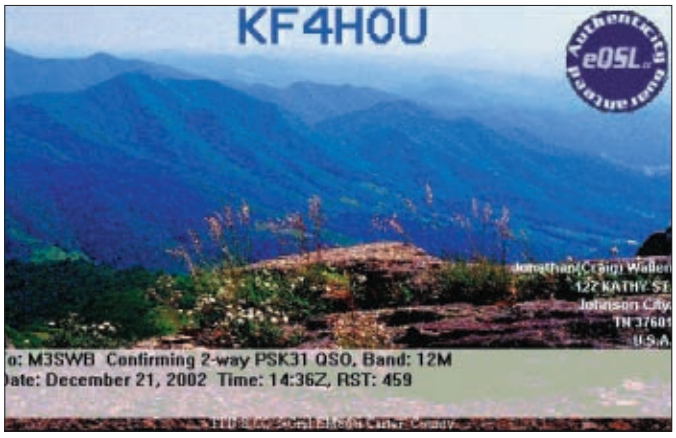
Moving on to 10MHz and **Roy Walker G0TAK** in Kendal, Cumbria who has just built a Ten-Tec 1330 QRP Transceiver and ran a full 3W c.w. with it during December and January. Roy say's "I used my G5IJ loop that is 220ft long and mounted quite low at just 4ft above the ground without any matching. I managed about 200 QSOs and worked 27 DX entities, which was not bad considering the band closed here around 1700UTC most days. The rig works very well and was fun to build and set-up. It was a real thrill when I made my first QSO's with it and I have now added a Ten-Tec s.w.r./p.w.r. meter kit to the set-up".

Some of the stations worked by Roy included ES1WN (Estonia) 1144, ON5GK (Belgium) 1206, OM3PC (Slovak Republic) 1456, OK2FEI (Czech Republic) 1510, OE6EMD (Austria) 1514 and one late QSO with EA6UN (Balearic Islands) at 2103UTC.

All c.w. man **Ted Trowell G2HKU** on the Isle of Sheppy in Kent is recovering from a fall on Christmas Eve which injured his right hand. Not wanting to miss out on the DX, Ted decided to use his left hand on the key catching OY3QN (Faroe Islands) 1500, VO1HP (Canada) 1800, JI0VHU (Japan) and OD5/OK1MU (Lebanon) at 2100UTC using Tec Omni V with 70W and G5RV antenna.

THE 14 & 18MHz BANDS

On to the log of **Martyn Medcalf M3VAM** in Chelmsford, Essex who was very busy on the h.f. bands this month especially 14MHz. Using a new rig, the Yaesu FT-897 connected to his SGC-237 tuner and 8.2m of wire Martyn worked the following s.s.b. stations, EA5ON/M (Spain) 0745, F6HQP/P (France) 1219, DL1REA/M (Germany) 1227, OZ5YL (Denmark) 1312, SP2SDX (Poland) 1518,



● Steve Bainbridge M3SWB received this KF4HOU eQSL.

● Carl GW0VSW made contact with Nao JA6PA on Boxing Day. Nao is 75 years old and lives in Fukuoka City, he was using a K2 QRP transceiver which he built and 3W to a TA33 Yagi.

LA9VK (Norway) 1530 and T95D (Bosnia-Hercegovina) at 1613UTC.

Also on the band was **Colin Topping MM3ACL** in Gauldry, Fife who reports just one contact, VK3EGN (Australia) at 0925 just before heading off to work. Colin used an Icom IC-706MkII, home-brew Pi-match and G5RV antenna to receive a 5/4 report from Geelong in Victoria.

There was a change of QTH for **Mike Baker** who operated as **GM3SUK** over Christmas and New Year on the Mull of Kintyre in Scotland. Mike say's "I took the car to a nice spot overlooking Campbeltown Harbour each morning and started operating on 7MHz then quickly changed to 14MHz if the band appeared to be dead. There was no local QRM or QRN so it was a real pleasure to operate for an hour or two each day. I put my Icom IC-746 on the back seat of the car and used Watson single band mobile antennas fixed to a magnetic mount on the roof. Conditions were very strange during the day with 14MHz having very short skip conditions at times Several 'G' stations stated that they had been 'reading the mail' for a while and just had to give me a call as my signal was so strong at 5/9 plus! Not bad for just 50W output and a simple mobile set-up!"

THE 21 & 24MHz BANDS

Gary Macleod MM3SCO in Tongue, Sutherland and has been working on 21MHz with a good deal of success using a TS-50, MFJ-948 tuner and converted CB antenna. Mixed band conditions found 7X2DG (Algeria) 0926, VK2ARY (Australia) 0949, ER1QQ (Moldova) 1530 and N7TO (USA) in Battle Ground, Washington at 1707UTC.

Welcome now to another new reporter, **Dave Toombs** in Welwyn Garden City, Hertfordshire who received the callsign **M3FXM** in December after 30 years operating as G8FXM (ex GW8FXM). Dave is secretary of the UK Six-Meter Group and spends a good deal of time chasing DX on the 'Magic Band'. However, since he has had his new call he has been finding it hard trying to compete on the h.f. bands running just 10W s.s.b.

Turning to the digital modes and RTTY in particular, Dave is now building up his DX total running an Icom IC-746 and Carolina Windom CWS80 antenna. Making his log this month were AP2IA (Pakistan) 1257, KP4JRS (Puerto Rico) 1358, T77BL (San Marino) 1413 and TF3GC (Iceland) at 1545UTC. A switch to PSK31 found PJ2MI (Netherland Antilles) at 1056UTC.

Mobile h.f. operator **Mark Taylor G0LGJ** in Dereham had another successful DX month using a Yaesu FT-100 and a Pro-Am mobile whip. 100W s.s.b. contacts include OY4TN (Faroe Islands) 1049, 9K/SP5UAM (Kuwait) 1055, VU2DSI (India) 1320, CU3GD (Azores) 1324, C33HF (Andorra) 1329 and 9J2BO (Zambia) at 1611UTC.

With the 24MHz band in good shape **Rob Hastings M3AHH** in Chelmsford, Essex used his Kenwood TS-50 once again with a Carolina Windom 80 Special to have s.s.b. contacts with WB3PQQ/UA3 (European Russia) at 0745 who was operating from a QTH near Moscow followed later by K1ZFE (U.S.A.) in Windsor, Connecticut at 1307 and AP2JZB (Pakistan) at 1345UTC.

With PSK31 once again was Steve M3SWB who logged several stations in the USA including KF4HOU in Johnson City, Tennessee at 1436UTC and has already received his card via eQSL.

Switching to a Solarcon I-Max 2000 5/8 CB vertical antenna Douglas M3BKC was pleased to work 7X2DG (Algiers) 1020 and K0LU (USA) in Regent, North Dakota at 1715UTC. It is interesting to note that several of our reporters have worked some nice DX on this band using very short vertical antennas from both their home stations and whilst operating mobile!

THE 28MHz BAND

On to 28MHz and **Mark Hampton M5MDH** in Eastleigh, Hampshire who has been using an indoor dipole or vertical antenna with his Kenwood TS-2000 to make s.s.b. contacts with A52WB (Bhutan) 0901, Z32XX (Macedonia) 1340, WP2Z (U.S. Virgin Islands) 1350, 8P6EX (Barbados) 1536, FS/AN8DX (St. Martin) 1540, ZP5MAL (Paraguay) 1553, 9K2RA (Kuwait) 1611 and finally AY7HF (Argentina) 2029UTC.

Ending our reports is **Paul Burgess M0CCQ** in Ellesmere, Cheshire who used his FT-920 with 300W to a 5-element Yagi. Paul found the band conditions to be "very good, especially in the mornings" logging BY1DX (China) 1001, 9N7ZK (Nepal) 1011, VK2ICE (Australia) 1014, S21YY (Bangladesh) 1028, C56/G0VUH (Gambia) 1058, 9Y4TD (Trinidad & Tobago) 1145, E20AJ (Thailand) 1216, XT2ATI (Burkina Faso) 1437 and CE6M (Chile) at 1545UTC.

SIGNING OFF

I even managed to operate myself over the Christmas holidays and was pleased to have my first two-way QRP contact with Japan on Boxing Day. Even more of a surprise was the arrival of JA6PA's QSL card confirming the contact just two days later!

Well that's it for this month and another busy one it has been. Where the DX is concerned our reporters have certainly been busy. Band conditions have improved judging by their logbooks and DX has been worked all over the world, which is always good news. Thanks to everyone for your reports, letters and e-mails and to **Tedd Mirgliotta, KB8NW** editor of the *OPDX Bulletin* for the DX news.

73, Carl GW0VSW

PW LISTENING AND OPERATING WATCH

Rob Manion G3XFD operates on 7MHz c.w. between 1800 and 1900UTC using an Alinco DX70, SGC auto tuner and 10m fishing pole antenna. Rob also operates mobile or portable h.f & v.h.f. when on the road for club visits.

Carl Mason GW0VSW listens and operates on 3560 and 14060kHz most mornings around 0630UTC and evenings around 1830UTC using a Yaesu FT-817 and full-size inverted G5RV.

Leighton Smart GW0LBI operates between 1815 and 1840kHz using c.w. most evenings 2000UTC to midnight running a Yaesu FT-990 and 70m long wire antenna.

DATA BURST

ROBIN TREBILCOCK GW3ZCF
15 BROADMEAD CRESCENT
BISHOPSTON
SWANSEA
SA3 3BA
TEL: (01792) 234836
E-MAIL: robin2@firenet.uk.com

Welcome to the first of a series of quarterly columns which will be devoted to the practical aspects of using some of the new digital modes becoming increasingly popular on the Amateur bands. I will be building on the work of **Roger Cooke G3LDI**, who has been writing the data modes column in *PW*. My emphasis will be more on the communications aspects of data modes, both for the transmitting Amateur and for s.w.l.s.

I will be dealing with any of the datamodes which make use of a computer, linked by a soundcard to a transceiver. I know this will not satisfy the RTTY traditionalists, who need to smell oil and hear the clattering of machinery, but I'll try to find topics to interest them too **(although of course this is Roger's speciality)**.

Computers are now so powerful that they can perform signal processing tasks in real time which could only have been dreamt of a few years ago, so the possibilities are seemingly endless. The modes which spring immediately to mind include PSK31, MFSK, RTTY, Hellschreiber, MT63, THROB and SSTV, but this is where you, the readers, come in.

This column will only work if it serves as a forum in which you can exchange your ideas and experiences. So, please let me have your hints and tips for successful data mode operation, recommendations about software which you have used, and any other practical points you would like to share with fellow readers.

Judging by the response to my article about PSK31 (*PW* February 2001) there are a lot of you out there, **so let's try to make this space a lively meeting ground for like-minded enthusiasts**. There are some data modes which I know virtually nothing about (Pactor, for example), so I look forward, over the coming months, to increasing my own knowledge as a result of your contributions.

WHAT COMPUTER?

A question I'm often asked is what sort of computer is suitable for data modes? There is no single answer to this question, but I regularly work stations in PSK31 using PCs with a 75MHz CPU and 16Mb RAM.

As an Amateur community, we are extremely fortunate in the wealth of software which is available, mostly free of charge for our use, and many of these programs will work satisfactorily on modest computers which can be bought second hand, at radio rallies for example, for very little money. But some of the latest software is rather more demanding and requires 250MHz machines and upwards. When reviewing software, I will try to give an indication of the specifications which the author recommends.

Your computer **must** have a soundcard. Those provided by Creative Labs, which come as standard on many PCs, have proved very reliable, but most other makes are also perfectly suitable.

Most modern computers come with the soundcard 'on board', i.e. built onto the motherboard rather than freestanding. Although many Amateurs have warned against the use of these, they are becoming more common and most people I have spoken to who use them have reported no problems.

Finally, it is very helpful if you have an internet connection, because so much of the software is available for downloading from the internet, and updates and bugfixes are regularly provided. But it's not absolutely essential.

If you belong to a radio club, there will most likely be other members who could download for you and provide you with a floppy disc or a CD ROM that you could use to install the software. Who knows, perhaps the readers of this column would be prepared to help out in this way if they are reimbursed for the cost of floppies, postage, etc?

MAKING A START

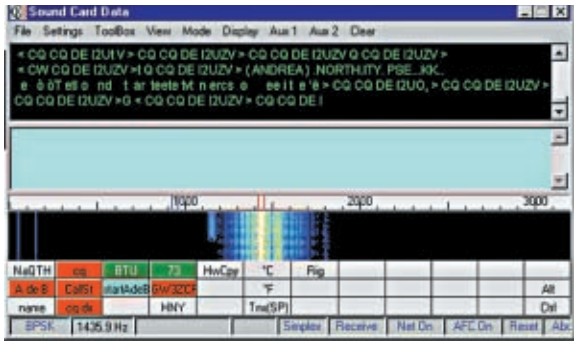
To get started you will need some way of connecting your transceiver to the computer. The simplest method, and the way I started with PSK31, is to use the 2.5mm jack outputs from the PC and connect, using screened lead, to the accessory socket on the transceiver (or, with care, to the speaker output and microphone input).

Such simple arrangements are all that is needed for s.w.l. purposes, but transmitting Amateurs frequently experience problems with r.f. getting from the transmitter to the computer, and so with the increasing popularity of data modes, a number of commercially made interfaces have become available. By far the most commonly used are the Rigblaster range, manufactured by West Mountain Radio and now available from dealers in the UK. I imported the simplest of these, the nomic, directly from USA a couple of years ago, and it has served me very well for portable operation using a laptop computer.

Other similar products available inexpensively from the USA include the Buxcomm Rascal and the Tigertronics SignaLink. A British equivalent is manufactured by G3LIV, who will supply plugs tailored to fit any transceiver if you can tell him the pin connections from your manual. See URLs information panel below for details.

What all of these interfaces provide is a degree of isolation from r.f. feedback (either by a simple transformer or by optical coupling) and, most importantly, a means of controlling the audio drive from the computer to the transceiver. **This is vital**, as it is still common to see overdriven signals on the bands – a good PSK31 signal should occupy a bandwidth of

ROBIN GW3ZCF JOINS THE *PW* TEAM OF AUTHORS AND BY THE LOOK OF THINGS HIS COLUMN IS BURSTING WITH DATA INFO!



● Fig.1.

about 31Hz, **but an overdriven one can spread over 500Hz or more, and wipe out a dozen QSOs on either side!**

A waterfall display of an overdriven PSK station calling CQ on 14MHz can be seen in **Fig. 1**. The 'rogue' station is centred around 1435Hz, and you can see much narrower, correctly modulated, signals at audio frequencies of 1150, 1540 and 1800Hz.

Another feature of most of the interfaces is a means of switching from receive to transmit. Sometimes they use the VOX input to sense when audio is being generated in the computer, but the most reliable method is to use an output from the serial (Com 1) port of the computer to carry out the switching.Some modern computers no longer have a serial port, but if this is the case, all is not lost! You can buy serial port emulators from your nearest computer store which use the USB socket to do the same job.

I won't deal in detail with setting up your soundcard and transceiver here, as it was covered in my article in PW February 2001 (back issues, £2.85 from the PW Book Store), but here's a few practical points, which apply to all digital modes, not just PSK31.

- Audio drive can be adjusted at the computer, but the soundcard controls are very crude and it is difficult to make small changes. Far better to use the control on your interface. The simplest way to do this is to use the ALC meter on your transceiver. When transmitting, reduce the audio drive until the ALC just falls to zero (but don't overdo it so that you lose drive altogether).

- Ensure that your speech compressor is switched **off**. It's easy to forget this if the rig was last used on s.s.b.

- Make sure your microphone is not live when transmitting through the keyboard. Some set-ups automatically disable the microphone when sending data, but don't rely on this. If in doubt, disconnect it from your rig, otherwise your digital signal will be corrupted by all the extraneous noise in your shack

- Always remember to check that your RIT is **off**. Some data modes require great precision in tuning, and if you are offset from the station you are calling by only a few Hz, your signal will not be intelligible.

NOW FOR A FEW POINTS OF ETIQUETTE FOR DIGITAL QSOS

- Be sparing with your use of macros. The macro buttons on digital software are very useful for automating the typing of oft-repeated phrases which are sent in every QSO. But ask yourself whether the other station **really** wants to wade through many lines of information about your station, computer, printer, operating system, size of HDD etc. This is particularly important if you are working a rare DX station and other operators are waiting for their turn – in such cases, be brief.
- Don't keep sending line feeds in your text, rely on your software to perform line wrap. Otherwise you will scroll the text out of the receiving station's field of view before he has had a chance to read it – most irritating!

- Don't try to 'pretty up' your text by putting your callsign, name or QTH in brackets or other symbols, eg <<GW3ZCF>> de <<M5JJJ>>. Many people use automatic logging software so that they can log names, callsigns, reports etc by mouse clicks. But if other symbols are immediately adjacent to the required item they are captured at the same time, causing corrupted data to be stored.

MFSK16 MODE

Now a few words about MFSK16 (Multi-Frequency Shift Keying), the popular digimode. Although I am a great fan of PSK31, it does have some disadvantages, because it relies on detecting very small phase shifts in the received signal, it is very sensitive to changes of phase which take place during propagation.

This is particularly noticeable if the path crosses a polar region, or over very long distance paths where the signal can reach the receiver by multiple routes. Under these circumstances, acceptably strong signals can produce poor received text because of phase distortion.

The MFSK16 mode is far more robust under these conditions. The signal consists of 16 distinct audio tones within a bandwidth of about 300Hz. All the available MFSK software will display the signal on a waterfall, and by accurately adjusting the trace between two parallel lines on the display, decoding will take place.

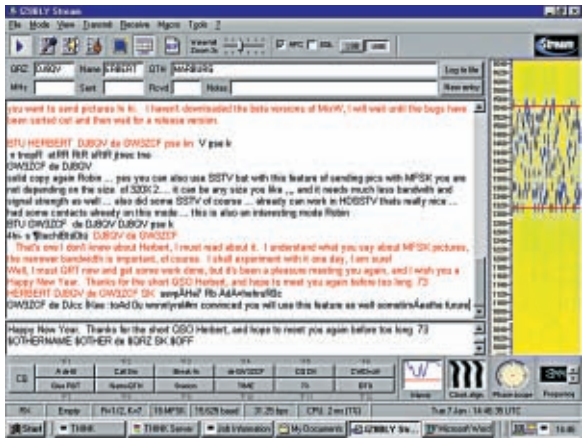
Unlike PSK31, the text does not appear instantaneously, the software takes a few seconds to perform the complex Fourier transforms required to convert the somewhat musical tones into text, which appears in chunks of about two words at a time

MFSK is capable of good print from signals which can barely be heard above the noise. One of my first MFSK QSOs was with **ZL1WN** and the copy was good, even though I could hardly see his trace on the waterfall.

Another memorable QSO I had was with **Les KL7J**, in Alaska. The path to Alaska always produces polar flutter, and PSK is out of the question. But on one occasion I remained in contact with Les for over an hour, with no more than a couple of characters lost at either end throughout the whole period. This was with 40W and a simple wire antenna - no beams or linears at this QTH!

There are three widely available programs available for MFSK. The first, *MixW2* is a commercial program which is available free on demo, but which will cost you US$50 to register if you want to keep it (but it does work for over a dozen different modes, and includes a very effective c.w. decoder).

The next two are free, these are *Hamscope*, which works for MFSK16, PSK31 and RTTY and is becoming quite popular. My own favourite is *Stream*, by **IZ8BLY.** I find it by far the easiest of the three to tune on weak signals, but it's a case of personal preference.



● Fig. 2.

A screenshot of a QSO with **DJ8QV** using *Stream* can be seen in **Fig. 2**. Unlike most software, the waterfall moves from right to left, but you soon get used to that. I use one of the optional palettes to give a blue on yellow trace, I find it shows up much better than the default black on grey.

Well, that's it for this month. Next time (June issue) I hope to have a review of *Logger32*, a brand new program from **Bob Furzer K4CY** which is to be released shortly. I have had the privilege of working on the development team with Bob for the last 18 months, and I am currently using a pre-release beta version. When it's released, it's sure to be an instant success.

Please let me have your contributions for the column, so we can make it interesting and informative for all keyboard buffs. Cheerio for now.

Robin GW3ZCF

URLS FOR SOUNDCARD INTERFACES

Website	**Interface**
http://www.westmountainradio.com	Rigblaster
http://www.buxcommco.com	Rascal
http://www.tigertronics.com	SignaLink
http://www.g3liv.co.uk	G3LIV
Software	**Program**
http://www.qsl.net/hamscope/	Hamscope
http://tav.kiev.ua/~nick/mixw/mixw.htm	MixW2
http://iz8bly.sysonline.it	Stream

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GRAHAM G8EMX ROUNDS-UP THE LATEST NEWS FROM THE ATV SCENE

The British Amateur Television Club (BATC) has begun a massive mailshot exercise to past members, encouraging them to rejoin the club. Although the BATC has just under 2000 members in the UK and other countries, more than 900 past members are being sent a reminder about the club in the hope that some will decide to rejoin.

Now distributing 900 packages is quite a mammoth task. For the initial stage of 90 postings, the mailing contained a letter from Club Treasurer **Brian Summers G8GQS**, a back-issue of the club's magazine *CQ-TV* and a return envelope addressed to the Membership Secretary. As an incentive to come back, the Club is offering extra back issues of its magazine to those who do respond.

To create the best 'fresh impression', the magazine chosen to represent the current BATC was *CQ-TV 194*. This was in the present A4 size, was the lightest of back issues but still contained several features of interest to the widest possible tastes. There were also plenty of *194* back issues available!

So, over the weekend before Christmas, I inserted, stamped and carried these to my local Post Office. At the time of writing (January) the BATC's new Membership Secretary, **Pat Hellen** has received some responses, and the timing of the next mailing is under consideration.

The mailshot will help to slim down the surplus *CQ-TV* back numbers, which has built up over many years. Every club prints more magazines than its known number of members; unfortunately, the BATC has been rather optimistic in assessing the quantity of extra copies and there is a significant surplus of several issues!

As each magazine is A4 size and nearly 60 pages, this creates a considerable storage headache. To prevent this building up even more, the club is carefully considering the quantity for each print run, and has put many back numbers onto CD.

Members of the BATC can order the CD from the club's website - just follow the links. After putting the CD in the 'basket' the secure on-line credit card system confirms the purchase. An automatic letter is sent in return, stating that the BATC is a voluntary club and that it may be around a week before your CD arrives. Mine came the following day!

After I inserted the CD into my drive, it autoloaded the 'welcome' screen. Several options are available from here - I wanted the back-issues listing. A three-section display then loads, showing the issue numbers that are on the disc, the complete front or index page of the highlighted issue, and an expanded index for that particular magazine.

● Tuning the G1MFG 24cm receiver. The add-on push button tuning and frequency display board replaces the need to se the dual-in-line switch used on the receiver board.

The rest is easy – click on an index item, or another issue in the list, or magnify part of a page with a 'Windows marquee'. Copies of *CQ-TV* back to 1995 are on the disc, then a gap to 1968 – perhaps these have not been found and scanned in. Some Amateur Radio software is included too, but the associated information is very sketchy, so don't purchase the CD just for this!

I found the CD quite easy to load but this **might** depend on individual computers. The disk is certainly more convenient for looking at past indexes than searching through actual magazines.

Users are advised that the back-issues are best viewed with *Acrobat Version 5* and a copy of this is included; I found that Version 4 was quite adequate, although V5 gives a marginally different layout and has a keyword search. So, for finding past articles in CQ-TV this is very useful and the contents could, with magnification, be viewed from the screen. But for 'in depth' reading I will still grab a real, paper A4 CQ-TV!

MY DEFINITION

Enough of magazines, computers and CDs. What we are really about with In Vision' is Amateur Television – TV pictures over the Amateur Radio bands, at least that's **my** definition!

With two 24cm ATV transmitters, two receivers and most other hardware built or bought, it's high time that G8EMX was re-activated on air! A trip to a local high spot was called for, with a portable mast, a 15-element Yagi antenna and a 24cm ATV receiver.

Barr Beacon is a few kilometres north of central Birmingham and gives unrestricted views in all directions, so it's popular with Radio Amateurs, among others. The 24cm (1.3GHz) ATV repeaters **GB3UD** (Stoke on Trent), **GB3GV** (Leicester) and **GB3RT** (Coventry) have been received from there, so the prime object of this expedition was to see if these repeaters were still on air and to access any activity

As purchased, the G1MFG 24cm ATV receivers tune by setting an eight-way dual-in-line (dil) switch to the frequency required - a list of these and their dil codes are provided on the paperwork supplied with the receiver. So, with my 'Platinum' board set to receive GB3GV, the antenna was aimed towards Leicester.

Straight away it was obvious (to the experienced ATV 'eye') that a picture was trying to appear. The monitor's image was noisy and not locked, but the letters 'GV' were resolvable; further turning of the antenna improved the picture to a P5 (fully locked, no discernable noise) but without coloured areas. Swinging the antenna north, the Stoke repeater appeared on the screen immediately, more on-screen noise than 'GV but with colour bars!

Although I was looking at GB3GV and GB3UD at around 1100 on a Sunday, there was no apparent activity through either repeater. Next time, I hope to be using a better antenna, the 'push butto' tuning add-on board for the receiver. And – yes - a transmitter!

That's all for now, see you next time!

Graham G8EMX

TUNE-IN

TOM WALTERS
P.O. BOX 4440
WALTON
ESSEX
CO14 8BX
E-mail: tom.walters@aib.org.uk

TOM WALTERS ROUNDS-UP THE LATEST NEWS FROM AROUND THE BROADCAST BANDS

One or two readers have E-mailed me about the **Digital Radio Mondiale (DRM) Software and Receiver Project**. They have followed my directions and gone direct to DRM's website, no doubt looking eagerly for how to join in with this exciting new venture. Alas, it seems hopes have been dashed.

At the time of writing in February, DRM's January newsletter (available at **www.drm.org** by following the links News and Events and then to What's new in DRM?) clearly invites continued participation in the Software and Receiver Project. **However, there appears to be no sign of the Project**, all I can suggest is you send a 'pointed' E-mail to **projectoffice@drm.org** Meanwhile, DRM will have its official launch in Geneva in June, at the World Radio Conference.

There's not much happening broadcasting-wise re the situation in Iraq (at the time of writing), with the politicians still squabbling about whether or not to attack. However, there was a first move, with a curious new form of wartime international broadcasting, with the transmitter in an orbiting aircraft.

Echoing the conflict in Afghanistan, a news briefing by US Defence Secretary Donald was broadcast via Commando Solo aircraft to Baghdad. Commando Solo aircraft are modified C-130s capable of broadcasting radio and television on a real time basis. Not surprisingly, Rumsfeld used his time to say that broadcasting news briefings shows democracy and freedom at work. Iraqis can expect much more of the same.

INTERNATIONAL LISTENER

For those of you with internet access, there's good news – **Ed Mayberry** is back. A year or two ago, Ed's house was wrecked by one of those natural catastrophes that happen so often in the United States. But he's a fighter, and he's back, with a website that's full of goodies for anyone interested in international radio broadcasting.

Ed's a dedicated newshound and each month picks up lots of fascinating items, as well as maintaining a wide-ranging list of links. **International Listener** is the name of the site, and the address is **www.internationallistener.com** Check it out!

Things are moving at **Deutsche Welle** (DW). As of 30 March 2003, we are promised that the English service, according to the press release, "will experience the biggest facelift in its 40-year history". This means many more news bulletins and live news programmes, and more regionally-directed streams, especially to Asia and Africa.

However, there's a sting in this particular tail! The press release also says "To date DW Radio's English Service has broadcast to all of its target audiences via shortwave". (Oops, here comes something big...). "Deutsche Welle will take into account the conditions prevailing on individual media markets and respond to new technical developments in the most appropriate fashion".

So what does all this mean? Well, it's like a re-run of the BBC's notorious action a year or two back.

Deutsche Welle's short wave transmissions to North America, Australia and New Zealand will be 'terminated'. There will, as with the BBC, be more rebroadcasting, and of course there's good old satellite and internet. Not to worry too much, because analogue short wave to Asia and Africa will continue "for the foreseeable future".

Deutsche Welle also plans to introduce digital shortwave transmissions to East Asia and Europe by means of DRM. (DW's top engineer is also the head of DRM!).

GLOBAL MISSION

Plots are also afoot at **Radio Netherlands** (RNW). Major revisions to its global mission have been announced. The key words are 'partnership' and 'thematic'.

Radio Netherlands has been building partnership with more than 6000 broadcasters in the past decade. "An active dialogue is now in place between people in The Netherlands and selected audiences in foreign countries", says their press release. "We now want to strengthen the number of active partners in selected parts of Africa and Asia".

Production at RNW will focus on selected global themes, making increased use of Dutch expertise both at home and abroad. "The thematic approach to our work will give us new opportunities in the increasingly complex media markets." explains **Lodewijk Bouwens**, Radio Netherlands' Director General.

Lodewijk goes on to say: "Our policy of building partnerships in Latin America has succeeded. We have already established ourselves in that region as a catalyst for discussion on such issues as migration, democratisation, globalisation, and religious tolerance". Using its wide range of languages, RNW will strengthen its thematic output, over radio, TV and the internet, offering a wide and varied platform for discussion co-produced with partners.

All of this has produced a reaction amongst RNW staff similar to that experienced at **Radio Canada International** not so long ago, when programming was radically altered. There was fear of lost jobs, and fear that RNW's reputation would be diluted.

Although many people hanker for what they see as the predictability and stability of yesteryear, they probably would not really want to go back to 50-year-old programming, which would often seem heavy, pompous, limited and dull. Technology can lead us to many new horizons, and we must boldly go…..

Radio Vlaanderen Internationaal (RVI) has announced, or rather re-announced its revamped website at **www.rvi.be** There's news in text, photos, sounds and links. But it's all right, they say: "This does not mean that RVI is abandoning 'traditional' radio. Radio - via short wave, medium wave, satellite, DAB and cable-f.m. - remains the core activity".

The **Association for International Broadcasting (AIB)** has a new website at **www.aib.org.uk** where you can find the latest news about the cross-border broadcasting industry, information about all facets of international broadcasting, and also check out their ever-popular listing of frequencies, the *Global Radio Guide*. For added value, you can subscribe to their unique quarterly news and features magazine about cross-border broadcasting, *The Channel* too.

That's all for this time so until next month, keep tuning that dial!

Bye for now *Tom*

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5-element 2m (144MHz) crossed Yagi beams and 7-element 2m (144MHz) crossed Yagi beams both with coaxial feeders , £30. The pair need cleaning. G3TOF, Harlow, Essex. QTHR. TeL: (01279) 417000.

Adonis base mic AM508E, £50, Heil Goldline GM4 mic with Heil CC-1-Y8 lead, £85. AKD HF3E receiver complete with sup acc, £80 plus carriage, non-smoker. Tel: Ken on (01992) 632434.

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AR88 l.f. receiver. KW Viceroy transmitter, Sommerkamp FL200b transmitter, buyer collects. John Higgins GM3ZXG. Tel: (01475) 781568.

AVO M2005 dig/anag multimeter, as new, boxed, leads and instructions, £50. Tel: (01427) 611160.

AVO Mod 7, £60 o.n.o. SWR/power meter 18-2000Mhz frequency meter Mod MS300, dual range 40Hz-40MHz, 20-1300MHz, £20. Tel: 0141-944 3865.

Canadian 19-Sets for sale from £95. 18-Set receiver, £50. Larkspur G3 TX/RX + p.s.u., cables and racks, £150. C12 p.s.u., £25. Hameg Oscilloscope HM1004, 100MHz dual memory digital read-out, cost new £1000 accept, £495. Tel: Trevor on (01274) 824816.

Copies of *SWM* and *PW* from Oct/Nov 1984 to date most in binders, offers, buyer must collect or arrange transport, Alinco DR-1127 v.h.f. transceiver 45W boxed, mobile bracket, £75. Bob G0DYB/G4IAV, Wigan area. Tel: (01942) 870954 anytime.

Cushcraft MA5V vertical h.f. antenna, new and unused, £160. JRC NCM 515 remote controller for 515 receiver, excellent condition c/w manual offers. JRC NDH-518 memory unit, excellent condition, manual, offers. Tel: (01803) 529788 after 1800 hours please.

Drake R4C MS4, excellent, £300. AR88 speaker, £20. Trio 9R59 RX, Not DS model, £30. Weller TCP soldering station, £12. Racal 600Ω 'phones, £8. True RMS meter, £15. Prefer buyer inspects/collects. Tel: 0141-649 2328 anytime or E-mail: miseseo@talk21.com

Drake R8 receiver in good condition can deliver up to 50 miles, £325. Tel: Portishead (01275) 848084.

Grundig YB-400, black model, pouch, compact antenna, service manual (with full operating instructions) bought as new v.g.c. No seperate user guide, no box, no earphones, bargain at £50, post paid. Text, page to (07666) 525672 quoting YB400-offer with name, delivery address and Tel no (Scottish advertiser).

Icom FL-30 s.s.b. filter for IC-730, 735, 751A, 765 etc., only one, £offers please. Tel: Steve on (01795) 475393.

Icom IC-207H v.h.f./u.h.f. transceiver in as new condition, boxed with all manuals/hardware including OPC-600 separation cable, £180 including uk postage. Tel: (07810) 515749 or E-mail: neil.toombes@ntlworld.com

Jason Crystal Calibrator CC10. £40. Aerial receiver switch unit 6x6 coaxial, £40, Codar power unit 12V for AT5 plus aerial c/o unit + multi-lead, £40. Oscillator CT212 test-set, £60 all inc safe carriage. Tel: (01872) 862291.

Kenwood TR-751E 2m (144MHz) mobile/base station all-mode transeiver. Excellent condition, boxed with mobile mount and fist mic, £290. Tel: Cardiff (02920) 616453 or E-mail: volvox@btinternet.com

Kenwood TS-850SAT with PS50-p.s.u., good order, can demonstrate, handbook and new fist mic. (selling due to purchase of FT-1000D), £750 the two. Tel: (01443) 412695 anytime.

Marconi crystal set type RB3 M2 Circa 1922 with S.G. Brown and TEL headphones, crystal missing, £175. Also wanted handbook for Gould Advance 2CH oscilloscope type 3000A with timebase delay facility. Mike, Biggin Hill. Tel: (01959) 572591.

Plessey PR155G h.f. receiver, good working order, £50. Tel: (01460) 65346.

PRC77 Vietnam ERA American v.h.f. Manpack in v.g.c. with matching NiCad battery pack 10-30V p.s.u. handset in g.w.o. Mark, Staffordshire Tel: (07799) 416043.

R210, £70. B40, £90. CR100, £80. FRG7, £80. All g.w.o. 1155 for spare, complete, £60. All with manuals, space needed. Mike, Sussex. Tel: (01798) 342338.

Receivers Hammarlund SP-600. BRT - 400, Eddystone 940, KW-202, NEMS-Clark's BC-348, BC-312HX. Spares for Collins HRO AR88 mechanical filters, crystals RT512/3 TFY valve, National Velvet Vernier dial, discone antenna coax switch, s.a.e. Bob Wright, 245 Sandy Lane, Hindley, Wigan, Lancs WN2 4ER. Tel: (01942) 255948.

Silent Key Sale TS-440s, £395. Zetagi BV603 linear amplifier, £100. Zetagi

1230/1 30A p.s.u., £50. Tokyo antenna coupler HC400L, £80 v.g.c. o.v.n.o., carriage payable by buyer. Bob G8BCA. Tel: (01638) 714051.

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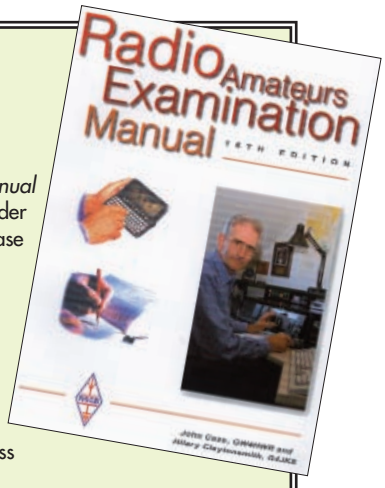

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topical talk

Banishing Broadcast Breakthrough

Banish that broadcast breakthrough...get your radio via your u.h.f. television antenna!

This month the topical talk in the *PW* Editorial offices has included discussions on the possible advantages of installing Terrestrial Digital Television (TDTV) set-top boxes. It seems as though they could help reduce friction in the family!

The feedback from *PW* readers, published in the letters section this month, together with E-mails and letters sent to our Editor - shows there's much interest in TDTV. However, despite the hype with 'everything digital', there are several direct advantages for the Radio Amateur.

Of course, we all realise there are some possible disadvantages with the unscreened plastic-cased set-top TDTV units (the potential to cause and receive interference). But on the whole there certainly seems to be some advantages...as our Editor has already discovered.

The TDTV system is gradually expanding throughout the UK, although viewers using relay stations, or living in areas away from the main centres of population may not be able to receive the new service yet. (the advice for the individual reader is that they contact the BBC for further details. Addresses are provided within the *Radio Times*, and also on the BBC's Teletext Pages).

One advantage of TDTV - particularly for our Editor - came about recently when the main Rowridge transmitter on the Isle of Wight introduced the full range of main BBC radio programmes from Radio 1, 2, 3 and 4 **via TDTV**. This service immediately helped **G3XFD** to remove an annoying problem!

Broadcast Breakthrough

Although the average householder tends to replace their receivers fairly often - they seem to hang on to their favourite radios. This is just the case at our Editor's house - and unfortunately despite the fact the he causes no television interference (TVI)...his transmissions on h.f., 50MHz and 144MHz are heard on the family's Band II v.h.f. receiver, along with several smaller portable v.h.f. radios used in the house...causing annoying interference to him from everyone else!

The problem is mainly due to the very old junction transistors used in the various receivers. And despite the fact (and probably because) that the family home is well equipped with an external Band II v.h.f. Yagi antenna feeding the whole house via the coaxial cable feed - protected by ferrite ring filters to attenuate r.f. on the outer braiding - the breakthrough can be annoying.

Problem Solved

However, the EMC/BCI problem was immediately solved when our Editor took advantage of the complete mainstream BBC radio programmes being available on TDTV, when he purchased another set-top digi-box. Rob can now be on the air while radio programmes are enjoyed by the family via the TV set (as they can be for Sky digital or cable system customers). Additionally, G3XFD can be on the air from his own study/shack while at the same time also tape recording something from either BBC Radio 3, 4 or 7.

As he wanted to take advantage of the superb audio quality from the TDTV radio service anyway (it certainly seems far better than what's available via the DAB system) Rob now uses his TV set as the 'tuner' - with excellent results. The family now enjoys listening to the radio again and he has less hassle from them!

So, if you suffer from the same problems...the *PW* team suggest you try the same approach...if you can. You'll also get the extra programming and excellent quality radio. *PW*

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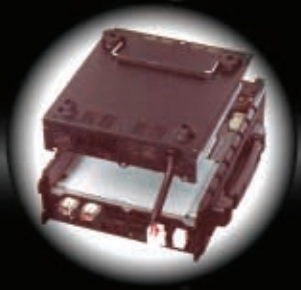

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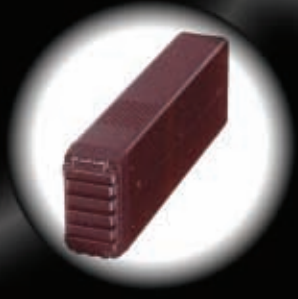

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