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amateur radio & more!

QRP Contest Results

It's a Classic
- **KW 2000B**

Yaesu



Field Fun!

full review inside

November 2002

£2.75



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 run by Bill at Jaycee
 Electronics is getting
 busier by the week.

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 Waters & Stanton
 products at the same
 competitive prices. If
 you live in Scotland or
 the Borders, then
 give Bill a call or pay
 him a visit (closed
 Sunday and Monday).
 It makes sense to be
 loyal to your local
 dealer, particularly
 with our prices!

SCOTTISH BRANCH
OPEN DAY
19th OCTOBER



FT-1000MP MKV FIELD

£2299

NEW



YAESU FT-897

NEW



100W HF 50W 2m
 and 20W 70cm
 Plus 20W on (optional)
 Internal
 Battery

Available
November

UK's largest Selection of HF Transceivers

We will price match on any currently
 advertised in-stock items that are of UK
 origin. **Beware of none UK sourced**
items. If the dealer cannot get supplies
 from the UK distributors, then there may
 be a reason! All our gear is UK sourced
 with full manufacturers warranties.

ICOM HF Transceivers

IC-756-PRO 160m - 6m 100W

£1799.95 C

IC-756-PRO II

The flag ship of the ICOM range.
 Lovely big easy to read display



IC-756-PROII	160m - 6m 100W 12V	£2495.95 C
SP-20	Speaker with filters	£164.95 B
SP-21	Speaker for IC-756	£74.95 B
SM-8	Base microphone	£129.95 B
SM-20	Base microphone	£144.95 B
PS-125	Icom tcvr PSU	£295.95 C
IC-7400	160m - 2m 100W 12V	£1499.95 C
IC-706	160m - 70cm Tcvt with DSP 12V	£849.95 C
IC-718	160m - 10m 100W 12V	£649.95 C

Yaesu HF Transceivers etc.

FT-1000mkV	160m - 10m 200W 230V	£2899.95 C
VL-1000	Quadra HF - 6m 1kW linear	£3999.00 D
FTV-1000	6m transvertor 200W	£799.95 C
FT-1000 Field	160m - 10m 100W 230V	£2199.95 C
MD-200ABX	Desk mic	£249.95 B
MD-100ABX	Desk mic	£110.00 B
FT-920AF	160m - 6m 100W 12V	£1099.95 C
FT-847	160m - 70cm 100W etc 12V	£1149.95 C
FT-817	160m - 70cm 5W Batt.	£595.95 B

FT-817

All bands & All modes gives
 you a totally portable HF DX
 or VHF/UHF station. **Qurs**
includes battery and charger.



FT-840	160m - 10m 100W 12V	£499.95 B
Kenwood HF Transceivers etc.		
TS-870S	160m - 10m DSP 100W 12V	£1349.00 C
PS-33	AC power supply	£199.95 C
PS-53	AC power supply	£229.95 C
MC-60A	Desk mic	£117.95 B
MC-80	Desk mic	£72.95 B
MC-90	Desk mic	£187.95 B
TS-570DGE	160m - 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	160m - 10m 100W 12V	£599.00 C
TS-2000	160m - 70cm <100W	£1695.00 C
TS-2000X	150m - 23cm <100W	£1999.00 C
TSB-2000	Computer controlled	£1549.00 C
RC-2000	Remote head for TS-2000	£199.95 B
ARCP-2000	TS-2000 software	£44.95 B

Power Tank

FD-7021 £24.95 B

4 Ah supply with built-in
 3/6/9V output plus 12V
 DC. Has built-in lantern and
 computer controlled battery
 state. Compact size: 180w x
 85d x 210h mm, 3kg.
 Shoulder strap.



AC chargers included

Great Value! AR-147

2m
 50W
 Output
£199.95
 Carriage £6.00



The AR-147 offers a top performance 2m FM transceiver plus
 VHF air-band receiver. You get CTCSS, (auto reading), and
 DTMF complete with keypad microphone. 12.5 and 25KHz
 steps plus 1750Hz tone makes it truly universal. Power levels of
 10 Watts and 5 Watts are also selectable. Includes mobile
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29 YEARS in THE BUSINESS
WINNER of KENWOOD 2002 AWARD
YAESU's LARGEST UK DEALER
PLAY SAFE, GO TO W&S

Waterproof Yaesu VX-7R 3-Band Radio

6m - 2m - 70cm
 The new robust
 handy from Yaesu

£329.00



NEW 3-Band Radio

At last, the new Icom
 handy has arrived for
 6m-2m-70cms plus
 general coverage and
 TV sound!



FT-817 Add-ons

One Plug Power
 1.8Ah pack module
 80% capacity increase!

£79.95

**One Big
 Punch**
 Speech
 processor.
 Dealer fit

£59.95

One Board Filter
 Collins 500Hz
 & 2.3kHz dual
 filters fitted by
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£259.95

HL-50B Amplifier



£265.95

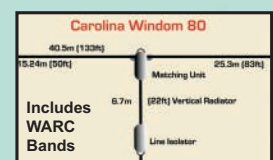
This model has been
 specifically designed for
 the FT-817. Enjoy up to 50
 Watts output

Triple Mag Mounts Upgraded

Ideal for HF whips and large
 VHF whips. Amazing adhesion
 even at 70mph! SO-239 or 3/8"
 available

W-300T = 3/8" W-300S = SO-239

Carlina Windoms - DX from a wire!



CW-160	160-10m 80.1m	£139.95 C
CWS-160	160-10m 40.5m	£134.95 C
CW-80	80m-10m 40.5m	£99.95 C
CWS-80	80m-10m 20.1m	£119.95 C
CW-40	40m-10m 10.3m	£94.95 C

Outperforms G5RVs
 and "Del-Boy" designs! The
 only antenna to give both
 high and low angle radiation
 even at 20ft above ground.
 Rated at 1kW, there's a
 model for you.

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 Radio Communications
 Guide 336 pages!**
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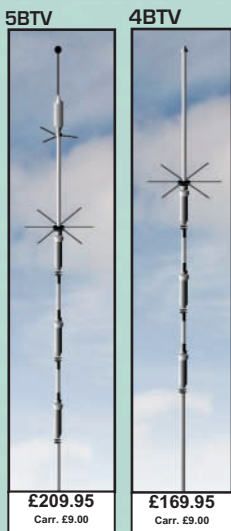


<p>YAESU</p> <p>FT-1500M • 2m FM Mobile £159 C</p> <p>SPECIAL OFFER SAVE £70</p>  <p>Small, compact yet built like a Battleship! Should last for years. Look at the Price!</p>	<p>YAESU</p> <p>FT-7100 • 2m/70cm Mobile £299 C</p> <p>SPECIAL OFFER £299</p> <p>Just arrived is this new dual band radio that has extended rx. Power is 50/35W. Features dual in-band reception and detachable display (requires YSK-7100).</p> <p>AMAZING VALUE</p>  <p>One of the Best Buys in Dual Band Mobile!</p>	<p>YAESU</p> <p>YAESU VX5R • BLACK OR SILVER £239 B</p>  <p>Tiny but incredibly rugged, the VX-5R provides transceiver capability on three amateur bands (50/144/430MHz) and almost continuous reception from 500kHz up to 999MHz.</p> <p>YAESU VX1R • 2m/70cm £149 B</p>  <p>Ultra-wide frequency coverage which includes VHF and UHF-TV audio, AM broadcast, FM broadcast and AM air-band.</p>	<p>RT-11 REMOTE AUTOTUNER £239 B</p> <p>NEW</p>  <p>NEW FROM LDG</p> <p>ASK FOR DETAILS. ALSO AVAILABLE IN KIT FORM.</p> <p>GZV-4000 40A 5-15V Switch Mode</p>  <ul style="list-style-type: none"> • Output voltage 5 - 15V DC • Output current 40A continuous • Built-in cooling fan • Supply 230V AC 50Hz • Size 210 x 110 x 300mm • Weight: 3.5kg <p>£159 C</p>
<p>KENWOOD</p> <p>TM-D700E • 2m + 70cm FM £449 C</p>  <p>Large detached screen and APRS, make this a firm favourite. 50W on 2m and 35W on 70cms. Features 200 memos, CTCSS, Band Scope, built-in TNC, DX cluster monitor, alphanumeric etc.</p>	<p>KENWOOD</p> <p>TH-D7E • 2m + 70cm £299 C</p> <p>DATA COMMUNICATOR</p>  <p>One of the most successful hand-helds over the past few years. It has a built-in TNC for Packet use. You can also use it for APRS operation in conjunction with an external GPS unit. Plus NMEA, 200 memos, and up to 5W output.</p>	<p>W-25SM 25AMP SWITCH-MODE POWER SUPPLY</p> <p>THE QUIET ONE</p>  <p>£69.95 carr.£6</p> <p>Switched 230 / 115V AC input and fixed 13.8V output at 22 Amps continuous and 25 Amps peak. Over voltage and over current protected and fan cooled. Measures 180mm (W), 75mm (H) and 190mm (D).</p>	<p>W-CRI PADDLE KEY £44.95 B</p>  <ul style="list-style-type: none"> • Metal parts brass • Hardwood base • Size 145 x 80 x 50mm • Weight 375g <p>W-GMP Morse Key £29 A</p>  <ul style="list-style-type: none"> • Metal parts brass • Hardwood base • Miniature size • Size 100 x 50 x 45mm • Weight 150g
<p>TM-G707E • 2m + 70cm FM £289 C</p>  <p>If you are looking for simplicity and low cost, here's the answer. 2m & 70cms with detachable front panel and "Easy operation mode." GREAT!</p> <p>TM-V7E • 2m + 70cm FM £359 C</p>  <p>A lovely cool blue display, easy with 50/35W output. 50W/35W plus 280 memos and five storable operating profiles.</p>	<p>TH-F7E • 2m + 70cm £249.95 C</p> <p>NEW</p> <p>WITH EXTRA WIDE RX COVERAGE</p>  <ul style="list-style-type: none"> • 144-146MHz Tx/Rx: FM • 430-440MHz Tx/Rx: FM <p>Up to 6W out with Li-Ion battery and "scanner" style coverage from 100kHz to 1300MHz including SSB on receive! This is a great radio to have at all times when you are on your travels.</p>	<p>RIGblaster</p> <p>IT'S NOT A TNC</p>  <p>PSK31, MFSK, MT63, SSTV, RTTY, AMTOR, CW, PACKET, APRS, HELLSCHREIBER, REMOTE BASE, METEOR SCATTER, CLUB GISTS, REPEATER CONTROLLER, VOICE KEYS.</p> <ul style="list-style-type: none"> RIGblaster Plus £139.95B RIGblaster M8 £109.95B RIGblaster M4 £109.95B RIGblaster RJ £109.95B RIGblaster nomic 8p £62.95 B RIGblaster nomic 4p £62.95 B RIGblaster nomic RJ £62.95 B 	<p>Kent Morse Practice Oscillator £19.50 A</p>  <ul style="list-style-type: none"> • Size 160 x 55 x 97mm • Weight 260g
<p>ICOM</p> <p>IC-207H • 2m + 70cm FM £279 C</p>  <p>A great budget class radio for VHF & UHF use.</p> <p>IC-2800H • 2m + 70cm FM £419 C</p>  <p>Large colour display with video input, and airband rx. 50W/35W and remote head unit.</p>	<p>THG-71E £199 B</p>  <ul style="list-style-type: none"> • 144 - 146MHz FM • 430 - 440MHz FM • 3 power levels • 6W (13.8V) 5.5W (UHF) HI • 0.5W LO • 50mW EL • 200 multi-function memories • Freq. deviation: ±5kHz • CTCSS tone encoder/decoder • Illuminated keypad, • memory name function • Auto power off • Auto batt. sever • Time-out timer • 5.5 - 16V DC (13.8V) 	<p>'Amazing' MP-1 Variable Antenna 7MHz - 430MHz! 150 Watts</p> <p>Use Portable, Mobile, Home or even balcony!</p> <p>It's sweeping America as the most versatile antenna for any location. Kit includes telescopic whip, variable coil, lower mast, base bracket (SO-239), clamp and optional wire radials (3m approx). Total height approx 2m. Will also screw directly into 3/8" mobile mounts. The whole antenna packs down to pocket size, yet puts together in a couple of minutes. And with the high Q coil, you get high efficiency. Take it with your FT-817 as hand luggage!!</p>	<p>SLIDE TO CHANGE BANDS!!</p>  <p>£149.95 carr.£9</p>
<p>IC-2100H 2m FM Mobile £229 C</p>  <p>Rugged design with switched receive filters 12.5/25kHz</p> <p>IC-910 2m + 70cm All Mode £1299 C</p>  <p>Icom's new dual band all-mode base station radio with 23cms option.</p>	<p>DSP SPEAKER</p> <p>NES10-2 (includes 12V AC adaptor)</p>  <p>Kills noise Brings up Signals.</p> <p>£99.95 Carriage £6</p> <p>Just plug it into your speaker or headphone socket and hear the noise drop away. Dip switches offer variable settings. Works with any receiver.</p>	<p>FT-817 Accessories</p> <p>WART FT-817 Products</p> <p>One Big Punch</p>  <p>Speech processor to boost your transmit audio. Fitted in rig by us. Price includes fitting by us. £59.95 B</p> <p>One Board Filter</p>  <p>A Collins SSB 2.3kHz and CW 500Hz mechanical filter on one board. Much steeper curves and flatter response than the original 2.7kHz ceramic filter. Plus improved transmit audio! Price includes installation by us. £259 B</p>	<p>MP-1 Options</p> <p>TRIPOD</p>  <p>£19.95 A</p> <p>Compact tripod for free standing MP1</p> <p>MP-80M</p>  <p>£22.95 A</p> <p>80m Coil for MP-1 3.4MHz - 4MHz</p>
			<p>FT-817 BRACKET</p>  <p>MP1 bracket mounts on side of FT-817</p> <p>£19.95 A</p>



Get in Front with HUSTLER

CARRIAGE CHARGE CODES: A=£2.75, B=£6, C=£9, D: £12



BASE STATION ANTENNAS

Spec	5BTV	4BTV
Bands	5	4
Coverage	80m-10m	40m-10m
Bandwidth 10-40m	Full	Full
Bandwidth 80m	100kHz	N/A
Resonance	1:15:1	1:15:1
Power	1kW CW	1kW CW
Traps	1" forms	1" forms
Tubing	1.25"	1.25"
Bracket size	1.75"	1.75"
Height	25ft 1" (7.64m)	21ft 5" (6.52m)
Weight	17lbs. (7.7kg)	15lbs (6.8kg)
Wind (112kph)	13kg	-

"I worked my first ZL while actually on the move using a Hustler whip" - Peter Waters G3OJV.
Customers are also telling us how pleased they are with the base verticals. Check the prices!

HUSTLER Mobile Antennas

Model	Band	Bandwidth	Price
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

Model	Band	Bandwidth	Price
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

Model	Band	Bandwidth	Price
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

HF LINEAR AMPLIFIERS

LINEAR AMP UK
Challenger MkII 1.5k Watts £1795 D
Ranger 811H 800 Watts £895 D

Add punch to your signal and work DX with ease. Give us a call for advice



Yaesu's QUADRA. A full 1kW no-tune amplifier from 160m to 6m! Call for amazing deal!



The world's best solid state base amplifier from Yaesu

SGC SG-500 Mobile amplifier. 500W HF 12V DC £1629

Go mobile with Power! 500W output 1.6 - 30MHz. Ultra rugged!



All available on 24-hour delivery.



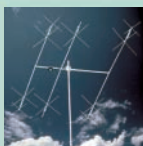
HF HORIZONTAL BEAMS + DIPOLES



When you buy an HF Yagi, you want quality and realistic performance. You also want to know you can get spares. We offer a wide choice with guaranteed spares availability. COUNT ON US!

MA5B	10-20m (5 band) 3 el 2.7m radius 1.2kW	£349.95 C
X-7	10-20m 7 el. 12.5 - 13dB 2kW 6.09m radius	£669.95 D
X-740	40m add on kit for X-7	£299.95 C
A4-S	10-20m 4 el. 8.9dB 2kW 5.49m radius	£599.95 D
A-744	Gives 40m or 30m operation from A-4S	£159.95 C
A3-S	10-20m 3 el. 8dB 2kW 4.72m radius	£499.95 D
A-743	Gives 40m or 30m operation from A3-S	£159.95 C
A3-WS	12 & 17m 3 el. 8dB 2kW 4.4m radius	£399.95 D
A-103	Gives 30m operation from A3-WS	£159.95 C
D-3	10-20m dipole element 7.86m 2kW	£249.95 C
D-3W	12, 17, 30m 17m dipole element 10.37m 2kW	£249.95 C
D-4	10-40m dipole element 10.92m 2kW	£329.95 C
D-40	40m dipole element 12.88m 2kW	£299.95 C
Ten-3	10m 3 el 8dB 3m radius 2kW	£189.95 C
ASL-2010	13.5-32MHz 8 el. log periodic 4.4dB 5.86m radius	£799.95 D

THE MINI-BEAM FOR SMALL GARDENS



Cushcraft MA5B

The best 3 element mini beam you will ever find. 2 element gain on 10, 15 & 20m, and dipole performance on 12m and 17m. Up to 25dB F/B ratio, it accepts 1.2kW yet has a boom length of only 2.2m and element length of just 5.2m. Turning radius is 2.7m. Uses a single feeder; this really works the DX. Get one up before winter! £349.95 C

CUSHCRAFT VERTICALS



R8 (illustrated), covers 8 bands from 6m - 40m, stands 8.7m high and requires no radials. You can feed it with 1.5kW and typical VSWR is around 1.2:1 £499.95 C

R8-GK Optional guy kit for R8 £49.00 B

R-6000 6 band 6m-20m that requires no radials and handles 1.5kW. Stands just 5.8m high and was chosen for the RSGB GB4FUN vehicle antenna. It works!! £349.95 C

NEW MA5V VERTICAL 20-10m £229.95 C



WEP-300B • EARPIECES

£2.95 A



Over-the-ear earpiece, popular for security and emergency use. Its low cost and firm mounting even in arduous conditions make this a popular item. Fitted with 3.5mm jack plug.

WSA-1 PSK-31 Adaptor £39.95 B

All you need to connect up to your sound card and run PSK-31. Includes CD software.



YS-130 £79.95 B



Ideal for medium sized VHF antenna systems, the YS-150 is a good quality Japanese manufactured product. It is supplied with control box with rotary direction setting, plus upper and lower in-line mast clamps.

REVEK • 15W DUMMY LOAD £19.95 A



- Range DC - 500MHz
- Power 15W/50W
- VSWR 1:1.5:1
- Connector PL259
- 50 Ohms impedance
- Size 34 x 72mm
- Weight 70g

MASPRO VHF/UHF YAGIS



These high quality Yagis are made in Japan and superbly engineered. Features folded dipole, balun transformer, waterproof box and SO-239. You won't find anything better on the market.

Take a look at our prices!

144-WH5	2m 5 el. 6.6dBd 0.93m	£26.95 B
144-WH8	2m 8 el. 8.6dBd 1.79m	£37.95 B
144-WH10	2m 10 el. 9.7dBd 2.3m	£41.95 B
435-WH8	70cms 8 el. 8.6dBd 0.8m	£29.95 B
435-WH12	70cms 12 el. 12.8dBd 1.51m	£35.95 B
435-WH15	70cms 15 el. 14.2dBd 2.19m	£41.95 B

To compare with dBi figures, add 2.4dB



QS-112 • SPEAKER MIC

£16.95 A



Combined speaker-mic. with PTT switch. Models for Yaesu, Kenwood, Icom, Alinco and Motorola.

SPM-102 • SPEAKER MIC £9.95 A

Incredible value!

Has 4-way 3.5mm plug for VX-1, VX-5, FT-50 and IC-Q7E Handies



Limited stocks.

WM-308 • BASE MIC £59.95 B

The perfect answer for a high quality base microphone. Built-in pre-amp powered from rig or 2 x AA, electronic PTT and FM/SSB response switch. Includes lead with 8-pin plug. The plug needs to be wired for your radio. We can do this but phone for quote.



WCT-321 • LAPEL TALKER £19.95 A

The elegant way of personal communications. Earpiece with combined lapel hanging mic and PTT. Models to suit most radios. State: Kenwood, Yaesu or Icom when ordering



AVAIR VSWR • POWER METERS



Great value and great performance. There's one just right for you.

AV-200 1.8 - 200MHz 5/20/200/400W £49.95 B

AV-400 140 - 525MHz 5/20/200/400W £49.95 B

All fitted with SO-239, PEP/RMS readings, 3W for FSD approx.

Also available AV20 & AV40 compact meters

ATX WALKABOUTS

WALKABOUT PORTABLES

Multi & single telescopic whips. Covers 80m to 6m BNC. Ideal for FT-817 and similar GRP radios.

ATX Walkabout 80 - 6m	£69.95 B
AT-80 Single band	£24.95 B
AT-40 Single band	£24.95 B
AT-20 Single band	£19.95 A
AT-17 Single band	£19.95 A
AT-15 Single band	£19.95 A
AT-12 Single band	£19.95 A
AT-10 Single band	£19.95 A



BASE VHF/UHF VERTICALS

2m / 70cm fibre glass colinears with stainless steel fittings, 3 short radials and SO-239 sockets. These are high performance antennas, pre-tuned and supplied with all hardware for mast mounting.

Dual Band 2m/70cms

W-30	3/6dB 1.15m long	£39.95 C
W-50	4.5/7.2dB 1.8m long	£49.95 C
W-300	6.5/9dB 3.1m long	£59.95 C
Triple band 6m/2m/70cms		
W-2000	0/6/9dB 2.5m long	£69.95 C

GREAT VALUE MOBILE WHIPS

W-285	2m 5/8th whip with PL259 base	£14.95 B
W-7900	2m/70cm 5 & 7.5dB length 1.58m	£32.95 B
W-627	6m / 2m / 70cm 2 / 4.5 7.2dB length 1.6m	£34.95 B
W-770HB	2m/70cm whip 3dB / 5.5dB length 1.1m	£24.95 B

ALL WITH TILT/OVER BASES.



SG-237 PORTA

HF + 6m AUTOMATIC ANTENNA TUNER

CANCELLED EXPORT ORDER

Due to a cancelled commercial export order we have a quantity of this top grade Smartuner available to clear at a bargain price.

We can offer £200 off the list price of £649 to the first 20 customers

The SG-237PORTA Smartuner is designed for quick portable set-up or base operation. It is designed to match end fed antennas, whips or ladder feedline. The power handling capability is 100W (PEP) and 40W maximum on CW. Its rugged internal construction is ideal for tough operation. Only four connections are required. The DC input requirement is 13.8V DC (nominal) 300mA, its DC operating range is 10.5 to 18V DC. Any 2.7m (9ft) whip will provide good operations above 3.5MHz. For operation down to 1.8MHz it is recommended that at least a 8.5m (28ft) wire antenna or 6 x 6m (20 x 20ft) loop antenna be used. When using a whip antenna in a fixed location it is important that a ground system of radials be used.



WATERS & STANTON

AVAILABLE ONLY FROM HOCKLEY STORE.

WATERS & STANTON PLC: 22 MAIN RD, HOCKLEY, ESSEX, SS5 4QS. TEL: 01702 206835 • email: sales@wsplc.com

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Cover Subject

With subject matter entitled the *Field* the photo opportunities were endless, but try as we might we couldn't persuade **Tex Swann** to take the Yaesu FT-1000MP Mark V Field transceiver and photograph it in a remote field! So, instead **Zoë Shortland, News & Production Editor** on our sister publication *Short Wave Magazine* offered the use of her parent's garden - hence the shot we ended up with. Hope you like it!

Design: **Bob Kemp**

Photograph: **Tex Swann G1TEX/M3NGS**

November features

18 Looking At...

Gordon King G4VFW's series continues with a look at the one transistor transmitter and power amplifier design.

24 Radio Basics

With the nights drawing in and winter evenings approaching, **Rob Mannion G3XFD** has been busy preparing a new series of projects for you to try. To get things started he describes an active antenna tuning/matching unit.

26 Review - The Yaesu FT-1000MP Mark V Field Transceiver

Well known for his h.f. enthusiasm, **Carl Mason GW0VSW** jumped at the chance to to get on air with the latest version of the Yaesu FT-1000MP. So, exactly what sets this FT-1000MP apart from its predecessors? - Read Carl's review to find out!

30 Practical Wireless 144MHz QRP Contest 2002 Results

Neill Taylor G4HLX presents the results of the PW 144MHz QRP Contest for 2002. How did you fare? Neill has the answers and as usual is encouraging more of you to take part next year!

38 Carrying On The Practical Way

Find out how to add a simple side-tone unit to your transmitter with **George Dobbs G3RJV's** practical project this month.

40 Ah! Those Were The Days!

Victor Brand G3JNB indulges in nostalgia. He recalls the tale of how he was 'bitten' by the radio bug by a series of coincidences and how he has never looked back!

42 Antenna Workshop

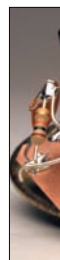
Loading wire antennas enables them to work on lower bands. Find out how you can achieve this from **John Heys G3BDQ**.

44 Valve & Vintage

Ben Nock G4BXD's column is full of British flavour this month as he talks about KW equipment and how many 'new' radios have found their way into his shack over the summer months.

48 It's A British Classic!

Having owned several of the famous KW transceivers **Rob Mannion G3XFD** looks at a true modern 'classic', the KW 2000B, a rig which although older in design is a true pioneer.



Page 4



A photograph showing three men shaking hands. On the left is a man with a beard and glasses, wearing a grey jacket. In the center is a man in a light green shirt. On the right is a man with a beard and glasses, wearing a white shirt. They are standing in front of a backdrop with blue balloons and a banner that partially reads '...ology'.

G3IEE/P

Figure 1 consists of three schematic diagrams labeled (a), (b), and (c), illustrating different types of beam supports. Diagram (a) shows a horizontal beam of length L with a roller support at the left end and a pinned support at the right end. A distributed load q is applied downwards along the entire length of the beam. Diagram (b) shows a horizontal beam of length L with a roller support at the left end and a pinned support at the right end. A distributed load q is applied downwards along the entire length of the beam. Diagram (c) shows a horizontal beam of length L with a roller support at the left end and a pinned support at the right end. A distributed load q is applied downwards along the entire length of the beam.

November **regulars**

Parallel hobbies, Amateur Radio versatility and friendship are the subjects under discussion in this month's Topical Talk.



The screenshot shows the go4u.com website. The header includes a navigation bar with links like Home, About Us, and Contact Us. Below the header, there's a section titled 'Our Services' with a list of services including Telecommuting, Business Solutions, and more. A prominent blue button labeled 'Sign up' is visible. The website has a purple and white color scheme.

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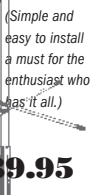


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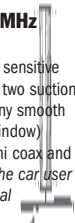


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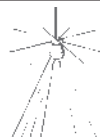


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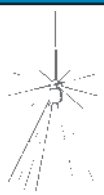
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rob mannon's **keylines**

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

Although I try to limit my photographic appearances in *PW* nowadays - as soon as I received the photo, shown below, I thought "I must share it with readers" to provide a chuckle or two. It will also show that when I'm really enjoying myself - following my interests in railways large and small - I'm not overly concerned about my dignity!

Taken at a 7.25 inch gauge miniature railway meeting in an extensive private garden in Surrey, the photo was very kindly provided by **Chris Rees G3TUX (QRP Component Company)** showing G3XFD driving a battery-powered shunter towing a broken down steam loco. I'm pleased to say both locos survived the experience!

Many other Radio Amateurs were present and as I've said before...we share many interests don't we? Incidentally, if you want to share the joke...let's have your captions on a postcard please! (We've already heard the 'Tender Behind' comment!).

Foundation Licence

I fully support the Foundation Licence scheme. It's here, it's working and - in my opinion - is breathing fresh air into our hobby. However, as is usual with such initiatives...problems are appearing. Although they'll all be easy to solve...**providing we get full support from everyone in the hobby!**

During my recent holiday I thoroughly enjoyed myself on h.f. and v.h.f. (but mostly on 7, 10, 14, 18 and 28MHz using c.w. and s.s.b.). Band conditions were variable...but 7MHz was very active and it remains my favourite band.

Working M3 operators on 7MHz is usually a pleasure. However, despite this there are some problems which - hopefully, as I've mentioned...will be soon overcome.

The biggest problem with **some** newly-licensed M3 operators seems to be the lack of knowledge of operating practice and etiquette. This was highlighted for me when I was working on a Northern Ireland station when an M3 joined us on the frequency. Leaving a break I invited him into the QSO and was surprised to find he'd only joined in to work the Northern Ireland station!

Embarrassed, the GI station then politely suggested they vacate the frequency and continue the QSO higher up the band. In the meantime I then continued to work on the original frequency another station who'd called in. However, after the north west based M3 - had finished working the GI...he enthusiastically joined us again!

There was no point pointing in discussing the errors of his ways on the air because it would have caused much needless embarrassment for the operator concerned. Instead, I realised that comprehensive support is required.

Buddy Diving

In my diving days we were paired up as 'Buddies'. Often a novice diver would be paired with an experienced person. Underwater this could often save lives and prevent needless accidents. In Amateur Radio it could provide extra help for someone who has literally become an 'Instant' Amateur' with no previous experience of our hobby whatsoever.

Obviously, many M3 stations I'm meeting on the air have actually been active in the hobby for many years on v.h.f. The problem as I see it mainly comes from those who've had no previous experience of Amateur Radio at all...and not from intentional rudeness. In the past most Amateurs served an 'apprenticeship' in short wave listening which helped to show the way forward.

Another problem area which seems to be showing itself now comes via the telephone calls which come into the *PW* office. For example, I recently had one gentleman from Staffordshire, who having been successful with his M3 licence (and was thoroughly enjoying Amateur Radio) wanted to take advantage of the large amount of antenna space he had available.

Beam systems, large masts and complicated antennas were planned. However, at the same time...**he was asking me how to connect coaxial cables to beam antennas!** My advice to him was to buy himself a ARRL *Antenna Book*, read it (I think it's the best available) and then experiment...**with help from the club who'd helped him obtain his M3 licence.**

So, I urge clubs who are helping the steady stream of M3 operators into the hobby (especially the students who are entirely new to our pastime) and strongly encourage them to remain members of the club. By doing so, and by operating the club station under supervision, working on the antenna systems, etc, they'll benefit and build on to the foundation which has already been provided by their course.

Reference Poster

The Editorial team hope you enjoy the *PW* Practical Reference Poster presented free with this issue. We've tried to include all the most frequently posed questions, etc. Enjoy it with our



practical wireless **services**

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

Subscriptions

Subscriptions are available at £30 per annum to UK addresses, £38 in Europe and £42 (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 £60 (UK) £73 (Europe) and £81 (rest of world), £85 (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 £2.50 each and photocopies are £2.50 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

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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.

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



A Discouraged M3

Dear Sir

I started listening to Shortwave and Amateur Radio communications when I was a schoolboy some 20 odd years ago. I had a brief play with CB in the mid-1980s, then work and family commitments pushed my hobby aside. Five months ago I received my Foundation Licence, and

full credit must go to the members of the **Lincoln Shortwave Club** for hauling me through it.

The biggest problem I had was finding an h.f. antenna that would be useful on all bands, and that my wife would accept as part of the garden furniture! The answer was found, of course, in the pages of *PW*. Myself, and several other club members, are using the T220 toroidal wire monopole antenna with some success. I've already received a QSL card from the USA, from a QSO on 14MHz.

Then came the day for my first 7MHz contact. Breaking in, with my 'trigger finger' shaking, and with as much politeness and care as I could muster, I spoke to a small UK net near the top of the band. I learned quite a lot from these gentlemen....the most valuable lesson being that I should never have picked the microphone up in the first place.

I'm 34 years old, a family man and run my own business. I fully respect the spirit of Amateur Radio and the conditions of my Licence...but on joining the net and was treated like a child. I was 'shot down in flames' by arrogance and rudeness, the like of which I would never have expected from gentlemen obviously old enough to know better.

I was berated for saying "seventy-three", instead of "seven-three", abused for saying "antenna" instead of "aerial", and told off for giving my callsign out too often! I rather hoped at least one of the six operators within the net might have come to my rescue, but no, they all wanted a stab. So, again with all the dignity and politeness (feeling a small item by this time), I thanked them all and left the group.

Constructive criticism, and useful advice is greatly appreciated by any right-minded Radio Amateur starting out in the hobby, but 'public stoning' by radio is not what I asked for, and it was completely unnecessary. I tried and gave it my best, ...alas that it was not good enough for these Gods of the air.

No matter, I shall take a lesson that first learnt at school, 'the best way to avoid a scrap is not be there'. Pity really, as I rather fancied 7MHz operation.

Brian Matthews M3DMV
Newark
Nottinghamshire

Editor's comment: I was dismayed to read Brian's letter and have encouraged him to keep trying - the hobby is worth far too much to give it up! I've worked many M3s - and with very few exceptions they've been a delight to work. Don't lose heart Brian. (Please see Keylines for further comment).

70th Anniversary Issue

Dear Sir

Practical Wireless caught my eye at the newsagents and, inspired by the floods of reminiscences, etc., I bought a copy. I'd actually bought my first copy circa 1963 (aged 15), shortly afterwards making my first crystal set along the lines in your 70th anniversary issue. (Coil wound on a toilet roll holder using wire salvaged from a valve output transformer). A miracle, it worked!

Suitably hooked by the magic I took Electrical Engineering up at University and made a career of it. Subsequently got my PhD in electromagnetic field theory, but then going into microprocessors, a University lectureship and then digital communications. I took early retirement three years ago and am now doing research on Internet trust. I can also remember making regenerative short wave receivers based on the acorn valves and even still have one somewhere in the attic. Why am I writing? Partly to thank you for the nostalgic issue and let you know that I enjoyed it and to let you know that crystal sets can lead somewhere.

I also write to discuss a technical issue. The circuit (Radio Basics, page 25) that follows on the crystal set is intriguing as, in theory, it contains a very basic beginners error. It has the diode in series with a capacitor. As everyone knows a capacitor cannot pass d.c., so all that should happen is that the capacitor will be charged up by the diode to the peak incoming voltage and then nothing more will happen.

In order to rectify the signal the diode needs a path for the d.c. component of the rectified signal. However, shortly after making my first crystal set I can remember cycling into the radio shops in Manchester armed with my 2s 6d to buy a red spot transistor and making up the exact

circuit shown in your article. (Did I buy it at New Cross Radio, or one of the shops on Shudehill?? - I'm not sure) **It worked, but the question is why?** The straight-forward explanation of the rectified signal being amplified at audio is obviously wrong and intellectually unsatisfying. There are several possibilities:-
a) The diode is not actually rectifying the signal, but its internal capacitance passes the r.f. to the base emitter junction of the transistor. The non-linearity of this then rectifies the signal and subsequently the transistor amplifies the audio.
b) The electrolytic capacitor is leaky and thus provides a path for the microscopically low d.c. component.
c) If the electrolytic is large, then the effect of it charging up will only be gradual as it only receives little pulses of charge from the signal received from the antenna. This is, naturally, only a very small amount of power.

Some simple experiments could easily eliminate b) e.g. use a non-electrolytic capacitor. A very high input resistance valve voltmeter could then distinguish between a and c.

As I am not in possession of a lab nowadays I am not able to do the experiment, although a f.e.t. front end to a digital testmeter would be simple enough to knock up. I wonder if any of your readers fancies having a go?

Ed Ball
Didsbury
Manchester

Editor's comments: Nice to hear your memories Ed...but regarding the diode followed by the electrolytic I've got to say 'here we go again'! Ed (having not seen the letters published on the subject several years ago) doesn't realise what a minor furore developed around this simple (used for training purposes only) circuit. Fortunately Ed remembers

● A Silent Microphone

Don McLean

G3NOF

1920-2002

Distance Record

Successful Two-Way Contact

The success of the contact is thought to have been down to favourable humidity conditions prevailing on the day as the attenuation at these frequencies is significantly affected by water vapour. Previous attempts to achieve a two-way contact over 79.6km during 2001 had been hampered due to the Foot & Mouth restrictions and earlier in 2002 by unfavourable weather conditions. But they eventually did it! Further details can be seen at www.qsl.net/g8bke/index.html



- From left to right G8BKE and G8ACE at the Highclere end of the link.

☐ Interference Traced



Amateur Bands. I shall miss him and our meetings at Longleat every year. He had his own style of 'chasing the DX' and did so with gusto using his extensive beam antennas, enthusiasm and energy. Though small in stature, Don had the drive of a giant...and although in recent years he suffered from protracted and truly debilitating health problems...he always seemed cheerful. His input to *PW's* h.f. pages were always appreciated. Thank you Don, and our sympathies goes to his family and close friends.

G3XFD

Beacon Jammer In Czech Republic

Rob Mannion G3XFD

The Yeovil Amateur Radio Club will be starting an exciting club construction project in November. Read on to find out more.....

The Yeovil Club's construction project will be headed by **Tim Walford G3PCJ** of **Walford Electronics** and is open to other local clubs in the area. The item to be constructed will be a Walford Electronics direct conversion receiver, with an optional matching voice transmitter. As well as learning how to construct the direct conversion receiver, those taking part will also learn about the theory of the rig. Anyone who can't get their rig to work will be guided and helped by Tim. For more information contact:

Derek M1WOB
Tel: (01935) 414452

☐ Presentation Time

Peter Chadwick G3RZP, Past President of the Radio Society of Great Britain, recently presented the first of the Chelmsford Awards.

The Chelmsford Award is open to all Amateurs and short wave listeners of the Chelmsford Amateur Radio Society. For every award issued a donation is made to the Essex Air Ambulance, which is an emergency helicopter completely funded by sponsorship and fund raising events.

Peter Chadwick G3RZP was asked along to the club to present the first Chelmsford Awards to club members **Jim 2E1GUA** and **Martyn M3VAM**.

Further details about the award can be found on the club website

<http://www.g0mwt.org.uk/> and for details on other Chelmsford club activities you should contact the club secretary.

David Bradley M0BQC
Club Secretary

Tel: (01245) 602838

E-mail: cars@g0mwt.org.uk



- Peter Chadwick G3RZP presenting Martyn M3VAM with his award.



- Jim 2E1GUA receives his award from Peter G3RZP

☐ New Product Ranges

Hot off the press and just arrived on the PW Newsdesk is the Maplin Electronics 2002/2003 catalogue and it just keeps getting better!

The 2002/2003 edition of the Maplin Catalogue boasts over 2,300 new products and over 1,400 price reductions. there is

plenty within its pages to tempt all radio enthusiasts. A new feature of this year's Maplin catalogue, now in its 30th year, is the Information Centre, packed with over 50 pages of hints and tips including how to connect your communications equipment.

Browsing through the pages of the catalogue is easy, thanks to the colour coded sections and more experienced electronics enthusiasts will



benefit from the detailed product information.

Ordering is also easy with the Maplin call centre now open 7 days a week, 365 days a year, all orders placed by 1930 hours are despatched the same day!

So why not see for yourself?

To order your copy of the Maplin Electronics 2002/2003 catalogue, which costs £3.99, simply call the mail order hotline on **0870-264 6000** or visit the website at **www.maplin.co.uk**

Several PW readers are looking for help and solutions to problems this month. Can you help them out?

John Storey G8SH (ex G0FZQ) has a low band PYE A200 amplifier which he wants to use on s.s.b. and needs to know how to do this. He is also looking for a wiring diagram and/or mod sheets. Contact John at:
26 Orwell Drive, West Heath, Birmingham B38 8WZ. Tel 0121-475 6793 or E-mail: john.g8sh@virgin.net

Gordon Bussey is looking for the following: **(1)** A 1957 Perdio PR1 transistor radio. This is a pocket portable measuring $3\frac{1}{4} \times 5\frac{3}{4} \times 1$ in and unlike the Perdio PR2 it only covers m.w. **(2)** A 1957 Peto Scott transistor radio, which is a pocket portable measuring $6 \times 3 \times 1\frac{3}{4}$ in, has two knobs at one end and a tuning dial below them. **(3)** A 1957 Cossor transistor, pocket portable radio which measures $6 \times 3\frac{1}{8} \times 1\frac{1}{2}$ in and had a power output of 30mW. If you can help Gordon please contact him direct at **64 Pampisford Road, Purley, Surrey CR8 2NE.**

Can anyone help **Leighton Smart GW0LBI** with a low power modification for his Yaesu FT-990? The rig won't run lower than 10W on all modes and Leighton wants to try and use it for QRP operation. If you know of a mod contact Leighton at **33 Nant Gwyn, Trewlewis, Treharris CF56 6DB** or by E-mail at: **leighton@trelewis28.freemove.co.uk**

Alan Ainslie is busy putting together a history of Eddystone Radio and whilst he has lots of material from the 1950s onwards it's all a bit hazy from the war years and before. Alan would like to hear from anyone who can offer useful information and anecdotes to help him compile the history. If you can offer any information please contact Alan at **The Spinney, Crooksbury Road, Farnham, Surrey, GU10 1QB. Tel: (01252) 782932, FAX: (01252) 783905 or E-mail: alan.ainslie@lineone.net**

The weekend of Friday 20 and Saturday 21st September saw the 31st Leicester Amateur Radio Show & Convention taking place at Castle Donington International Exhibition Centre and to give you an insight into what went on here's a short pictorial tour of the show.



- The PW Publishing Ltd., stand had plenty to offer the bargain hunters including current and back issues of *PW*, *RA* and *SWM*, subscription offers and bargain books throughout the two day show!



- *Practical Wireless* held its 70th Anniversary Celebrations and in honour of this milestone Peter Kirby G0TWW General Manager of the Radio Society of Great Britain toasted the magazine's success. In his short speech Peter commented on the continued support *PW* has shown towards the National Society and Amateur Radio in general over the years and that in his opinion the current Editor Rob Mannion G3XFD really was 'Practical Wireless'.



- Icom UK Ltd., obviously couldn't decide if they were going to spend the weekend at the Amateur Radio Show or the car racing! The stand featured Icom's latest radios and Chris Ridley, John Turner and the team answered all questions and offer advice.



- Bob Heil K9EID from Heil Sound in the USA attended the Leicester Show to demonstrate and talk about his microphones and headsets as part of Waters & Stanton PLC's stand. Bob (left) is pictured here with Jeff Stanton G6XYU.....during one of the quieter moments of the show!



- Yaesu UK Ltd., had everyone talking! Yes this really is their new VX-7R tri-band hand-held submerged in a tank full of water! Using the latest technology and a carefully sealed case the VX-7R can be submerged for up to 30 minutes in up to 1m of water! Look out for a review of this 'water babe' in *PiW* very soon.

- Readers, visitors, dealers and manufacturers all enjoyed a glass of wine or two and some welcome 'nibbles' on the *PW* stand throughout the weekend as part of the birthday celebrations.

- Relative newcomers to the Amateur Radio market bhi Ltd., manufacturer of the NES10-2 noise eliminating speaker enjoyed a successful show, selling out of their speakers on the first day and having to have more delivered by motorcycle courier!



- The flea market was the place for unusual bargains and in total contrast the Radio Communications Agency had a (very) limited supply of state- of-the-art pens on offer.

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

CORNWALL

Poldhu ARC

Contact: Keith GOWYS
Tel: (01326) 574441

Website: www.milliononline.com

Members of the Poldhu Amateur Radio Club meet in The Marconi Centre, Poldhu Cove, Poldhu, Cornwall on Tuesdays and Fridays at 1900hours. The club is also open during daytime depending on the time of year, please see Website for details (follow the links from Village Notice Board). Visiting Amateurs are welcome to operate **GB2GM**, the club's permanent Special Event Callsign from this historic site but they will need to see your Validation Document.

KENT

Maidstone Amateur Radio Club

Contact: Andy Holbrook M0CST
Tel: (01622) 661035

E-mail: andy.holbrook@btopenworld.com

Meetings of the Maidstone club are held at the former YMCA building, off Cripple Street, Maidstone, Kent, every Friday at 1930hours. Forthcoming meetings include: **Nov 1st**: Junk Sale; **8th**: RAE Reactance & Impedance. In shack - h.f. stations operating; **15th**: Lecture - Mini Antennas; **22nd**: RAE Resonance. In shack RTTY & PSK31 session using MixW and **29th**: Quiz night - other clubs and non members welcome.

NORTHERN IRELAND

Bangor and District ARS

Contact: Mike GI4XSF

Tel: 028-4277 2383

Website: <http://welcome.to/bdars>

The Bangor and District Amateur Radio Society meet on the 1st Wednesday of every month in 'The Stables', Groomsport at 2000hrs. On Wednesday 6 November 2002 the club are holding our annual Surplus Sale. This excellent event is always a popular way to make some space in your shack. There will be a small admission charge, but there is no charge for tables. The sale will be held at the Crawfordsburn Country Club - **not the usual venue**. Visitors and new members are (as always) most welcome.

SOUTH YORKSHIRE

Maltby & District ARS

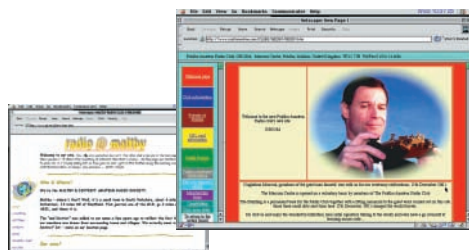
Contact: Keith G1POW

Tel: (01709) 798098

E-mail: g7skm@qsl.net

Website: www.qsl.net/g7skm

Maltby & District Amateur Radio Society meet on Friday evening, from 1930 to 2130hours at the Centenary Hall, Clifford Road, Hellaby, Rotherham (just off the M18, Junction 1). The club's first Foundation Course has just been completed, and further courses will be run as required. We are also able to offer Morse assessment facilities for existing B licencees wishing to take out an M3 callsign. Both facilities are open to non-members. The club now have antennas installed for h.f., 50, 144 and 430MHz, so the club station, **G4SKM/G7SKM** is able to get on air most weeks. Visitors and prospective members are always welcome at any of the meetings.



Keep those details coming in! ●


www.amateurantennas.com

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

LOG PERIODIC

MLP32 TX & RX 100-1300MHz one feed, S.W.R. 2:1 and below over whole frequency range professional quality (length 1420mm).....**£99⁹⁵**
MLP62 same spec as MLP32 but with increased freq. range 50-1300 Length 2000mm.....**£169⁹⁵**

MOBILE HF WHIPS (with 3/8 base fitting)

AMPRO 6 mt......**£16⁹⁵**
 (Length 4.6' approx)
AMPRO 10 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 12 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 15 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 17 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 20 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 30 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 40 mt......**£16⁹⁵**
 (Length 7' approx)
AMPRO 80 mt......**£19⁹⁵**
 (Length 7' approx)
AMPRO 160 mt......**£49⁹⁵**
 (Length 7' approx)
AMPRO MB5 Multi band 10/15/20/40/80 can use 4 Bands at one time (Length 100").....**£69⁹⁵**

VHF/UHF MOBILE ANTENNAS

MICRO MAG 2 Metre 70 cms Super Strong 1" Mag Mount (Length 22").....**£14⁹⁵**
MR700 2m/70cms, 1/4 wave & 5/8, Gain 2m 0dB/3.0dB 70cms Length 20" 3/8 Fitting.....**£7⁹⁵**
 SO239 Fitting.....**£9⁹⁵**
MR 777 2 Metre 70 cms 2.8 & 4.8 dBd Gain (5/8 & 2x5/8 wave) (Length 60") (3/8 fitting).....**£16⁹⁵**
 (SO239 fitting).....**£18⁹⁵**
MRQ525 2m/70cms, 1/4 wave & 5/8, Gain 2m 0.5dB/3.2dB 70cms Length 17".....**£19⁹⁵**
 SO239 fitting commercial quality.....**£19⁹⁵**
MRQ500 2m/70cms, 1/2 wave & 2x5/8, Gain 2m 3.2dB/5.8dB 70cms Length 38" SO239 fitting commercial quality.....**£24⁹⁵**
MRQ750 2m/70cms, 6/8 wave & 3x5/8, Gain 2m 5.5dB/8.0dB 70cms Length 60" SO239 fitting commercial quality.....**£39⁹⁵**
MRQ800 6/2/70cms 1/4 6/8 & 3 x 5/8, Gain 6m3.0dB/2m 5.0dB/70 7.5dB Length 60" SO239 fitting commercial quality.....**£39⁹⁵**

SINGLE BAND MOBILE ANTENNAS

MR 214 2 Metre 1/4 wave (3/8 fitting).....**£3⁹⁵**
 (SO239 fitting).....**£5⁰⁰**
MR260S 2 Metre 1/2 wave 2.5 dBd gain Length 43" SO239 fitting.....**£24⁹⁵**
MR 258 2 Metre 5/8 wave 3.2 dBd Gain (3/8 fitting) (Length 58").....**£12⁹⁵**
MR 650 2 Metre 5/8 wave open coil (3.2 dBd Gain) (Length 52") (3/8 fitting).....**£9⁹⁵**
MR268S 2 Metre 5/8 wave 3.5dBd gain Length 51" SO239 fitting.....**£19⁹⁵**
MR280S 2 Metre 6/8 wave 5.8dBd gain Length 58" SO239 fitting.....**£29⁹⁵**
MR 614 6 Metre loaded 1/4 wave (Length 56") (3/8 fitting).....**£13⁹⁵**
MR 644 6 Metre loaded 1/4 wave (Length 40") (3/8 fitting).....**£12⁹⁵**
 (SO239 fitting).....**£15⁹⁵**

SINGLE BAND END FED BASE ANTENNAS

70 cms 1/2 wave, length 26", gain 3.5dB.....**£24⁹⁵**
2 metre 1/2 wave, length 52", gain 3.5dB.....**£24⁹⁵**
4 metre 1/2 wave, length 80", gain 3.5dB.....**£34⁹⁵**
6 metre 1/2 wave, length 120", gain 3.5dB.....**£44⁹⁵**
6 metre 3/4 wave, length 150", gain 5.5dB.....**£49⁹⁵**
 (All above end fed antennas are without ground planes)

PROFESSIONAL MOBILE GLASS MOUNT ANTENNAS

GF151 2mtr (length 20").....**£39⁹⁵**
 GF401 70cms (length 11").....**£39⁹⁵**
 GF233 23cms (length 9").....**£44⁹⁵**
 GF270 Dual band 2/70 (length 31").....**£59⁹⁵**

VHF/UHF VERTICAL CO-LINEAR FIBREGLASS BASE ANTENNA

SQ & BM Range VX 6 Co-linear- Specially Designed Tubular Vertical Coils individually tuned to within 0.05pf (maximum power 100 watts)
BM100 Dual-Bander.....**£29⁹⁵**
 (2 mts 3dBd) (70cms 6dBd) (Length 39")
SQBM100 Dual-Bander.....**£39⁹⁵**
 (2 mts 3dBd) (70cms 6dBd) (Length 39")
BM200 Dual-Bander.....**£39⁹⁵**
 (2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")
SQBM200 Dual-Bander.....**£49⁹⁵**
 (2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")
SQBM500 Dual - Bander Super Gainer.....**£59⁹⁵**
 (2 mts 6.8dBd) (70cms 9.2dBd) (Length 100")
BM1000 Tri-Bander.....**£59⁹⁵**
 (2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")
SQBM1000 Tri-Bander.....**£69⁹⁵**
 (2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")
SQBM 100/200/500/1000 are Polyc coated Fibre Glass with Chrome & Stainless Steel Fittings. 2 years warranty.

2 METRE VERTICAL CO-LINEAR BASE ANTENNA

BM60 5/8 Wave, Length 62", 5.5dBd Gain.....**£49⁹⁵**
BM65 2 X 5/8 Wave, Length 100", 8.0 dBd Gain.....**£69⁹⁵**

70CMS VERTICAL CO-LINEAR BASE ANTENNAS

BM33 2 X 5/8 wave Length 39" 7.0 dBd Gain.....**£34⁹⁵**
BM45 3 X 5/8 wave Length 62" 8.5 dBd Gain.....**£49⁹⁵**
BM55 4 X 5/8 wave Length 100" 10 dBd Gain.....**£69⁹⁵**

MINI HF DIPOLES (length 11' approx)

MD020 20mt version approx only 11ft.....**£39⁹⁵**
MD040 40mt version approx only 11ft.....**£44⁹⁵**
MD080 80mt version approx only 11ft.....**£49⁹⁵**

ROTATIVE HF DIPOLE

RDP-3B 10/15/20mtrs length 7.40m.....**£99⁹⁵**
RDP-40M 40mtrs length 11.20m.....**£139⁹⁵**
RDP-6B 10/12/15/17/20/30mtrs boom length 1.00m. Length 10.0m.....**£199⁹⁵**

HF DELTA LOOPS

DLHF-100 10/15/20mtrs (12/17-30m) Boom length 4.2m. Max height 6.8m. Weight 35kg. Gain 10dB.....**£399⁹⁵**

HAND-HELD ANTENNAS

MRW-300 Rubber Duck TX 2 Metre & 70 cms RX 25-1800 Mhz Length 21cm BNC fitting.....**£12⁹⁵**
MRW-310 Rubber DuckTX 2 Metre & 70 cms Super Gainer RX 25- 1800 Length 40cm BNC fitting.....**£14⁹⁵**
MRW-232 Mini Miracle TX 2 Metre 70 & 23 cms RX 25-1800 Mhz Length just 4.5cm BNC fitting.....**£19⁹⁵**
MRW-250 Telescopic TX 2 Metre & 70 cms RX 25-1800 Mhz Length 14-41cm BNC fitting.....**£16⁹⁵**
MRW-200 Flexi TX 2 Metre & 70cms RX 25-1800 Mhz Length 21cm SMA fitting.....**£19⁹⁵**
MRW-210 Flexi TX 2 Metre & 70cms Super Gainer RX 25-1800 Mhz Length 37cm SMA fitting.....**£22⁹⁵**

All of the above are suitable to any transceiver or scanner. Please add £2.00 p+p for H/held antennas.

HB9CV 2 ELEMENT BEAM 3.5 dBd

70cms (Boom 12").....**£15⁹⁵**
2 metre (Boom 20").....**£19⁹⁵**
4 metre (Boom 23").....**£27⁹⁵**
6 metre (Boom 33").....**£34⁹⁵**
10 metre (Boom 52").....**£64⁹⁵**
6/2/70 Triband (Boom 45").....**£64⁹⁵**

CROSSED YAGI BEAMS All fittings Stainless Steel

2 metre 5 Element (Boom 64") (Gain 7.5dBd).....**£74⁹⁵**
2 metre 8 Element (Boom 126") (Gain 11.5dBd).....**£94⁹⁵**
70 cms 13 Element (Boom 83") (Gain 12.5dBd).....**£74⁹⁵**

YAGI BEAMS All fittings Stainless Steel

2 metre 4 Element (Boom 48") (Gain 7dBd).....**£24⁹⁵**
2 metre 5 Element (Boom 63") (Gain 10dBd).....**£44⁹⁵**
2 metre 8 Element (Boom 125") (Gain 12dBd).....**£59⁹⁵**
2 metre 11 Element (Boom 185") (Gain 13dBd).....**£89⁹⁵**
4 metre 3 Element (Boom 45") (Gain 8dBd).....**£49⁹⁵**
4 metre 5 Element (Boom 128") (Gain 10dBd).....**£59⁹⁵**
6 metre 3 Element (Boom 72") (Gain 7.5dBd).....**£54⁹⁵**
6 metre 5 Element (Boom 142") (Gain 9.5dBd).....**£74⁹⁵**
70 cms 13 Element (Boom 76") (Gain 12.5dBd).....**£49⁹⁵**

ZL SPECIAL YAGI BEAMS ALL FITTINGS STAINLESS STEEL

2 metre 5 Element (Boom 38") (Gain 9.5dBd).....**£39⁹⁵**
2 metre 7 Element (Boom 60") (Gain 12dBd).....**£49⁹⁵**
2 metre 12 Element (Boom 126") (Gain 14dBd).....**£74⁹⁵**
70 cms 7 Element (Boom 28") (Gain 11.5dBd).....**£34⁹⁵**
70 cms 12 Element (Boom 48") (Gain 14dBd).....**£49⁹⁵**

MULTI PURPOSE ANTENNAS

MSS-1 Freq RX 25-2000 Mhz, TX 2 mtr 2.5 dBd Gain, TX 70cms 4.0 dBd Gain, Length 39".....**£39⁹⁵**
MSS-2 Freq RX 25-2000 Mhz, TX 2 mtr 4.0 dBd Gain, TX 70cms 6.0 dBd Gain, Length 62".....**£49⁹⁵**
IVX-2000 Freq RX 25-2000 Mhz, TX 6 mtr 2.0 dBd Gain, 2 mtr 4dBd Gain, 70cms 6dBd Gain, Length 100".....**£89⁹⁵**
 Above antennas are suitable for transceivers only

HALO LOOPS

2 metre (size 12" approx).....**£12⁹⁵**
4 metre (size 20" approx).....**£18⁹⁵**
6 metre (size 30" approx).....**£24⁹⁵**

G5RV Wire Antenna (10-40/80 metre)

All fittings Stainless Steel

	FULL	HALF
Standard	£22 ⁹⁵	£19 ⁹⁵
Hard Drawn	£24 ⁹⁵	£22 ⁹⁵
Flex Weave	£32 ⁹⁵	£27 ⁹⁵
PVC Coated		
Flex Weave	£37 ⁹⁵	£32 ⁹⁵
Deluxe 450 ohm PVC Flexweave	£49 ⁹⁵	£44 ⁹⁵
TS1 Stainless Steel Tension Springs (pair) for G5RV		£19 ⁹⁵



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Convert your half size g5rv into a full size with just 8ft either side.
Ideal for the small garden.....**£19⁹⁵**

SHORT WAVE RECEIVING ANTENNA

MD37 SKY WIRE (Receives 0-40Mhz).....**£39⁹⁵**
Complete with 25 mts of enamelled wire, insulator and choke
Balun Matches any long wire to 50 Ohms. All mode no A.T.U.
required. 2 "S" points greater than other Baluns.

MWA-H.F. (Receives 0-30Mhz).....**£29⁹⁵**
Adjustable to any length up to 60 metres. Comes complete with 50
mts of enamelled wire, guy rope, dog bones & connecting box.

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6" Stand Off Bracket (complete with U Bolts).....**£6⁰⁰**
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12" T & K Bracket (complete with U Bolts).....**£11⁹⁵**
18" T & K Bracket (complete with U Bolts).....**£17⁹⁵**
24" T & K Bracket (complete with U Bolts).....**£19⁹⁵**
36" T & K Bracket (complete with U Bolts).....**£29⁹⁵**
Chimney lashing kit.....**£24⁹⁵**
Double chimney lashing kit.....**£12⁹⁵**
3-Way Pole Spider for Guy Rope/ wire.....**£3⁹⁵**
4-Way Pole Spider for Guy Rope/ wire.....**£4⁹⁵**
11/2" Mast Sleeve/Joiner.....**£8⁹⁵**
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Solid copper earth rod 4'.....**£9⁹⁵**
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Di-pole centre (for wire).....**£4⁹⁵**
Di-pole centre (for aluminium rod).....**£4⁹⁵**
Dog bone insulator.....**£1⁰⁰**
Dog bone insulator heavy duty.....**£2⁰⁰**

POLES H/DUTY (SWAGED)

Heavy Duty Ali (1.2mm wall)
1 1/4" single ali pole.....**£7⁰⁰**
1 1/4" set of four.....**£24⁹⁵**
1 1/2" single ali pole.....**£10⁰⁰**
1 1/2" set of four.....**£34⁹⁵**
2" single ali pole.....**£15⁰⁰**
2" set of four.....**£49⁹⁵**

REINFORCED HARDENED FIBRE GLASS MASTS (GRP)

112" Diameter 2 metres long.....**£16⁰⁰**
134" Diameter 2 metres long.....**£20⁰⁰**
2" Diameter 2 metres long.....**£24⁰⁰**

GUY ROPE 30 METRES

MGR-3 3mm (maximum load 15 kgs).....**£6⁹⁵**
MGR-4 4mm (maximum load 50 kgs).....**£14⁹⁵**
MGR-6 6mm (maximum load 140 kgs).....**£29⁹⁵**

COAX

RG58 best quality standard per mt.....**35p**
RG58 best quality military spec per mt.....**60p**
Mini 8 best quality military spec best quality per mt.....**70p**
RG213 best quality military spec per mt.....**85p**
H200 best quality military coax cable per mt.....**£1¹⁰**
PHONE FOR 100 METRE DISCOUNT PRICE.

CONNECTORS & ADAPTERS

PL259/9.....**£0⁷⁵ each**
PL259/6.....**£0⁷⁵ each**
PL259/7 for mini 8.....**£1⁰⁰ each**
BNC (Screw Type).....**£1⁰⁰ each**
BNC (Solder Type).....**£1⁰⁰ each**
BNC for 9mm (RG213).....**£2⁵⁰**
N TYPE for RG58.....**£2⁵⁰ each**
N TYPE for RG213.....**£2⁵⁰ each**
SO239 to BNC.....**£1⁵⁰ each**
PL259 to BNC.....**£2⁵⁰ each**
N TYPE to SO239.....**£3⁵⁰ each**
BNC to N-type.....**£2⁵⁰**
SMA to BNC.....**£3⁹⁵**
SMA to SO239.....**£3⁹⁵**
SMA to PL259.....**£3⁹⁵**
SMA to BNC (male).....**£3⁹⁵**
SO239 chassis socket round.....**£1⁰⁰**
N-type chassis socket round.....**£2⁵⁰**
SO239 double female.....**£1⁰⁰**
N-type double female.....**£2⁵⁰**
SO239 double female.....**£1⁰⁰**

YAGI COUPLERS

YC-6m For 2 x 50MHz Yagi.....**£29⁹⁵**
YC-2m For 2 x 144MHz Yagi.....**£24⁹⁵**
YC-7m For 2 x 70cm Yagi.....**£19⁹⁵**

10/11 METRE VERTICALS

G.A.P.12 1/2 wave aluminium (length 18' approx).....**£19⁹⁵**
G.A.P.58 5/8 wave aluminium (length 21' approx).....**£24⁹⁵**

BALUNS

MB-1 1:1 Balun 400 watts power.....**£24⁹⁵**
MB-4 4:1 Balun 400 watts power.....**£24⁹⁵**
MB-6 6:1 Balun 400 watts power.....**£24⁹⁵**
MB-1X 1:1 Balun 1000 watts power.....**£29⁹⁵**
MB-4X 4:1 Balun 1000 watts power.....**£29⁹⁵**
MB-6X 6:1 Balun 1000 watts power.....**£29⁹⁵**
MB-Y2 Yagi Balun 1.5 to 50MHz 1kW.....**£24⁹⁵**

RIBBON LADDER USA IMPORTED

300Ω 20 metre pack.....**£15⁰⁰**
450Ω 20 metre pack.....**£15⁰⁰**
(Other lengths available please phone for details)

TRI/DUPLEXER & ANTENNA SWITCHES

MD-24 (2 Way Internal Duplexer) (1.3-35 Mhz 500w) (50-225 Mhz 300w) (350-540 Mhz 300w) insert loss 0.2dB SO239 fittings.....**£22⁹⁵**
MD-24N same spec as MD-24 "N-type" fitting.....**£24⁹⁵**
MD-25 (2 Way external/Internal Duplexer) (1.3-35 Mhz 500w) (50-225 Mhz 300w) (350-540 Mhz 300w) insert loss 0.2dB.....**£24⁹⁵**
MX2000 Tri-plexer 1.6-60Mhz (800w) 110-170Mhz (800w) 300-950Mhz (500w) SO239 fitting.....**£49⁹⁵**
CS201-N same spec as CS201 "N-type" fitting.....**£28⁹⁵**
CS401 4-way antenna switch.....**£29⁹⁵**

ANTENNA ROTATORS

AR-31050 Very light duty TV/UHF.....**£24⁹⁵**
AR-300XL Light duty UHF/VHF.....**£49⁹⁵**
YS-130 Medium duty VHF.....**£79⁹⁵**
RC5-1 Heavy duty HF.....**£349⁹⁵**
RG5-3 Heavy Duty HF inc Pre Set Control Box.....**£449⁹⁵**
AR26 Alignment Bearing for the AR300XL.....**£18⁹⁵**
RC26 Alignment Bearing for RC5-1/3.....**£49⁹⁵**

ROTATOR CABLE

3 Core.....**0.45p** per metre
7 Core.....**1⁰⁰** per metre
(Please phone for 100 metre discount price)

MOUNTS

Turbo mag mount 7" 4mtrs coax/PL259 3/8 or SO239.....**£14⁹⁵**
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SO259 fitting.....**£12⁹⁵**
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20 metre trap 400W.....**£23⁹⁵**
40 metre trap 400W.....**£23⁹⁵**
80 metre trap 400W.....**£23⁹⁵**

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BAHF-4 FREQ:10-15-20-40 Mtrs LENGTH:
1.70m HEIGHT: 1.20m POWER:
300 Watts.....**£129⁹⁵**

**HF YAGI**

HBV-2 2 BAND 2 ELEMENT TRAPPED BEAM
FREQ:20-40 Mtrs GAIN:4dBd BOOM:5.00m
LONGEST ELEMENT:13.00m POWER:1600
Watts.....**£329⁹⁵**



ADEX-3300 3 BAND 3 ELEMENT TRAPPED BEAM
FREQ:10-15-20 Mtrs GAIN:8 dBd
BOOM:4.42m LONGEST ELE:8.46m
POWER:2000 Watts.....**£269⁹⁵**



ADEX-6400 6 BAND 4 ELEMENT TRAPPED BEAM
FREQ:10-12-15-17-20-30 Mtrs GAIN:7.5 dBd BOOM:4.27m LONGEST ELE:10.00m
POWER:2000 Watts.....**£499⁹⁵**
40 Mtr RADIAL KIT FOR ABOVE.....**£99⁰⁰**

**HF VERTICALS**

VR3000 3 BAND VERTICAL
FREQ: 10-15-20 Mtrs
GAIN: 3.8 dBd HEIGHT:3.80m POWER:2000 Watts (without radials)
POWER: 500 Watts (with optional radials).....**£89⁹⁵**
OPTIONAL 10-15-20mtr radial kit.....**£34⁹⁵**



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.....**£169⁹⁵**



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).....**£99⁹⁵**
OPTIONAL 10-15-20mtr radial kit.....**£34⁹⁵**
OPTIONAL 40mtr radial kit.....**£12⁹⁵**



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).....**£139⁹⁵**
OPTIONAL 10-15-20mtr radial kit.....**£34⁹⁵**
OPTIONAL 40mtr radial kit.....**£12⁹⁵**
OPTIONAL 80mtr radial kit.....**£14⁹⁵**



EVX6000 6 BAND VERTICAL FREQ:10-15-20-30-40-80 Mtrs HEIGHT:5.00m RADIAL LENGTH:1.70m(included) POWER:800 Watts.....**£249⁹⁵**



EVX8000 8 BAND VERTICAL FREQ:10-12-15-17-20-30-40 Mtrs (80m optional) HEIGHT: 4.90m RADIAL LENGTH: 1.80m (included) POWER: 2000 Watts.....**£269⁹⁵**
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MTD-2 (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts.....**£44⁹⁵**
MTD-3 (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts.....**£79⁹⁵**
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts.....**£44⁹⁵**
MTD-5 (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER:1000 Watts.....**£69⁹⁵**
(MTD-5 is a crossed di-pole with 4 legs)

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TMA1 2" to 1 1/4" heavy duty aluminium telescopic mast set, approx 20ft when erect, 6ft collapsed.....**£99⁹⁵**
TMAF 2" to 1 1/4" heavy duty fibreglass telescopic mast set, approx 20ft when erect, 6ft collapsed.....**£99⁹⁵**

Gordon King
G4VFF
continues his
series with a
look at the one
valve
transistor
transmitter
and power
amplifier.

The One Transistor Transmitter and PA

In the last Looking At I explored the single-valve transmitter. This month it's the turn of the equivalent single-transistor transmitter, along with an associated power amplifier. It's perfectly feasible to use a self-oscillating transistor as a Morse transmitter, and hosts of low-power (QRP) enthusiasts the world over do just that, with the transmitter (TX) built into a housing not much bigger than a matchbox!

While a single valve can work adequately on air, a single transistor is somewhat less efficient and marginally less accommodating, and unless lightly loaded to the antenna there is a tendency for a slight change in frequency to occur each time the TX is keyed, which manifests as 'chirpy' c.w. This problem is resolved by locating a power amplifier (p.a.) stage after the oscillator, which neatly 'buffers' the oscillator from the antenna, while also lifting the power and enhancing efficiency.

Pierce Oscillator

The circuit of a simple single-transistor transmitter based on the well-known Pierce oscillator is shown in Fig. 1. A slice of quartz crystal establishes and controls the transmission

frequency, while the necessary excitation for oscillation is instituted by the positive feedback path across the crystal from the collector back to the base of the transistor.

The frequency of oscillation as generated is essentially a function of the thickness of the quartz, and to a much lesser extent on associated

circuit capacitances. I recall grinding quartz to oscillate (vibrate) to very

continued on page 22

Warning!

I was pleased to see that the Editor **Rob G3XFD** attached a warning note to my last Looking At dealing with the 807 Single Valve Transmitter. In the active days of the 807 there was more unoccupied spectrum space so spurious emissions and high-level harmonics could be considered somewhat less important than they are today. Nowadays it's essential that every effort be made to ensure that emissions are kept as clean as possible when endeavouring to reproduce early designs!

It's also very important to keep in mind the potential hazards of the high voltages required by thermionic valves. These voltages can be lethal. For example, the full potential of the high voltage power supply can exist across the Morse key (terminals and contacts) in the 'key up' position. This applies to some early designs such as that of the 807 transmitter I described in the September 2002 issue.

I was surprised to learn that there are readers of this column who are being encouraged to try out the early circuits. Despite the column sometimes focusing on the historical aspects of Amateur Radio, as distinct from construction, this cannot be a bad thing; **but please take very special care** over high voltages and precautions against any out-of-band radiation which, of course, is not only against the law but also against the spirit of Amateur Radio!

Gordon King G4VFF

WS1963

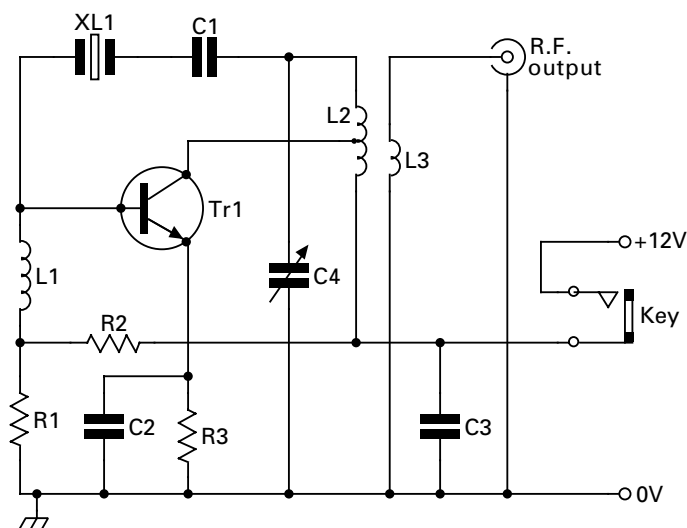


Fig. 1 Circuit of single-transistor crystal-controlled c.w. transmitter using 2N3053 (or similar) npn transistor. R1 1.5kΩ 1W. R2 5.6kΩ 0.5W. R3 100Ω 1W. C1, C2 and C3 100nF. VC1 100pF variable air-spaced. L1 1mH r.f. choke. The L2 tank inductor wound to resonate at the required frequency in conjunction with VC1. L3 output inductor coupled to L2 to provide suitable impedance match. Note: heat sinking may be required for the transistor.

WS1964

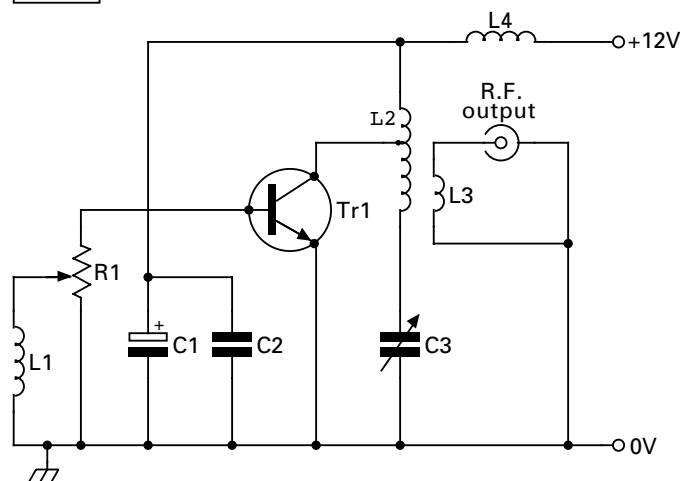


Fig. 2 Circuit of single-transistor QRP p.a./buffer stage using 2N5590 (or similar) npn transistor that could be driven from the output of Fig. 1 oscillator. VR1 500Ω potentiometer 1W. C1 100m F 25V. C2 1nF non-inductive. Only the secondary winding of the input (L1) is shown here for simplicity, L1 coupling winding on oscillator tank inductor. VC1 100pF air-spaced. L2 PA tank inductor wound to resonate at the required frequency in conjunction with VC1. L4 1mH r.f. choke. Note: heat-sinking may be required for the transistor.

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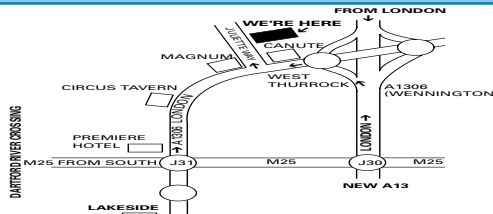
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accurate frequencies during my stint at the experimental section in SEAC during the Second World War, aided by a primitive (by today's standards) analogue frequency and crystal activity meter, which we designed specially for the job. Incidentally, around and about the local area of our lab quite large chunks of beautifully formed quartz could literally be picked out of the ground!

Keying of the oscillator simply involves interrupting the transistor supply voltage by the key action. An alternative approach would be to include the key in series with the emitter circuit.

The required degree of feedback is established by the tapping on the tank inductor L2, which is resonated to the required frequency by VC1. Coupling inductor L3 is wound to present an output impedance suitable for connecting to the centre of a resonant dipole (approximately 73Ω).

Component L1 is an r.f. choke which, along with R1, R2 and C3, blocks any r.f. from the supply and keying circuit. Emitter resistor R3 and associated capacitor C2 help to prevent the circuit from going into parasitic-oscillation at a frequency removed from that of the crystal. The component values are approximately appropriate to a low-power crystal oscillator as shown in the caption.

Elementary PA

Now, while the simple TX circuit in Fig.1 might be capable of yielding up to a watt or so of r.f., attempts to push-up the power could result in overheating of the crystal and its possible fracture, as well as frequency pulling and hence poor c.w. note as already mentioned. These problems can be resolved by the addition of a 'buffer' or class C power amplifier stage, as shown in Fig. 2.

In Fig. 2, the *npn* transistor receives r.f. signal from the

oscillator at its base by way of coupling coil L1 (only the secondary is shown in the circuit) and level control potentiometer VR1. The collector of the transistor is loaded into the tank circuit comprising L2 and VC2, which is resonated to the output frequency of the crystal oscillator.

The amplified signal is then coupled to the antenna via inductor L3, where the turns ratio L2/L3 is arranged to provide a match to the feeder of the antenna. Decoupling of the power supply rail is by the electrolytic capacitor C1, with the non-electrolytic C2 looking after the r.f. aspect.

Additional isolation of r.f. from the supply is provided by the choke L4. Again, component values approximately appropriate to QRP operation are given in the caption.

Harmonic Selection

It's perfectly possible for the tank tuning of the buffer or p.a. stage

to select a harmonic of the oscillator to provide an output in a harmonically related band. For example, the second-harmonic of the 7MHz (40m) band would give an output in the 14MHz (20m) band. (I'll be looking at harmonic working in greater detail later).

In the next Looking At I'm proposing to investigate antenna couplings and to see how radiation of unwanted harmonics can be minimised. To conclude this month, though, I would like say how interesting low-power operation can be. It provides a new dimension to Amateur Radio.

Even with an output of a watt or two Morse communication over remarkably long distances has been achieved for next to no outlay. Indeed, even with the roof-space antennas at my Brixham QTH I have worked a goodly slice of the planet with no more than 5W transmitter output!

So, until next time, happy QRP and spurious-free transmitting!

PW

airband basics backchat on the road satellite monitoring amateur airwaves software spot world of cb scanners

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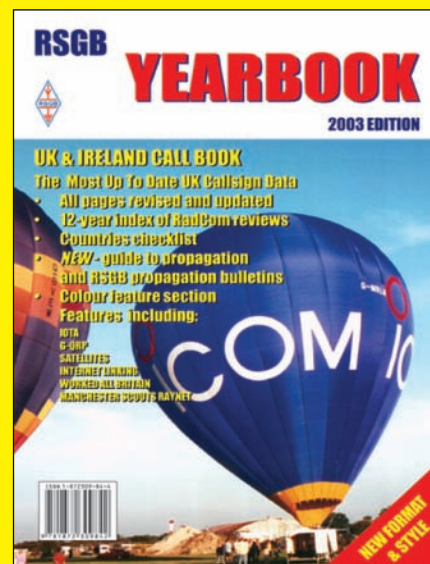
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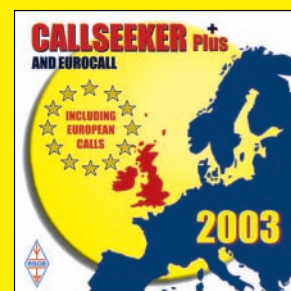
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Radio Basics

This month, in the first of a new series of projects for the coming 'Winter Constructional Season' Rob Mannion G3XFD describes an active antenna tuning/matching unit. It's very easy to build...it's ideal for simpler receivers.

During my early short wave listening (s.w.l.) days in the mid 1950s I only had access to simple receivers. Despite this I thoroughly enjoyed the hobby with the help of simple passive (i.e. no active amplification or modification to the incoming signal) and active (using either a valve or transistor amplifier) pre-selectors or pre-amplifiers.

As I invariably used a simple long wire antenna - anything that my parents would allow in those days - matching the input impedance of the crude system to the receiver to get the best results was important. As a 12 year-old schoolboy I didn't fully understand what was required for efficient matching...but I did know that my receivers

even without an amplifier - my simple antenna tuning units really did help when I was allowed on my father's prized Telefunken (German) table top receiver which had many short wave bands, bandspread* (see information panel) and beautiful loudspeakers which provided rich mellow tones from broadcasting (and Amateur) transmitters from around the world. Armchair travel at its best!

So, this time I thought I'd share the concept of the simple a.t.u./matching unit and encourage you to have a go yourself. If you do make one...you won't be disappointed!

Simple Tuner-Matcher

The circuit, Fig. 1, shows the lay-out of a very simple Pi (π)

marked C1. Also in this circuit there's a tapped inductor with a single-pole six-way switch enabling the choice of the best tap point to be selected by the user. Finally, in the input circuit there's capacitor C2.

Incidentally, this type of tuning/matching circuitry was extremely popular in the days of valved transmitters and power amplifier systems. In fact, they're capable of matching a wide range of impedances very effectively indeed.

So why are the Pi tank (as they're often called) circuits not so common nowadays? Well the answer is quite straightforward - modern solid state p.a. stages are specifically designed to match into a 50 Ω load. There's usually no (user) adjustment provided. Instead, unless an

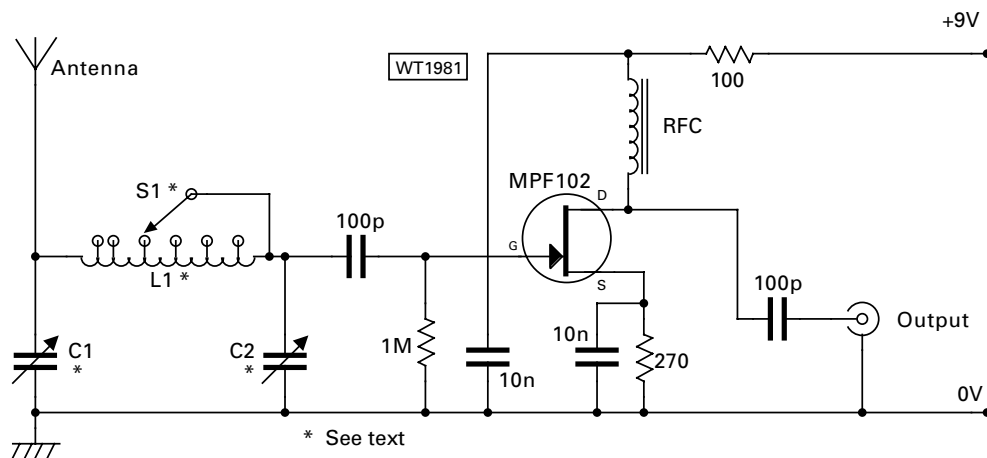


Fig. 1: Circuit of the simple Pi (π) configuration antenna tuning/matching system with simple amplifier. Although the amplification factor of the f.e.t. amplifier is low it assists the receiver - especially if it's a simpler type (see text).

would benefit from a little amplification and tuning the antennas as closely as possible to the frequency in use.

Copying some of the designs from PW and the occasional *Short Wave Magazine* that came my way, I carried out very many experiments to improve the operation of my simple sets. Additionally, along with the improvements on home-brewed receivers, I was also pleased to discover that

configuration antennas matcher/tuning unit. For the purposes of the article I'm not providing an explanation of how it works. Instead I'm suggesting that just build it - learn from using it and then read up on the subject. (Recommended reading: *The ARRL Antenna Book*).

Looking at the circuit from the radio frequency (r.f.) input side - i.e. from the antenna input) you'll see the capacitor

automatic antenna tuner unit (a.a.t.u.) is fitted, a separate a.t.u. is employed to match the antenna to the unit. Before - using the Pi tank system - we matched the transmitter to the antenna and very often it was without the benefit of any voltage standing wave ratio (v.s.w.r. - often shortened to s.w.r.) indications. In the old days my tuning indicator was often a little neon which illuminated with 'maximum

Free Printed Circuit Boards

Internal 'house moving' here in the Editorial offices recently led to the discovery of 16 PW 'Cadet', medium and short wave receiver printed circuit boards (**boards only, not complete kits**). **Tim Walford G3PCJ** (the designer) has now kindly supplied the comprehensive, circuit diagram, instructions and components lists. Photocopies will be provided - **although you will have to obtain the (standard) components yourself from other sources (and not from Tim!)**. Please send an A5 sized stiff-backed SAE 75p stamped envelope addressed to me, also marked 'Cadet Board Offer'. I'll then send them out on a 'First come...first served' basis! **Again...good luck!**

We've Got A Wurzel Winner!

Thank you all for the entries for the 'Win A Wurzel' competition from the September issue. Several readers got very close (good tries **G4XPE** and **M1FFI**!) indeed, but the nearest (he was only 8.5 minutes out from my actual construction time of **3 hours 53 minutes**) was **Leonard Symons** from Plymouth with an excellent estimation of **4 hours 1.5 minutes** (On the telephone when I called to tell him he's won he said the estimation came from his own construction experiences). So, well done Leonard...your prize is on its way to you.

smoke' going up the antenna...hopefully!

Winding The Coil

Many RB readers fight shy of winding their own coils - **despite my encouragement!** However, L1 on the Pi unit is simplicity itself. In fact I actively urge you to wind it yourself so you'll get the 'feel of' a fairly large inductor.

The former can be fabricated from a length of broomstick, attached to the wooden base-board forming the base of the unit. **Yes, of course I realise** that L1 is actually shown mounted horizontally in Fig. 1, but in reality it doesn't matter - you can mount it standing vertically, with one end cemented into place using carpenter's adhesive. Next, wind 80 turns or so of 20s.w.g. enamelled wire to form the inductor, making the tappings every 14 turns or so.

Positioning of the individual taps is not critical. At the point selected for the tap, just twist out a pigtail of wire - leaving enough to solder onto - before carrying on winding the inductor. Eventually you can scrape off the enamel to provide connections to the six different connections on the switch, S1.

Incidentally, it's best to leave the control shaft of S1 as

long as possible - mounting the control knob on the end, so as to keep your hand away from the switch as much as possible. (You could slightly de-tune the unit otherwise).

Variable Capacitors

The variable capacitors, C1 and 2 do not have their values marked within the circuit diagram because their actual value depends on what's to hand! In practice C1's maximum capacity can be 1000pF...conveniently made up from a two-gang 500pF unit with the fixed vanes connected in parallel (just connect the two sets of vanes together using the solder tags). The frame or chassis provide the earth connection.

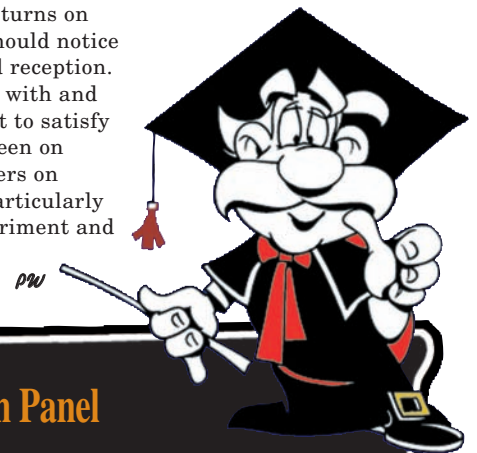
The second, C2, can be a single 500pF type. Incidentally, there's nothing to stop you taking advantage of the various surplus variable capacitors with value around the (maximum) of 360pF. Again, these can be used with the two separate sections wired in parallel. Old broadcast receiver variable capacitors are ideal for this job...but if you don't have any to hand **John Birkett** (J. Birkett) of **25 the Strait, Lincoln LN2 1JF. Tel: (01522) 520767** has a good selection available for reasonable prices.

In Use

Making up the rest of the circuit is simple, bearing in mind it's the standard simple r.f. amplifier we've used many times before in RB projects. When you've checked everything try to keep the Pi unit away - a short length of coaxial cable (braid to chassis, inner to the 100pF capacitor and then onto the receiver input) will help - from the receiver you're to use to reduce the chances of r.f. feedback causing the whole set-up to oscillate.

Connect the 9V supply after everything's checked out okay (for short circuits, wrong connections. etc.) with your test meter, and then connect the antenna and earth. Tune your receiver to an Amateur Band (avoid 1.8 and 3.5MHz during the day) and by using S1, listen for a 'peak' on received signals. Then tune C1 and C2 for best results.

Be prepared to experiment with the number of turns on L1. However, you should notice markedly improved reception. (Compare reception with and without your Pi unit to satisfy yourself). Anyone keen on using simple receivers on 7MHz will find it particularly helpful. Build, experiment and enjoy!



Information Panel

Bandspredding - A Useful Technique

Band-spreading was at one time a very popular technique, aimed at literally 'spreading' the otherwise cramped Amateur (and sometime broadcast bands too) coverage over a greater area of the tuning scale. Basically it's a very simple technique as all you have to do is to place a low value capacitor in parallel with the main tuning capacitors. Don't forget that to keep a superhet local oscillator in track to produce the wanted intermediate frequency - a similar capacity variable capacitor will be required. In practice the system invariably uses a pair of ganged variable capacitors, operating in the same way the main tuning is carried out. However, it is possible to purchase main tuning capacitors with small value ganged variables built-in. Nowadays these will have been incorporated to provide tuning for the high quality wide band frequency modulation v.h.f., Band II broadcasts (Often misleadingly referred to as the 'FM' band). Incidentally, I'm planning to incorporate a simple bandspredding method into an RB project later in the series.

Taking a little break from compiling HF Far & Wide, Carl Mason GW0VSW has been busy on the air using the latest version of the Yaesu FT-1000MP Mark V - which through its name - the Field - provides a clue to its main purpose!

Regular readers may remember that I had the opportunity to review the Yaesu FT-1000MP Mark V for *Practical Wireless* in August 2001. At the time I described it as a fine machine that had a superb specification...despite the high cost.

So, following that experience, I was very pleased to have the opportunity to try out the new *Field* version of the transceiver. I thought "It would be interesting to compare both models and see just what were the differences were and how well would it perform".

The New Version

The FT-1000MP Mark V *Field* is basically a 100W version of the original Mark V in a case that is the same physical size. A handle is now fitted to the right-hand side and four rubber feet on the other which protect the case when you put the transceiver down.

The most important difference is that the power supply is now built-in and is able to run from both an a.c. or d.c. power source. The transceiver is supplied



● Latest version of the Yaesu FT-1000MP, the Mark V *Field* as reviewed by GW0VSW.

with an a.c. power lead that connects to the rigs 3-pin **AC IN** jack and your wall socket.

When you want to use a 13.8V d.c. power source, the optional **E-DC-20** power cable/connector should be used. This is the same type of connector found on the original MarkV. Any 13.8V d.c. supply can be used providing it is capable of providing 22A of continuous current.

If you have both a.c. and d.c. power sources connected the *Field* will automatically select the external d.c. supply. Like all transceivers, an effective ground system to protect you from electric

match the i.f. filter pass-band.

There's also a Variable RF Filter (VRF) which is manually tuned for best sensitivity and rejection of strong nearby signals. (All were described in the original review).

Antenna Sockets

The *Field* has two antenna sockets on the rear panel and either can be selected by a button on the front of the transceiver marked **A/B**. The selected antenna is used for receive and always for transmit.

A separate receiving antenna can be fitted using two RCA jacks labelled **RX IN**. When you select the RX button on the front panel this antenna

On The Air...

with the

Yaesu FT-1000



● The matching microphone unit - see text for comments.

shock is required and further information is given in the handbook supplied.

Front Panel

Front panel controls and transceiver features are identical on the *Field*. They include Enhanced Digital Signal Processing (EDSP) which modifies the received signal according to set parameters, and Interlocked Digital Bandwidth Tracking (IDBT) which automatically aligns the bandwidth of the EDSP receiver to

will be used by the receiver but will be disabled when you transmit.

Any combination of settings is automatically remembered along with the mode you had chosen. These can be recalled for use later.

High Dissipation

The *Field* uses a pair of high-dissipation 2SC2879 bipolar transistors driven by 2SC3133s in a push-pull design. These allow a 100W transmitter compatible with Class-A operation, first described on

the original 200W version of the Mark V.

On the air the transistors are run at well below their rated output, and when combined with Yaesu's low-pass filter design provide a very clean signal on transmit. Incidentally, When in Class-A operation the output is limited to 25W. This produces a much better signal than is possible with a typical Class A/B transmitter design.

Heat Sink

A new high-efficiency heat sink, which consists of a copper bonded plate, has been used between the p.a. stage transistors and the die-cast heat sink. A fan controlled by a thermostat keeps the *Field* cool.

Even when I was using c.w. for an extended period the rig stayed cool. At no time during the review did the case get hot ...despite the limited space it had on the shelf in my shack.

Hand Microphone

The *Field* is supplied with the **MH-31B8** Hand Microphone which is very comfortable to hold. On the back of the microphone is a small switch that allows you to choose one of two settings.

Position 1 increases the bass response. **Position 2** suppresses the lower frequencies giving a little more punch to the transmitted audio.

Incidentally, there's a note in the manual that said tuning could take up to 50 seconds in certain circumstances. Despite this...during the review period all tuning was completed within seconds and



● Carl says "Thanks" to all the readers who joined in on the air to evaluate the *Field* transceiver (see text).

enabled me to change and operate on different bands very quickly.

Optional Accessories

Like other models in the Yaesu range the *Field* has a wide number of optional accessories available. There are two desktop microphones. The first is the **MD-100A8X**, which has a 600Ω impedance and includes an up/down scanning ring as well as a large PTT switch.

The second - the **MD-200A8X** - is described as "Ultra High Fidelity". This has **Variable Side Pressure Control (VSPC)** which allows you to adjust the microphones audio

allows you to select either one. (I was able to borrow one of these speakers during the review from **Brian Parsons GW0KZK**. Brian has the 200W Mark V and has found the filters in the SP-8 very useful).

Also on the front panel is a phone jack that allows you to use the audio filters with headphones. Yaesu can supply a lightweight version of these, the **YH-77STA**. When using Dual Receive with the *Field*, one receiver can be monitored in either ear or the signals from the two can be mixed.

Linear Amplifier

For those operators who need more than 100W an all-solid state linear amplifier is available. The

VL-1000 operates from 1.8 to 50MHz with a power output up to 1kW with c.w. and s.s.b.

For data modes, such as RTTY, 500W is available. A built in a.t.u. is included with 240 memories for storing all the tuning data.

Like the FT-1000MP Mark V a **TCXO-6** can be fitted for extra frequency stability as well as additional filters to suit most operator's needs. This includes the **YF-115C**, a Collins Mechanical Filter with 500Hz bandwidth which fits in the 455kHz Sub Receiver 3rd IF for enhanced reception of c.w. and RTTY. This is one extra that I would definitely install as c.w. is my favourite

Product

Yaesu Mark V FT-1000MP *Field*

Company

Yaesu UK Ltd

Contact

Tel: (01962) 866667

Pros and Cons

Pros

Overall I must say that I was **extremely impressed** with the latest offering from Yaesu. It has everything you are likely to need in a transceiver with the exception of the filters, which would be a matter of personal choice anyway. The built-in power supply means you do not have to find any additional space in your shack for supplies and leads. It's also very easy to use once set up...where's my cheque book?

Cons

For me the *Field* is much better value than the 200W version although still expensive at over £2000.

Summary

The *Field* has a perfect blend of features to suit all operating preferences. It's also very easy to use once set up...now where's my cheque book?

Price

£2299 inc. VAT

Supplier

Yaesu UK Ltd,
Unit 12,
Sun Valley Business Park,
Winnall Close,
Winchester,
Hampshire
SO23 0LB

1000MP Mark V *Field*

Auto Antenna Tuner

The internal automatic antenna tuner (a.a.t.u.) is not the heavy duty version fitted to the Mark V but one similar to that found on the original FT1000MP. It coped well with my inverted Carolina Windom and was able to find a match on all bands from 7-28MHz.

The a.a.t.u. will match antennas with impedances from 20 to 150Ω and maximum s.w.r. of 3:1. (If this is exceeded a warning light shows on the digital display).

● Rear side view of the 100W transceiver (see text).

response without resorting to circuits that can introduce distortion and/or degrade the signal-to-noise ratio.

A loudspeaker, the **SP-8**, compliments the rig and comes complete with both high and low pass audio filters. It's also possible to connect two transceivers to it via terminals on the back panel and a switch on the front panel



Yaesu FT-1000MP Mark V Field

operating mode.

Finally, there is the **DVS-2** Digital Voice recorder which allows you to continuously record your receiver for instant pushbutton playback with all the data stored electronically and the **FH-1** Remote Control Keypad. This allows several remote features such as the Contest Memory Keyer, VFO/Memory Function Control, Main VFO-A Control

me was described as "Crystal clear" and both were happy to log their first GW on the band with using 'phone.

Switching to 24MHz I made several more contacts at various speeds up to around 28w.p.m. using the built in keyer selected by pushing a switch on the right hand side of the front panel. This is set at the factory for iambic keying. One paddle produces the dots and the other produces the dashes. Squeezing both produces alternating dits and dahs!

The 'weighting' can be adjusted

worsening band noise and QRM.

Tom MW0TJD in Treorchy and **Paul G4KWM** in Mexborough were also both able to record my transmissions and play my signal back to me which was very useful.

Roger G0DIZ in Ilfracombe called in to say he thought that my signal was drifting slightly by approximately 100Hz. However, all the other stations worked during this test said the transmitted signal was stable. **Bill G4MQV** who had been monitoring my QSOs for nearly an hour found no sign of drift. This was to be the only negative report during nearly 100 QSOs with the transceiver and I feel this observation was down to band conditions at the time.

On the last day of the review I managed to 'tail end' a QSO and catch **David VK3DBD** (Australia) on 14MHz s.s.b. before he closed down. Using 90W and no DSP I received a 58 report from Yackandandah, Victoria and a comment on the "Distinctive, clean

Extremely Impressed

Overall I must say that I was **extremely impressed** with the latest offering from Yaesu. It has everything you are likely to need in a transceiver with the exception of the filters, which would be a matter of personal choice anyway.

All controls are easy to use and the various settings well covered in the 116 page manual which includes good diagrams and explanations for all the functions and menus. The reports I had on transmitted audio were all excellent.

The built-in power supply means you do not have to find any additional space in your shack for supplies and leads. For me the *Field* is much better value than the 200W version although still expensive at over £2000.

However, the *Field* has a perfect blend of features to suit all operating preferences. It's also very easy to use once set up...now where's my cheque book?



and Sub VFO-B Control all selected via the *Field's* Menu programming.

VHF Transverter

The *Field* can be used with an optional 50-54MHz transverter, the **FTV-1000**, providing up to 100W of power output. In addition to the FTV-1000 you must also buy a **FP-29** a.c. power supply and install a relay unit, the **FRB-5**. Instructions for this are included in the manual. The transverter would be a useful addition for those of you interested in chasing DX on the 'Magic Band'.

On The Air

I only had a few days to try out the *Field* and as usual the bands were not in great shape. With the rig connected to my Carolina Windom antenna I chose a band at random and using my 'straight key' had my first contact with **Bud K2LP** on 18MHz c.w. using 70W.

Bud was very complimentary about the received signal at his QTH in Eastham Massachusetts. During our QSO I was able to play around with the EDSP contours which worked very well, just like they did during the original Mark V review.

I then called **Hans OY2H** in Torshaven, Faroe Islands with signal strengths 599 both ways. A change to s.s.b. and one "CQ" call later I found **Peter SM2ODBS** and **Per SM2LIY** who both gave me 58 reports from Umea on the East Coast of Sweden. The audio from

as well as can the pitch using various internal menus. Contacts here included **Jurg DL3WG** in Frankfurt, Germany 589 and **Valery UT8IM** in Mariupol, Ukraine 569. I also tried the *Field* at QRP levels and enjoyed QSOs on several bands with stations throughout Europe.

On 7MHz

As there was no activity on 28MHz, despite sending several CQ calls, I dropped down to 7MHz. Here the band noise was really bad and I was able to put the *Field* through its paces with the help of several *PW* readers.

My thanks go to Tom **GW4STS/P** in Mold, North Wales, **Dave M0DHS/M** in his lorry on the M62 heading for Leeds and **John M3JAN** in Goran, Northern Ireland. All spent a good deal of time giving me reports as I played with the more advanced features of the *Field*.

The evaluations included the EDSP noise reduction and contour settings and IDBT, both worked extremely well and enabled me to copy all three stations despite the

● The matching speaker unit (see text).

General Specifications

Frequency range Receive:	100kHz – 30MHz
Transmitter:	1.8 – 28MHz (Amateur Bands Only)
Operating Modes:	c.w., a.m., l.s.b., u.s.b., f.s.k., a.f.s.k., n.b.f.m.
Frequency steps:	0.625, 1.25, 2.5, 5, 10Hz for c.w., s.s.b., RTTY, and Packet 100Hz for a.m. and n.b.f.m.
Power output:	Adjustable up to 100W (25W a.m. carrier),
Class A mode	(s.s.b.): 25W maximum
Antenna Impedance:	50Ω, unbalanced 16.6 – 150 Ω, unbalanced (Tuner on, transmit only)
Duty Cycle:	100% at 50W, 50% @ 100W (n.b.f.m. & RTTY, 3 minute transmit)
Power Consumption:	200-240V a.c. 13.8V d.c. Rx (no signal) 80VA 2.3A Rx (signal) 90VA 2.7 A 100W (Class AB) 480VA 20A 25W (Class A) 320VA 13A
Supply voltage:	13.8V d.c./200-240V a.c. 50-60Hz
Dimensions:	410 x 135 x 347mm
Weight:	15kg

audio". I was pleased to have such a good report from the other side of the world, as this QSO with Australia was to be my last before the *Field* was packed up ready to return to Yaesu UK.

Thanks to Yaesu for the loan...and to all the operators, too numerous to mention, who helped with reports and comments for the review.

PW

RadioSport NEWS

A New "Picketts Lock"

London Show finds new home

With the closure of Lee Valley Leisure Centre, the traditional home of the **London Communication & Computer Show**, the organisers were presented with the challenge of finding a new venue that would suit all parties. After a long and exhaustive search, they came across a place which not only met all the criteria but is conveniently located off junction 25 of the M25, the motorway junction that many visitors to London Shows have been using for years.

Their efforts have already been rewarded, with exhibitor bookings practically filling the venue several months before the event.

THE NEW VENUE

Wodson Park is a leisure centre that is similar in many ways to 'Picketts Lock', except that it is located a few miles outside the M25. Getting there is every bit as easy, indeed the journey time from the M25 is practically the same as it is to Picketts Lock. Talk-in stations will be operational on 2m & 70cm, and when you arrive you will find plenty of free parking. Full travel details can be seen on www.radiosport.co.uk

Wodson Park is quite new, so it has all the facilities you would expect - brightly-lit halls, a good sized catering outlet, two bars, a passenger lift and facilities for the disabled.

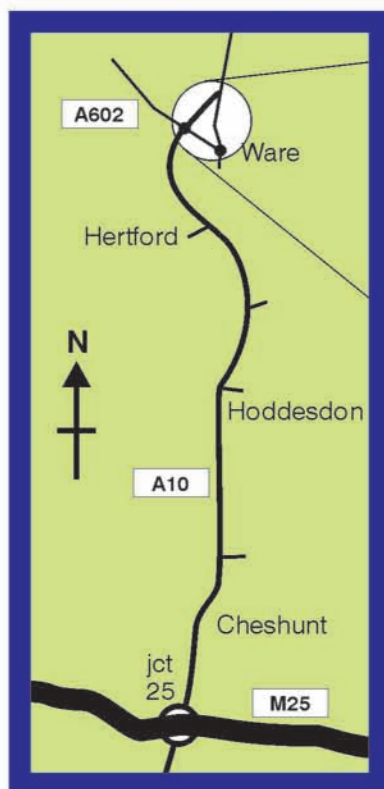
REASONS TO GO

Apart from meeting friends new and old, there will be major retailers,

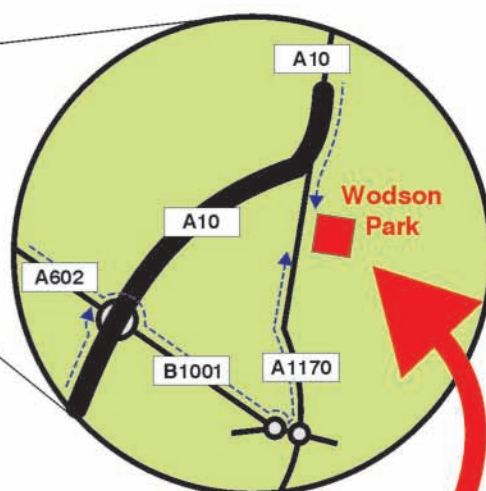
London COMMUNICATION & COMPUTER SHOW

Saturday 23 November & Sunday 24 November

(Opens 10.00am each day)



Nestling in the Hertfordshire countryside, Wodson Park Leisure Centre.



**Wodson Park
Wadesmill Road
Ware, Herts SG12 0UQ**

computer systems, software and upgrades, on-demand Morse Tests and Assessments, and Special Interest Groups. Southgate ARC's Bring & Buy completes the list.

All-in-all it should be well worth visiting.



One of Wodson Park's halls.

Once again Neill Taylor G4HLX present the results of the *PW* 144MHz QRP Contest. It's especially gratifying to meet old 'hill topping' friends on the air following the cancellation of last year's contest. So, without further ado...just how well did you get on in 2002?

For regular entrants in the 144MHz QRP contest it was a particular pleasure to get back to the hilltops on Sunday 16 June. With the cancellation of the 2001 event due to the restrictions resulting from Foot and Mouth Disease, it seemed like a very long time since we last enjoyed our day of low power v.h.f. DXing.

And along with many of the regulars entering again this year, were some individuals and groups taking part in the contest for the first time. This led to some good natured competition!

First Timer Wins!

It was one of the first time entrants who wins the top place in the results table! **Tim Boon M0AFC/P**, while no newcomer to v.h.f. contests, entered the *PW* QRP contest for the first time, and became the overall winner by a good margin of points.

From his portable location on Catlow Fell in Lancashire, Tim became only the second single operator ever to have reached the number one position in the results (the other was G0GAG/P in 1994). Tim's achievement wins him the *PW* QRP Contest Winners Cup **Fig. 1**, and also a special prize of a Trident v.h.f. antenna, donated by **Mike Devereux G3SED, Fig. 2**, of Nevada.

So, Tim M0AFC's win ends the five-year run of **Dave Hewitt GW8ZRE/P, Fig. 3**, as leading single operator. But I don't think he will be

too displeased, as he won second place overall - his highest ever position. Dave has been taking part in the contest since 1985 (when he was placed 187th!). He will receive the special runners-up prize of a 12V solar panel, donated by **Bob Keyes GW4IED** of **Key Solar Products**.

Tim and Dave's single operator successes push the leading multi-operator station - the **Torbay Amateur Radio Society G8NJA/P** into 3rd place. Incidentally, there seems to be a trend towards more single-operator entries, the list containing 42 single-operators and just 25 multi-operators this year.

Tough Battle

There was a tough battle in Scotland this year between two stations vying for the top place there. They were **David Dodds GM4WLL/P**, and the **Cockenzie & Port Seton Amateur Radio Club MM0CPS/P**, both of whom have been the leading Scottish station several times in previous contests.

This year, after careful scrutiny of both logs, David emerges just ahead, to win the **Tennamast Trophy in Memoriam to Frank Hall GM8BZX**, donated by **Tennamast (Scotland) Ltd**. Just four more contacts for MM0CPS/P would have swapped the positions, so the operators are probably regretting the lost time.

They report: "we missed the first hour of the contest due to problems with the shack (a small caravan) and

then another half-hour with a faulty rotator". But as it happens, David also lost some time: "I had to drop the mast four times to replace a broken preamplifier and then track down a dodgy lead. I lost almost an hour due to that".

Irish Winner

There were no GI/MI entries this year, and the *PW* EI/GI Trophy Clock, donated by our editor **Rob G3XFD/EI5IW**, goes to **John O'Sullivan EI6ARB/P**. John is another operator who has been entering the contest for many years, and although he couldn't make it to the show (despite strenuous efforts!) his award will be sent on to him. Well done John!

Beginners' Trophy

The Beginner's Trophy, introduced by myself in year 2000 (then as the Novice Trophy), sadly has no winner this year. However, several multi-operator stations did have Intermediate or Foundation Licensees amongst their operators, for example the **Midland Contest Group G2HDF/P**: "we had two of our Intermediate Licensees with us this year for the first time".

The G2HDF group also noted: "we didn't get any Intermediate calls this year, but it was gratifying to hear M3 prefixes entering into the spirit of things". True, but it turns out that **none of the four M3 entries received qualify for the**

Practical Wireless

144MHz QRP Contest 2002 Results

Beginner's Trophy.

In three cases the operators also held full Class B licences, and in the other, M3NRK/P, the licensee **Nigel Kind** was assisted by **Carl G0NZI**, making this a multi-operator station under the contest rules, **even though Carl did not actually operate the station directly** (the Foundation Licence does not permit operators other than the licensee).

Results Tables

The contest tables show the rest of the results, and a more detailed result table is to be found on the contest website

www.contest.org.uk and you're invited to check them out.

Contest certificates will be sent to those in the 'leading stations' table, including the leading station in each locator square.

Additionally all entrants who sent the corner flash with their entries will be sent a certificate noting their position in the results. These special certificates, to celebrate the 70th anniversary of *Practical Wireless*, have been sponsored by **Chris Rees G3TUX** of the **QRP Components Company**.

It was good to hear Chris himself active in the contest as **GU3TUX/P** on the island of Alderney. He gave many stations - including **Rob G3XFD/P** their only contact into IN89 square, and as leading station in this square he

wins one of his certificates himself!

Given Chris's line of business, it's perhaps not surprising that he was using a Yaesu FT-817. This highly-portable low-power all-band transceiver seems ideal for a QRP contest such as this, and having been launched by Yaesu since the previous event in June 2000, was in use at six stations entering this year.

However, the FT-817 is still outnumbered by its older cousin the FT-290R, which was in use at 22 stations. One of the new FT-817s was at the station of husband and wife team **Dan and Liz Wood G0VIK** and **M3EEW**. "This is our first ever attempt at contesting", writes Dan, "having obtained a Yaesu FT-817 last year (as a wedding anniversary present) I continue to be amazed at just how far QRP signals can travel".

Well done Dan...I think many of us would see this as an enlightened approach to celebrating wedding anniversaries!

Propagation Conditions

Propagation conditions were considered by most operators to be fairly average for most of the day. From Scarborough **Amateur Radio Society G2CP/P**, comes this typical comment: "only limited openings to the continent, but our signal spanned the UK from northern Scotland to Guernsey and gave us a few more multipliers". At Cockenzie and Port Seton, **MM0CPS/P** (IO85) they reported

"conditions were reasonable with fairly steady signals throughout from the likes of M5FUN (JO00) and G8NJA/P (IO80)".

The weather, on the other hand, was rather variable, with some experiencing particularly difficult conditions. **John Rule G0JVR/P**, was one - at his site in Cornwall "the weather was terrible...indeed atrocious, no visibility, due to thick wet fog. By the time I finished setting up I was soaking wet, fed up and grumpy! By 3pm the beam was spinning like a top, making contacts very hard. I decided it would be safer to retreat to a more sensible location - like home! The car slipped and slid down the track/stream of the hill, on my departure home".

At **GW7LQD/P**, **Mike Baguley** says "once again I enlisted the help and support of that cheeky Irishman, Peter Lowrie, G17JYK". By mid-afternoon, "spots of rain were followed by a big downpour. As the contact rate had dropped right off, despite prodding Peter with a sharp umbrella to encourage activity, we decided to stop an hour from the end and depart for the airport" (so that Peter could return to GI-land).

Those who packed up early because of the weather may have missed the best of the radio conditions. I myself (in IO91

square) noticed some Sporadic-E openings in the last half-hour of the contest, and heard several EA stations. But the only entrant to take advantage of this was the **Penzance Radio Club G0PZR/P**, (in IO70) who write "working Spain and France near the end did help".

The G0PZR/P log shows two QSOs with Spanish stations in IN73 square, at around 740km probably the best DX in any of the contest logs. Considering that "the conditions were appalling here with thick fog and low visibility so we had to work from a lay-by instead of climbing to our usual position", they are probably pleased that they carried on until the end.

World Cup

If activity was low in Eire during the contest, it may have been due to Ireland's World Cup match that day! John O'Sullivan, EI6ARB/P, notes "I made less than half the usual amount of contacts", but then admits that this "was probably because I spent more time watching Ireland's World Cup football team on the portable TV".

Dave Hewitt GW8ZRE/P, was smart enough to anticipate the affect of the match on EI activity: "the

reless

- (right): John Rule operating G0JVR/P suffered "Thick wet fog" at his Cornish site. Certainly not a day to fly one of his kites!
- (middle right): The Midland Contest Group - operating G2HDF/P had better weather in their location and thoroughly enjoyed themselves during the contest.
- (far right) The station of GW7LQD/P operated Mike Baguley, photographed by Peter Lowrie G17JYK who had flown from Ireland especially to help. Such dedication is typical in the PW 144MHz QRP Contest!



Q u a l i t y • I n n o

ALINCO



ALINCO DX-70TH

Fully Featured Portable HF+6mtr Transceiver

The DX70 TH packs a hefty 100W punch on all Ham bands 1.8 - 50MHz. It is backed by a superb receiver with narrow filters fitted as standard. Make no mistake - this is a real DX operators transceiver ideal for use at home, or for that portable DXpedition.

- TX - all HF + 6mtr
- 100W output on HF & 6mtrs
- RX - general coverage 150kHz - 30-MHz, 50MHz - 54MHz
- SSB, CW, AM, FM and digital modes
- 100 memories
- Detachable faceplate and remote mounting kit available
- Speech processor standard
- Narrow filters fitted as standard

£699.00
SPECIAL
£599.00



ALINCO DX77E HF Transceiver 'GREAT VALUE'

The DX-77 is a design achievement that puts a HF desktop transceiver within your reach! And this is no 'bare bones' radio, nor is it a converted 'channelised' adaptation. The DX-77 was designed from the beginning to be a quality Amateur Radio, full of features to enhance its performance and your enjoyment.

- 100W HF transceiver
- General coverage RX 500kHz - 30MHz
- All modes, FM, LSB, USB, CW & AM
- 100 memory channels
- Built in speech compressor
- Front mounted speaker, loud clear audio
- Optional keyer

£599.00
SPECIAL
£499.00



EDX2

Auto Tuner

An automatic antenna tuner that matches a transceiver to a random wire antenna of over 3m in length (3.5MHz and above), or over 12m in length (1.6MHz and above). It comes installed with 5m of coaxial and control cables for instant operation with Alinco DX-70.

- Auto tuner
- 3.5MHz-30MHz (with over 3 metre element)
- 200W PEP power handling
- Power for tuning = 7-20W
- 13.8V DC $\pm 10\%$ operating voltage

£289.00

HFM-1

A stainless steel, heavy duty HF mobile antenna complete with spring base. Covers 3.5 to 30MHz when used with the Alinco EDX-2 Automatic Tuner. Alternatively it may be base matched with any type of tuner for mono band or multi band use. Power handling with the EDX-2 is 150W.

- Covers: 3.5 - 30MHz (when used with EDX-2 auto ATU)
- Length: 2.7 metres

£59.95



ALINCO DR-605E Dual Band Mobile

The DR-605E is a no-nonsense twin-band mobile transceiver that delivers power and performance with user-friendly features. The command keys are simply laid out to enable intuitive operation.

- Ready for 9600 bps packet
- Extended RX capability 136 - 174MHz, 420 - 470MHz
- 50W (2m) - 35W (70cms)
- 100 memory channels (+ CALL Channels)
- Cross band full duplex
- Tone search function
- Cable cloning function
- Channel indication mode
- CTCSS encoder fitted

£299.95

DJ-X3

Ultra modern scanning receiver

- 100kHz - 1300MHz
- AM/FM/WFM
- 700 memory channels
- Steps: 5/6.5/8.33/10/12.5/15/20/25/30/50/100kHz
- Auto descrambler
- Bug detector
- Stereo FM (with headphones)
- Attenuator
- SMA Antenna
- Battery saver cct
- Size: 56w x 102h x 23d mm
- Weight: 14.5g (without batteries)
- Supplied c/w: 3 AA dry cell battery case carrying strap

Optional extras

- Lithium ion battery pack
- Ni-Mh battery pack
- Drop in mains charger
- Earphone

£129.95



EXPANDABLE TO RECEIVE
AM AIRBAND
INCLUDING THE NEW
8.33KHZ CHANNELS



DR135E

- TX: 144 - 146MHz
- RX: Expandable 118 - 174MHz
- 50/10/5 Watts power settings
- 100 memory channels
- Frequency Steps: 5, 8.33, 10, 12.5, 15, 20, 25, 30, 50kHz
- Optional internal TNC operates 1200, 9600bps
- Front panel GPS input for APRS
- Rear panel DSUB9 computer connection

- Ignition key on/off feature
- CTCSS and DCS encode + decode
- Super-wide 7 character display
- Wide/narrow (25/12.5kHz) FM modes
- Theft alarm feature
- AM airband receive
- Ten auto dial memories
- Size: 142 x 40 x 174mm

£235.95

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v a t i o n • S t y l e

radios for 2002

DJ 193E

GREAT VALUE 2 mtr Handheld

- New design 2m (144-146MHz) handheld
- Up to 5W VHF
- Wide RX possible (typical 135-173MHz)
- CTCSS + DCS enc/dec fitted
- 40 memory channels + 1 call channel
- Alphanumeric display
- DCS, Tone burst and DTMF
- 13.8V DC direct input facility with battery charge feature
- THEFT ALARM!
- Emits a tone when disconnected from power
- S Meter with easy to read display
- Audio dialler
- Call cloning facility
- Comp. programmable 3rd party software
- Experimental insect repellent feature!
- Can the DJ-193 actually repel mosquitoes?
- Activate the special tone and decide for yourself!



£139.95

DJ-596 NEW Dual Bander

A feature packed dual bander - yet simple to use, with the capability of Digital Voice operation (where permitted - using optional digital voice board).

A nickel metal-hydride (NiMH) battery is supplied as standard, for added power and convenience.

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

- 100 memory channels, any mix of VHF/UHF
- Alphanumeric channel labels
- Direct frequency input from keypad
- 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
- Mosquito Repelling feature (experimental)
- External Terminal Control
- Wire cloning capability
- Optional digital mode (where permitted)



£199.95

DJ 195E

2 mtr Handheld with Keypad

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
- Easy to use, direct entry keypad
- Wide RX possible (typical 135-173MHz)
- Up to 5 watts output (0.8W low power)
- 40 memory channels + 1 call channel
- Large range of accessories available



£159.95

DJ-GSEY Feature Packed Dual Bander

A brilliant twin band handheld that does everything including spectrum display of 4 adjacent channels. The receiver has a superb front end that does not suffer with breakthrough like other handhelds and has CTCSS/DTMF built in as standard.

- Spectrum channel display
- RX expandable 108-173.995AM/FM 420-479.995 + 800-920MHz
- Built in CTCSS tone encoder & decoder
- DSQ encoder/decoder as standard
- Optional receive to include Airband
- Full VHF/UHF Duplex
- 100 memories
- Over air cloning
- Cross band repeater function
- Up to 5W RF output
- NiCad battery
- Charger, Rubber Duck antenna and Belt clip
- **Advanced Channel Scope**
- Monitor 5 freq activities in VFO/Memory modes
- Simultaneous monitor of VHF/UHF bands
- Real time monitor of 11 channels during mono band operation
- VFO mode
- Memory mode
- Sweep scan



£289.95

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.

- Up to 1 W output (with 13.8V supply)
- Large illuminated display
- Loud clear speaker horn system
- 100 memories+1 call channel
- Multi Scan functions
- 38 CTCSS tones for selective calling
- S-meter
- Cable Cloning
- 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



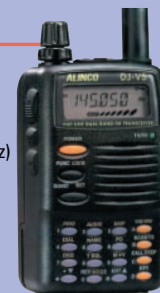
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mouth disease".

Those who do enter the contest regularly often set a target of improving their performance year after year. For example at the Midland Contest Group & Radio Enthusiasts Society, G2HDF/P they report "our aim was to improve on the 2000 score and we more than doubled it this year"!

In Holland **Age de Jong PA0XAW**, from the Alkmaar

element beam. That was easily my best ever DX despite attempts with a bit more power on previous occasions. I learned a lot about contesting. All in all I thoroughly enjoyed the experience and was astonished at the contacts I managed to make. Everyone was very friendly and nobody looked down their nose at me, even when exchanging a rather humble 005 for a 119! After years of reading *PW*

- Fig. 1: Tim Boon M0AFC/P was unable to be present at the 2002 Leicester Amateur Show and his good friend Peter Lowrie G17JYK accepted the winner's trophy on his behalf. Peter is also well known as a previous winner of the *PW* EI/GI Trophy Clock, although he did not enter in this category in 2002. The winner for 2002 - also unable to be present at the show - was John O'Sullivan EI6ARB/P.



- Fig. 2: Mike Devereux G3SED of Nevada presenting M0AFC's prize to Peter Lowrie. Tim had opted for one of Nevada's renowned Trident 70MHz antennas...and no doubt it will be put to good use on 'the friendly band'.

Spain v Ireland match did not cause lack of contacts - I had decided to work as many GI/EI as I could before the match began". (Clever tactic Dave!).

Charlie Jordan GW0PZO/P, who operated from the top of a 900m mountain (Crib Coch) puts in a plea for "real backpackers - in other words those people who do not operate from cars but take the trouble to climb mountains. This can be an advantage and a disadvantage. If I'd have operated in a lower location for the whole time, I may have made more contacts, who knows. I did not have the

this year", he writes, "and found a noisy (by the M3) car park with about 300° clear view and it was rather funny when we were deluged with pigeons! It turned out that the site was a release point for homing pigeons. I had two large vans which had many wicker baskets and they released 20 or so pigeons every few minutes. Quite a flap!"

Derek Southey G0EYX/P, reckons that the contest was "another great event with a very friendly atmosphere. It was nice to take part after what seemed like a very long time away due to foot and

luxury of car batteries or even the use of rotators".

Tony Crake G0OVA/P, was surprised to find that there was another user of his chosen site. "I thought I would go 'local'

section of **VERON** (The Netherlands National Amateur Radio Society), entered as **PI4ALK/P**, writes "for all three of us it was the first time to be in a v.h.f. contest. We enjoyed the contest very much. Working into G-land and even Wales was exciting for us; we heard a GM station but had no QSO". (Thanks for your support Age).

Another operator taking part for the first time was **Quentin Cruse MW1SZC** who reports "I have been a little disillusioned by two metres until the 16 June. My first contact was with G0HAS/P in Salisbury. All on 2.5W and a 2-

have been very proud to take part". (And thank you for your support Quentin!).

Start Planning!

So, with thanks to all who took part in this year's contest, and congratulations to those who achieved leading positions, it's now time to look forward to next year! The date will be **Sunday 15 June 2003**.

And remember, it's never too early to start planning your station and beginning preparations! Good luck to you all.

PW

Grateful thanks to Dr. Neill Taylor G4HLX: On behalf of everyone who enters the PW 144MHz QRP Contest - in reality a real 'fun day' rather than just being a frantic scrabble for points...it's my pleasure once again to thank Neill for his hard work, dedication, enthusiasm and all the 'invisible' work associated with the contest. I'm sure that there's much that goes on that even we here at PW don't realise - but you can be sure everyone is truly grateful Neill. Here' to the 2003 contest and better conditions (my score was miserable but I thoroughly enjoyed the day out)...good luck Neill and everyone! **Rob Mannion G3XFD, Editor.**

Leading Single-Operator Stations

Pos.	Name	Callsign	Score	QSO	Sq	Loc	Ant	asl(m)	Tx/Rx
1	Tim Boon	M0AFC/P	5910	197	30	IO84	13Y	430	FT-847
2	Dave Hewitt	GW8ZRE/P	4843	167	29	IO83	12Z	560	TR-751E
8	Jonathan Constable	M5FUN	2244	102	22	JO00	12Z	195	TR-751E
11	Tony Crake	G0OVA/P	1638	78	21	IO91	9Y	70	TR-751E
12	David Simmonite	M0TWA/P	1581	93	17	IO93	5Y	300	FT-290R
13	Charlie Jordan	GW0PZO/P	1520	76	20	IO73	4Q	900	FT-290R
14	Peter Thompson	G8DDY/P	1501	79	19	IO90	19Y	245	FT-817
17	John Duddridge	G4NVM/P	1224	68	18	JO01	13Y	110	FT-757 + FT-V707
18	West Kent ARS	G1WKS/P	1122	66	17	JO01	9Y	145	FT-817
19	David Dodds	GM4WLL/P	1080	60	18	IO85	8/8Y	365	TR-9130

Leading Multi-Operator Stations

Pos.	Name	Callsign	Score	QSO	Sq	Loc	Ant	asl(m)	Tx/Rx
3	Torbay Amateur Radio Soc.	G8NJA/P	3690	123	30	IO80	2x17Y	350	FT-736R
4	Mike Baguley & Peter Lowrie	GW7LQD/P	3339	159	21	IO82	2x9Y	360	IC-275E
5	Scarborough ARS	G2CP/P	2912	112	26	IO94	9Y	295	FT-221
6	Warrington ARC	G0WRS/P	2499	119	21	IO83	12Y	60	IC-706II
7	Oldham Radio Club	G1ORC/P	2356	124	19	IO93	2x9Y	610	FT-290R2
9	Midland Contest Group	G2HDF/P	1995	95	21	IO82	12Z	200	FT-290R
10	North-East Ex-Pats	G0HDV/P	1944	108	18	IO93	13Y	150	TR-751E
15	Wigan-Douglas Valley ARS	G3BPK/P	1350	75	18	IO83	11Y	170	IC-746
16	Bishop's Stortford ARS	G5ZG/P	1302	62	21	JO01	13Y	120	IC-251E
20	Cockenzie & Port Seton ARC	MM0CPS/P	1026	57	18	IO85	17Y	415	FT-1000 +Mutek TV

Leading Stations

Overall Winner	Tim Boon	M0AFC/P
Runner Up	Dave Hewitt	GW8ZRE/P
Leading Multi Operator	Torbay ARS	G8NJA/P
Leading Fixed Station	Jonathan Constable	M5FUN
Leading English Station	Tim Boon	M0AFC/P
Leading Welsh Station	Dave Hewitt	GW8ZRE/P
Leading Scottish Station	David Dodds	GM4WLL/P
Leading Eire Station	John O'Sullivan	EI6ARB/P

Leading Station In Each Locator Square

Square	Name	Call	Entrants in square
IN89	Chris Rees	GU3TUX/P	2
IO62	Paul Norris	EI3ENB/P	1
IO63	John O'Sullivan	EI6ARB/P	1
IO70	John Rule	G0JVR/P	2
IO72	Quentin Cruse	MW1SZC	1
IO73	Charlie Jordan	GW0PZO/P	1
IO74	Wigtownshire ARC	GM4RIV/P	1
IO80	Torbay ARS	G8NJA/P	4
IO82	Mike Baguley & Peter Lowrie	GW7LQD/P	5
IO83	Dave Hewitt	GW8ZRE/P	4
IO84	Tim Boon	M0AFC/P	1
IO85	David Dodds	GM4WLL/P	2
IO86	Duncan Gerrie	MM5AJN/P	2
IO90	Peter Thompson	G8DDY/P	2
IO91	Tony Crake	G0OVA/P	8
IO92	Nigel Kind & Carl Peake	M3NRK/P	2
IO93	Oldham Radio Club	G1ORC/P	10
IO94	Scarborough ARS	G2CP/P	3
JO00	Jonathan Constable	M5FUN	2
JO01	Bishop's Stortford ARS	G5ZG/P	10
JO02	Mark Tuttle & Alex Rowley	G0TMT	2
JO22	VERON Alkmaar section	PI4ALK/P	1

Practical Wireless 144MHz QRP Contest 2002

Pos.	Callsign	Points	Pos.	Callsign	Points
1	M0AFC/P	5910	35	M0BHE/P	546
2	GW8ZRE/P	4843	36	EI6ARB/P	544
3	G8NJA/P	3690	37	G3UGG	540
4	GW7LQD/P	3339	38	GU3TUX/P	532
5	G2CP/P	2912	39	G0VIK	520
6	G0WRS/P	2499	40	G0LJD/P	516
7	G1ORC/P	2356	41	G3YNN	512
8	M5FUN	2244	42	G8XQS/P	494
9	G2HDF/P	1995	43	GQ4JYN/P	480
10	G0HDV/P	1944	44	G8EAM/P	455
11	G0OVA/P	1638	45	M3LNU/P	320
12	M0TWA/P	1581	46	G0JVR/P	297
13	GW0PZO/P	1520	47	G3YJR	294
14	G8DDY/P	1501	48	M3ZAM/P	286
15	G3BPK/P	1350	49	PI4ALK/P	264
16	G5ZG/P	1302	50	G3MAE/P	260
17	G4NVM/P	1224	51	G0TMT	192
18	G1WKS/P	1122	52	M3VAM	184
19	GM4WLL/P	1080	53	GM4RIV/P	135
20	MM0CPS/P	1026	53	G7CLY	135
21	G0EYX/P	923	55	G7TUA/P	96
22	M5CSM/P	918	56	G8PAD	78
23	M1TAP/P	854	56	GM0LWD/P	78
24	MM5AJN/P	850	58	G6YYU/P	72
25	M3NRK/P	840	59	G7IIO	66
26	G4TSN	810	60	G6UBM	49
27	G0DLR	770	61	EI3ENB/P	42
28	G7NZO/P	768	62	G0PZR/P	39
29	G1POS/P	742	63	MW1SZC	25
30	G6WIR/P	728	64	G4CLI/P	18
31	G4DFV/P	702	65	GU3LPV/P	16
32	G0VHS/P	688	66	M0BCQ/P	12
33	G3KTC/P	663	67	M0CZP	6
33	M0BAO/P	663			





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BOND - Brian Bond!

A big welcome to our latest Customer Support man, Brian Bond, G3ZKE. Brian was very well known for his days served at Radio Shack in North London (nothing to do with Tandy!). If you want to talk technical about that new radio product **BEFORE** you buy, give him a call.

A Very Important Date for your Diary!

Once again, the Lynchy Open Week-end starts on the 16th - 17th of November. We have negotiated special discounted prices with our suppliers and have been told **NOT TO ADVERTISE THEM!** Looks like you will just have to visit and get free refreshments thrown into the bargain. Doors open at 9:30 both days, finishing at 5:00 on Saturday and 4:00 on Sunday. See you there!

Finally;

Thank you to all who visited the stand (and spent money!) at Donington this year. It was one of ML&S Martin Lynch and Sons best ever exhibitions. **See you next year!**

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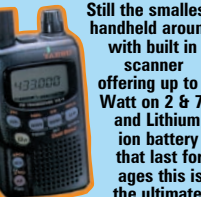
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Carrying On The Practical Way

This month the Rev. George Dobbs G3RJV aims to help you hear your transmitter on air, as an aid to c.w. operating. To do this he suggests adding a side tone unit...after you've read the quotation!

"I believe that a simple and unassuming manner of life is best for everyone, best both for the body and the mind".

Albert Einstein

I remember well, sometime during the early 1960s, finding a four-pole change-over toggle switch in a government surplus shop. This switch was going to revolutionise my Amateur Radio station.

Like almost every station of that era, my station used 'separates'....a separate receiver and transmitter. To change over from transmit to receive, I had to operate two switches and quickly shift my right hand back to the key. It was long way from the full break-in operation found in today's stations!

However, the use of 'separates' was commonplace and everyone was more patient. But after installing a multi-pole heavy-duty relay operated by a home-made foot switch...I thought I had stepped into the ultimate in operational slickness!

A fully integrated transceiver is the usual format for an Amateur Radio station nowadays...it's simply the way

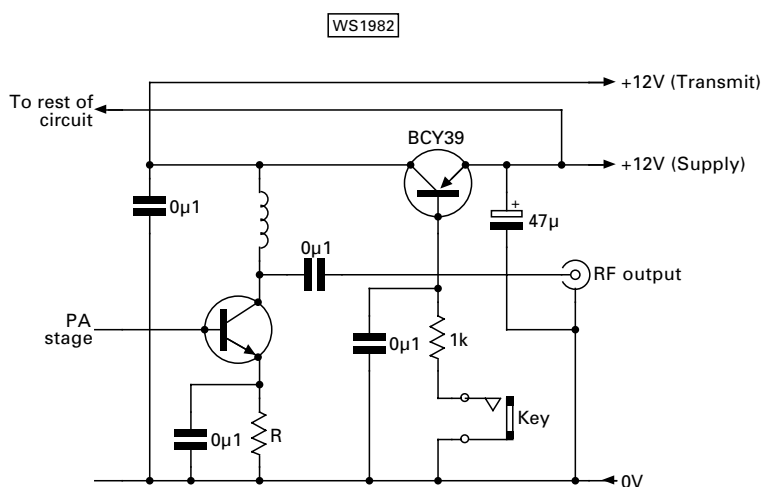


● This month's project - a simple side tone circuit - can be built onto a small speaker to use with equally simple QRP equipment.

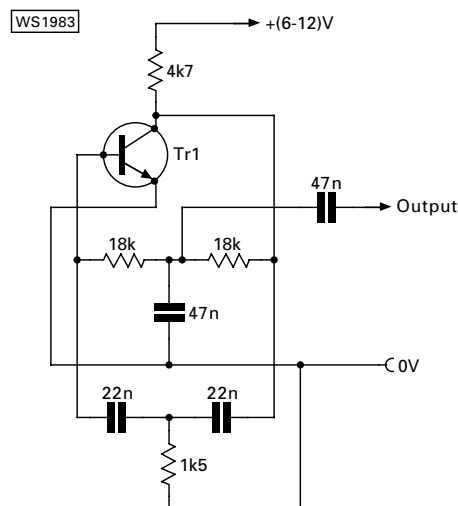
they're built. Perhaps QRP operators are the only people using separate transmitters and receivers today?

Some Advantages

Operating with 'separates' does provide some advantages, however. Firstly, the technique does away with



● Fig. 1: Providing a sidetone facility need not be difficult as many QRP transmitter designs contain a d.c. switching transistor so that the power amplifier to be keyed in relation to the circuit's ground. The example shown here comes from the popular OXO Transmitter, designed by George Burt GM3OXX (See text).



● Fig. 2: A pleasant audio tone can be developed using a Twin-T audio oscillator as shown here. In this circuit a transistor becomes an oscillator when a signal from the collector is fed back, in phase, to the base (see text).

the need for receiver incremental tuning (RIT). There's also no concern about transmitter-receiver frequency off-set, as the receiver is simply set to wherever the operator's wishes to listen.

Additionally, avid equipment builders can optimise both transmitter and receiver and work on either unit without changing the other. Although, in practice, the chief application for separates these days is that it affords the simplest and cheapest option for trying QRP operation.

Many people begin sampling low power operation for the first time by building a little

rasping sound that was hardly suitable for relaxing c.w. operating.

The reader's comments got me thinking! So here I describe a simple way to add a more desirable side tone to monitor the keying of a simple c.w. transmitter.

Providing Side Tone

Providing a side tone facility need not be difficult, and indeed part of the answer can lie within the transmitter itself. This is because many QRP transmitter designs contain a d.c. switching transistor so that the power amplifier to be keyed in relation to the circuit's ground.

Adopting this approach enables one side of the key, or keyer, to be connected to the ground. (The example shown in Fig. 1 comes from the popular OXO Transmitter, designed by **George Burt GM3OXX**).

The diagram in Fig. 1 shows the power amplifier stage of the OXO transmitter. The supply for this stage comes via a *pnp* switching transistor. (I've used a BCY39 as an example but any suitable *pnp* type capable of handling the power amplifier's current would do the job).

The key pulls the base down to ground via the 1kΩ resistor, allowing the transistor to conduct. The 12V supply at the collector thus appears at the collector as '12V transmit'. So, in practice it's easy to take the '12V keyed' power line to run an audio oscillator circuit, thus providing a keying monitor.

What Oscillator?

The next question is – what sort of audio oscillator should you

choose? Some designs use a ready built oscillator chip like the NE555...but these provide a rather unpleasant square waveform note.

In my opinion I think it's best to avoid square-wave or saw tooth tones in favour of a sine wave oscillator. After all...I've got to bear in mind the reader's complaint was about the 'raspy' sound of the keying monitoring!

An easy way to obtain a pleasant audio tone is to use a Twin-T audio oscillator as shown in Fig. 2. In this circuit a transistor can become an oscillator if a signal from the collector is

fed back, in phase, to the base.

Since the transistor in Fig. 2 is in the common emitter configuration, it already has the required 180° phase shift between the base and collector. All that's required is to add a filter network to determine the frequency of the feedback.

In the case in question a twin-T network of resistance and capacitance is added between the collector output and the base input. The values of resistance and capacitance set the frequency, with the values here producing around 700Hz. I've used this circuit in many applications including a Morse code practice oscillator.

Common Bipolar

The transistor, Tr1, in the oscillator circuit can be any common *nnp* bipolar device. I used a BC182 but any generic device should do the job.

In the example shown I have taken the output from a section of the T filter, it may also be taken off the collector of the transistor. This output could be fed to the audio stages of a receiver, or even a little audio amplifier.

However, it may be that the constructor would like a stand-alone side tone board. And if this is the case a very simple amplifier could be used to drive a small loudspeaker.

The four component only circuit shown, Fig. 3, is sufficient for providing such an audio output. **It is crude**, but it is also effective enough, using the emitter to provide a low impedance output for a small loudspeaker.

I used an unknown impedance speaker from a scrap medium wave pocket radio. It may also be possible to use other audio transducers like a microphone insert or a single headphone. **The whole object is to hear the tone, so whatever achieves the required result is fine for the task.**

Self Contained

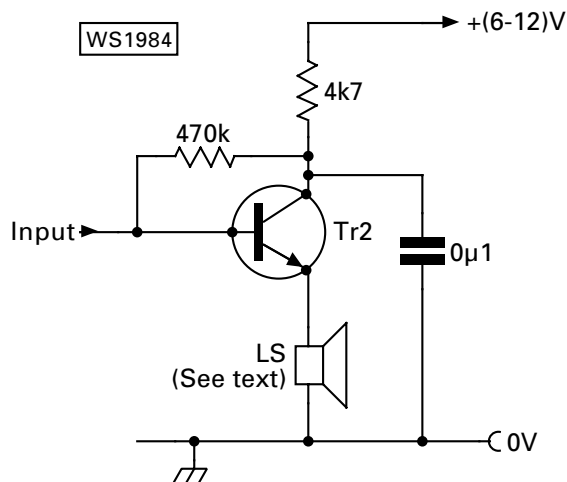
The Twin-T oscillator and the amplifier could be built, 'ugly' style on the back of the loudspeaker to make a self-contained unit. This would receive power from the 12 volt keyed supply illustrated in Fig. 1, or a similar circuit.

The arrangement could be added to any suitable QRP transmitter to provide side tone monitoring. It certainly goes some way to helping the reader who approached me!

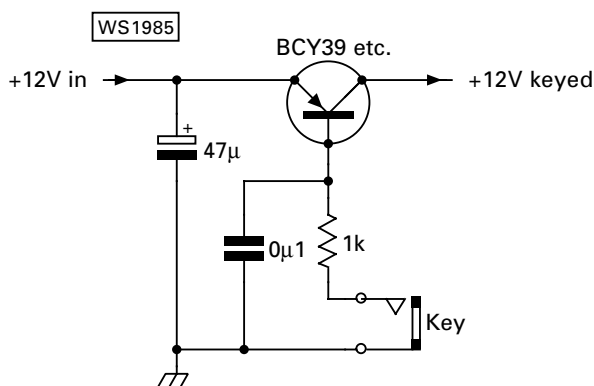
Should the transmitter not have a keyed supply, this can easily be added using the circuit in Fig. 4. This is just the sort of basic transistor d.c. switch that's used for keying many transmitters.

As mentioned at the beginning of the article, a suitable *pnp* transistor is required. In this case almost any bipolar *pnp* will serve as it only handles the current required by the oscillator and the little audio amplifier.

So, there's no need to rely on the rasping note from the receiver. Once you've built your version...the original noise can be turned right down, or off, in favour of the sweeter sounding sidetone!



● Fig. 3: The four component only circuit shown, is sufficient for use in a sidetone unit. It provides a low impedance output for a small loudspeaker.



● Fig. 4: Should the transmitter not have a keyed supply, this can easily be added using this circuit. It's similar to the basic transistor d.c. switch used for keying many transmitters (see text).

transmitter. They then use it with an existing receiver or the receive portion of a transceiver.

Low power c.w. transmitters are simple to build and I've described several in this column over the years. Sometimes I have also described mechanical and electronic methods of switching between transmit and receive using a separate receiver.

Usually I have suggested the receiver is left running...as a monitor for the transmissions. Then at last year's Rochdale QRP Convention, a *PW* reader castigated me...saying that approach just gave a horrible

A series of coincidences resulted in Victor Brand G3JNB recalling his memories of how he was bitten by the radio bug!

A touch of nostalgia can be good for us all from time-to-time and, coupled with coincidence, can provide amusement to those of us who are of an age to be able to say "Ah! Those were the days". I say coincidence because it so happened that *PW* Editor, **Rob Mannion G3XFD**, whilst researching an article, came across my name in a 1954 magazine and sent me a copy. His note said "Thought you'd like to see this - it gave **Tex G1TEX** and myself a chuckle! How old were you then - 15?"

Upon E-mailing the revelation that I had just turned 21, I earned the cryptic response... "Do 1500 words...73 Rob". That set me thinking about the coincidences because I had recently received two similar 'blasts from the past', one also from 1954, and another dated 1948!

So, this article is going to be pure nostalgia and, probably (hopefully) will be appreciated most by my fellow G3s, who themselves maybe be finding that the formula 'Turns on the Coil = Mega Reminiscence' has started to infiltrate their 'rag-chews'!

Boy's Own

Hands up all those who've read the *Boy's Own Paper*? In 1948 it had been published for 70 years and was required reading for schoolboys everywhere. The February edition contained the usual mix of adventure

by the young and enthusiastic Brand (me!). "It will never work" advised a doubting parent. "Your Uncle and I made one when we were young and could barely hear a thing...concentrate on your school work".

Not daunted, I scrounged a couple of variable condensers from the shop that charged our 2V radio accumulator, paid 1/9d for a pair of tank intercom headphones and 1/3d for an adjustable crystal detector from the renowned Proops

Bros. who were in Kingston at that time. A box of the 24swg, double cotton covered copper wire and a toilet roll coil



Ah! Those were



stories, instructive articles, clear instructions by England centre forward Tommy Lawton on how to cross the road and lots of advertising for such boyhood essentials as stamp collecting, fretwork, white mice and an electric motor outfit at only 3/6d plus 3d postage (old money!).

How times have changed! Have you glanced at your grandchildren's magazines lately?

On page 18 of that *Boy's Own* Feb 1948 issue, appeared the article that really got me started on all this Amateur Radio stuff and a lifetime of fiddling around with bits of wire and radio! Prior to this historic piece of journalism by one **G.W. Davey** entitled Build a crystal or one-valve radio set, my boyhood experience of electronics had involved make-believe sessions of spies and radio, emulating the wartime radio dramas complete with vocal Morse sound effects and the imaginative aid of a few pieces of broken domestic switchgear.

The very idea of a crystal set was considered 'super'

It was in this issue of *Radio Constructor* that Rob G3XFD found the mention of G3JNB, which gave him the idea for this article.

former were acquired and production commenced.

My masterpiece of a 'lash-up' was housed in a cardboard shoe box. It was fitted with the most beautiful to behold tuning knob (junk item from a kind charger man!) and connected to the balance of the copper wire strung down the garden to the conker tree.

First Sounds

The first sounds of the BBC Home Service booming out of my headphones remain etched in my memory. They signified technical success, and opened the door to the hobby of wireless and, to this day, surpass even the momentous occasion of the very first QSO for G3JNB on Top Band (1.8MHz) a few years later.

The upgrade of the circuit to the one valve version was accomplished using...yes, the HL2, my very first valve. Purchased **new** from Stern's emporium, my version was sprayed a light metallic grey which may have been good for screening but prohibited me from seeing if the filament was glowing - my early test equipment consisting of the mark one eyeball and a damp finger!

Do you remember Stern's and Premier Radio in Fleet Street? Just to gaze in the window at the ex-government gear and all those

components displayed row upon glorious row was riveting. I recall that the treatment of an impoverished lad by the staff could be described, at best, as brusque but, in hindsight, that was probably more appropriate than his running the gauntlet of the 'Ladies of Lisle Street'!

Strange Coincidences

Jumping forward 50 years and the first coincidence occurs. I had shared some of my recollections at a meeting of the Norfolk Amateur Radio Club and after, the Club's electronics 'wizard', **Mike Lemin G4UUB**, came up and quietly said "I built that set too Victor. In fact, I will give you the copy of the magazine for your archives".

The link to the second coincidence is connected with when I

transmissions and should have launched me into a thorough appreciation of all things solid state but I have to own-up, that, to this day, I still do not really understand them. My world remained that of the reliable 6V6 and 807 until the hobby forced me into an uneasy relationship with three legged fuses!

Going Back

Going back to mention that originally caught Rob G3XFD's eye, remarkably also from 1954, this was in the December issue of *The Radio Constructor*, an octavo size

The exhibitors included the well known **Mr Frank Hicks-Arnold, G6MB** and my friend Tony Cockle G3IEE, Proops Bros. Ltd., of Tottenham Court Road and Data



● A QSL card confirming G3JNB's first transistor QSO on 14 February 1954.

Publications themselves, publishers of *The Radio Constructor*.

The report describes the QRP station of G3JNB/P running 3W input to a transmitter coupled "to the aerial wire which rose magnificently to the top of the nearby church tower". In fact, my entire station including the operating table, my chair and even the table cloth had been transported there for the occasion in a club member's van.

It was a truly memorable day and, indeed, remained central to the Whithead family's own nostalgia

Successful Formula

Finally, as they say, there is our Rob himself - the irrepressible successor to F.J. Camm who edited *Practical Wireless* when I first became an avid reader. Somehow Rob has managed to maintain the successful editorial formula of the magazine's early years, despite the many pressures that must have suggested otherwise he and his team never let us forget the amazing history of radio.

However, a treasured 1949 copy of *PW* does reveal the sad fact that things just ain't what they used to be! Its advertising pages offered R1155 receivers for £9, Eddystone 640s for £27/10/0d and a television set in kit form for just 45 shillings, which just happened to be first my weekly salary.

Is it therefore not extraordinary

how our hobby continues to bind our lives together? Shared activities, technical knowledge, experiences and personal

● The project that started it all! After building the crystal set published in Boys Own Paper Feb 1948 G3JNB was hooked!

the days!

started work as an office boy with the publishers of *Wireless World*. Just before last Christmas, **Chris G3XIZ** popped up on the Shefford Club's Top Band a.m. net to say that he was looking at my name and call sign in an the May 1954 edition of *Wireless World*!

The article Chris was reading was entitled 160-metre Transistor Transmitter by A. Cockle G3IEE, which described an OC51 crystal oscillator/transmitter and mentioned the assistance of **Ray Penfold G3DHz** and V. Brand G3JNB! Tony Cockle was a leading guru at the Kingston club and a fellow QRPer. He had 'acquired' a few transistors for our experiments from his lab at Mullard and provided a circuit for us to build as he needed someone conduct tests with.

My own transmitter stood proudly in the middle of a huge steel broadcast set chassis. It sported a beautiful ceramic Eddystone coil former and a big piezo quartz crystal, manufactured by The Quartz Crystal Co. Ltd., of New Malden, both of which, together with the Morse key, have managed to survive the half century in the junk box.

At the time I was involved with G3IEE's tests really were very early days for Amateur transistor

magazine similar to the original *Short Wave Magazine* prior to its acquisition by PW Publishing Ltd. In amongst familiar features such as A Trawler & Top Band converter for the R1155, chassis bashing for the Mullard 5-10



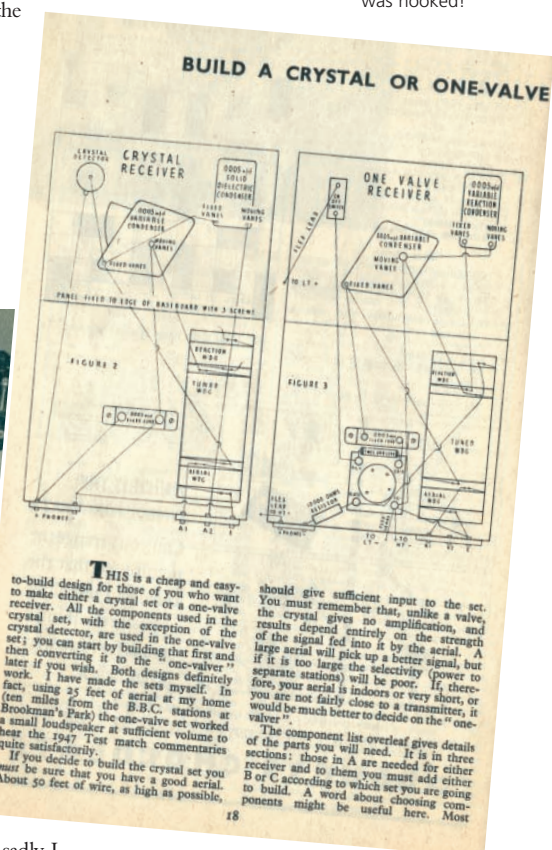
● Victor G3JNB at his Amateur Radio station in 1953.

Amplifier and Pi tank circuitry, appeared a show report on the Walton Amateur Radio Exhibition.

The Walton event was organised by the **John Whitehead**, Secretary of the original QRP Society, and opened by the President of the Radio Society of Great Britain, **Mr. A.O. Milne G2MI**. There were live demonstrations of Amateur Radio, radio control, amateur television and, yes you've guessed, that Mullard 5-10 Amplifier.

recollections of their days as organisers and publishers for The QRP Society.

Again, coincidentally and sadly, I attended the funeral of **Dorrie Whitehead** just a few months ago, her husband John having died some years earlier. The family have presented into my safe keeping the silver trophy won by the Society's Team No. 1 in the 1951 International Short Wave League Contest.



recollections remain the very stuff of Amateur Radio. Happy coincidences are inevitable and serve to provide many a pleasant chat over the air, confirming that we all do really remember it all very well indeed.

PW

Antenna Workshop

John Heys G3BDQ helps you with loading wire antennas, to make them work on lower bands.

The physical length of resonant Hertzian or Marconi antennas is largely determined by the design frequency. In most cases, dipoles (Hertzian) and quarter-wave (Marconi) antennas intended for use on the higher frequency Amateur Radio bands can be installed in an average sized garden, but effective antennas for the bands below 3.5MHz, can be difficult to accommodate in urban locations.

The radio pioneers worked hard to extend the range of their primitive equipment, but soon discovered some problems when considering ship-borne antennas. These antennas were essentially restricted height Marconi designs so, to achieve resonance at the low frequencies then used, the engineers had to resort to some kind of loading to bring the antenna to resonance.

Smaller Vessels

Achieving resonance was a particular problem on smaller vessels. Capacitive and inductive loading techniques were used, as 'linear loading' was not then known. The convenience of a shorter antenna achieved by loading has a cost and there will always be some reduction in the antenna's efficiency. Perhaps more importantly, there's also a reduction in the useful bandwidth of the antenna.

For fixed frequency work, a reduction in bandwidth is not serious, but Radio Amateurs, generally like to operate across all, or most of each Amateur band. To use the whole band, we sometimes have to resort to 'force feeding' a short antenna by using an antenna tuning unit (a.t.u.) or impedance matcher.

Any antenna matcher will introduce a power loss, which can be as high as 20% in some cases. A badly designed a.t.u. may appear fine and indicate a low s.w.r. and yet lose more than 50% of the transmitter power. **If your a.t.u. gets hot, it is a 'loser'.**

Capacitive Loading

The technique of loading, sometimes being called 'top loading', was developed quite quickly. Prime examples of this type of loading may be seen in photos of the ubiquitous 'twin wire' ships' antennas. An illustration of a typical two wire capacitively loaded antenna is shown in **Fig. 1(a)**.

Capacitive loading uses the inherent self capacitance of a wire, which is determined by the wire diameter and its height above ground. A wire of one millimetre diameter and 10m above ground will have a self capacitance of approximately 6pF per metre of length when running vertical and around 5pF per metre if it runs horizontal.

When two horizontal wires are used as in Fig. 1(a), a useful increase in capacitance can be gained. When the wires are closely spaced, at let's say one millimetre, the capacitance increase over a single wire will be about 4%. When the wires are separated by

100mm the increase grows to 40%. Where wires are spaced one metre apart the increase can be around 70%.

Further Increase

If the spacing (S) is further increased to two metres, there can be a capacitance increase of almost 100%. Doubling the diameter of the wire quadruples its weight, but only increases the capacitance by about 7%. So, it's better to use a pair of thinner wires, positioned this way as the wires are in phase and the radiation will match that of a single wire and be horizontally polarised. The vertical download though, will show vertical polarisation.

Another popular antenna has been the 'T' as shown in Fig. 1(b) which has just a single top wire or pairs of wires. The top section of the 'T' has little or no radiation, as the sections L2 and L3 are in anti-phase. Most of the radiation will be from L1 and thus vertically polarised.

A variant design, shown in Fig. 1(c), has a number of horizontal wires LH going in various directions that add considerably to the overall capacitance loading. This configuration is how I capacitively load my 85m long wire to make it more effective on 136kHz. It works well on all the h.f. bands and has even given me lots of DX contacts on 50MHz.

Inductive Loading

Adding an inductance in series with a wire will increase the electrical length of the wire, thus lowering the wire's resonant frequency. The positioning of the inductance will decide its loading effect. The effect for any inductance will be greatest if it's situated at the bottom, or feed end, of a 'short' wire.

The further an inductance is placed from the feed-point, the smaller will be the loading effect and to maintain resonance the coil's inductance must increase greatly to compensate. A very large inductance will be required if the loading inductance is at the far end of the wire where it's likely to be heavy and be very moisture sensitive.

A coil at the 'inner' end of the wire may be actually inside the house where it can be tapped to the correct tuning inductance and will not suffer the vagaries of the weather. This arrangement is popular with 'Top Band' (1.8MHz) enthusiasts who can 'load up' their relatively short antenna wires.

Inductive loading is not only useful with Marconi systems, but can also be employed to electrically 'lengthen' Hertzian dipoles. **Fig. 2(a)** shows a half-way dipole with loading coils positioned close to the feed point. The inductors L when in this position may be small but will carry high levels of r.f. current and unless made with heavy gauge wire, can have quite high losses.

Useful Compromise

Inductors at the ends of the dipole legs, Fig. 2(b), must be very large in inductance and may prove awkward to use in real outdoor situations. A useful compromise may be reached, when the loading inductors are

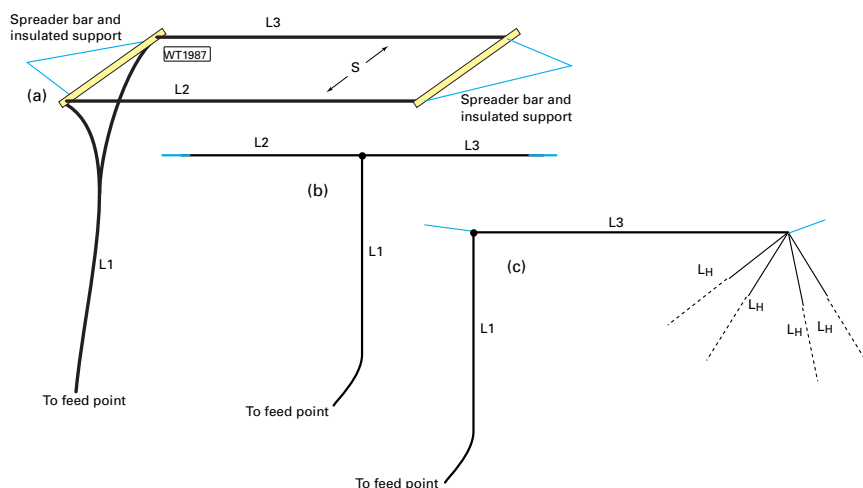


Fig. 1: Three antennas using capacitive loading. The twin wire system in (a) was widely used on ships and the spacing between the wires 'S' can be arranged to almost double the self capacity of a single wire. See text for more detail.

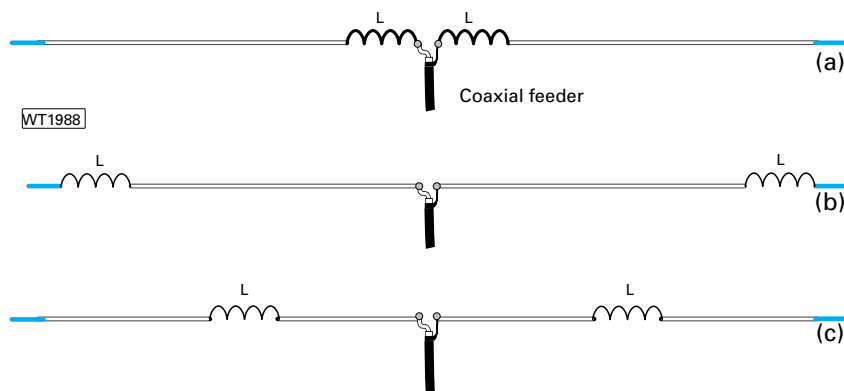


Fig. 2: The most effective position for the loading coils L is half way along the dipole legs (c). This results in an effective half sized antenna with little power loss. See text for more detail.

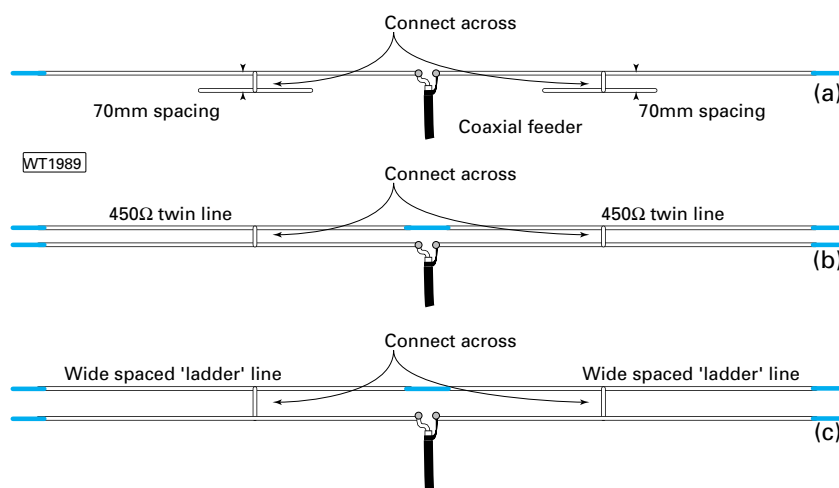


Fig. 3: Linear loading of dipole antennas. The loading wires can be above or below the dipole elements and they do not radiate. See text for more detail.

positioned half way along each leg, Fig. 2(c), of the dipole.

With a mid-point loading coil, the dipole may be shortened to half the 'normal' length for the frequency, with just a modicum of power loss. The inner 50% of the dipole radiates 71% of the total power so, the use of inductive loading in middle of

each wire, will make it possible to have an effective but half sized dipole.

The mid-point arrangement requires a pair of inductors, each with a reactance of about 950Ω at the operating frequency. This equates to inductances of $40\mu\text{H}$ and $25\mu\text{H}$ respectively on the 3.5 and 7MHz bands. Good weather proofing of the coils

and the use of at least 1.5mm diameter wire for the windings is recommended.

Linear Loading

It's difficult to find practical information regarding the method of linear loading. I have quite a large library of antenna books, but very little useful information on linear loading can be found. So, I decided to try out a few experiment antennas to discover some of the essential parameters involved.

My first model was similar to that shown in Fig. 3(a). An indoor dipole was cut to resonate on 29MHz and a pair of 'T' sections (which do not radiate) each 447mm in length were connected to the dipole legs at their centres. Each T section was spaced 75mm below the dipole wires. I then found that this new form was resonant on 28MHz, a frequency shift downwards of 1MHz.

For my second experiment, I used 450Ω impedance commercial feed line for both the dipole and the loading wires Fig. 3(b). The loading wires were made the same length as the dipole legs themselves. This arrangement changed an antenna that would have appeared to be resonant at 28MHz to be actually resonant at 24.2MHz.

Deducing that the spacing between the antenna and the loading wires related to the wire spacing shown in Fig. 1(a), my next experimental antenna was made with home-brew wire ladder line Fig. 3(c). I initially made the simple dipole (without the loading wires) to resonate on 28MHz.

I then created the ladder line sections to the same lengths. And with these connected, the antenna's resonant frequency went down to 22MHz. This means that an antenna using linear loading could be made much shorter than a simple dipole.

More work is needed to evaluate and determine the parameters of useful linearly loaded wires, for there are several variables; the radiator length, the length of the loading wires and the spacing between these and the dipole elements.

My Conclusions

My conclusions based on the observations made regarding the three methods of loading will also equally apply to vertical antennas ... whether used as single wires or short rods. However, it must be emphasised that full sized $1/4$ Marconi, or $1/2$ Hertzian antennas will always outperform a short load antenna.

It's only when space is limited or awkward in shape that antenna loading should be contemplated for this invariably introduces losses in power and a restriction of bandwidth. However, to keep all this in perspective we must remember that a 50% power loss will result in just a 3dB (half one 'S' point) reduction in signal strength at the distant receiver!

So, if you have less space - load away, you have nothing to lose, but much to gain!

PW

Value & Vintage

Hello once again. I hope you have had a good summer (what little of it there was!) and that you acquired plenty of 'new' vintage equipment, I know I have! My new acquisitions have pushed my space problem to the limit, but the trouble is you have to pick this stuff up as you see it...or not at all.

So, holidays over...let's start this edition with a look at some old favourites which was prompted when I was talking to a station the other day and mentioned I was using a KW. I was surprised to hear the other operator had not heard of KW and he wondered if it was a Japanese set! However, I tend to forget that newcomers to the hobby, i.e. anyone who has joined over the past 20 years say, may know little of the older sets.

KW Electronics

The KW Company* was of course one of the best known suppliers to the Amateur Radio hobby back in the 1960s, a time when there were a few UK manufacturers. The KW company produced receivers,

transmitters and

transceivers. One of the best known was the KW2000 series.

The photograph, **Fig. 1**, shows an original KW2000 above a later KW2000E.

On top of the KW2000 is the KW Q



● Fig. 1: The original KW2000 mounted above the later KW2000A, power supply unit (with integral speaker) on the left and Q Multiplier on top.



● Fig. 2: Close up of the KW Q Multiplier, a single transistor is used in this model.

The column starts off with a real 'British Made' theme this month as Ben Nock G4BXD - fresh from his holidays - talks about the famous KW Amateur Radio equipment. And if you listen on the bands...you can still hear KW rigs in action!

Multiplier, **Fig. 2**. This unit could be used with the 2000 range or the various receivers they made, and increased the selectivity of the receiver section by connecting to the intermediate amplifier (i.f.) stages.

The E version of the 2000 series differed from the original 2000 by having a higher radio frequency (r.f.) output, 180 as opposed to 90W, and a variable frequency oscillator (v.f.o.) tuning a 500kHz sweep rather than the 200kHz coverage of earlier models.

In their time the original KW2000 and later versions formed the backbone of many Amateur Radio stations in the UK and around the world. However, the introduction of the Japanese sets such as the FT-101 quickly killed off the home-grown products.

**Editorial note: Readers' will no doubt be interested to learn that Roley Shears G8KW is working on an article on KW for publication in PW during 2003.*

American Military

A large item of American made kit followed me home from the nice little M1 Junction 28 QRP (South Normanton) rally earlier this year. Made for the US Military it was missing

its identity plate.

Fortunately a quick question posted on the world wide web brought forth the information I needed!

Rudolf Salomon

KD6NRQ said "That's an RT-524/VRC, **Fig. 3**, Vietnam War vintage mobile transceiver, still in use in many units. Reading from ST-24-18-1, Armor Communications-Electronics Data book. from Fort Knox, Kentucky, US Army Armor School, dated 1973. Part of the

following systems: AN/VRC-46, AN/VRC-47, and AN/VRC-49, all mobile installations. This is an all

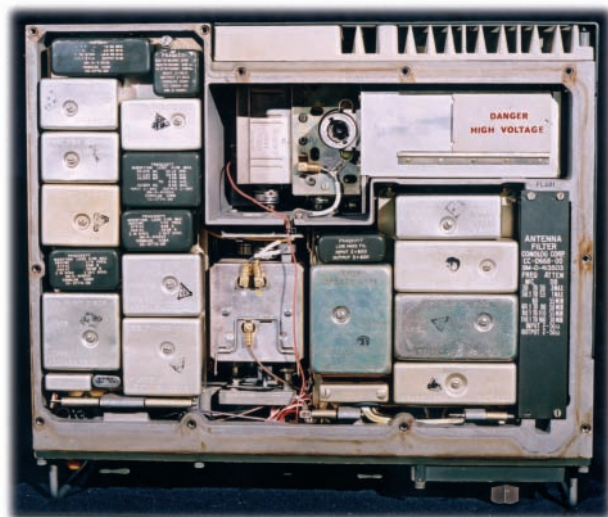
solid-state set putting out 8-10 watts on low power and 35 watts on high. Uses standard military 28V d.c. This book shows that set as being used in many vehicles such as tracks, jeeps, trucks etc. depending on the assignment of the vehicle”.

As I had looked inside the set, **Fig. 4**, as I always do, I disputed Rudolf’s statement that the set was **all solid state**. I could see valves in there and there was the unmistakable whine of an inverter when the set was keyed. It seems the power amplifier (p.a.) and driver stages are valves as is the front end section.

Other web contacts included **Steve WA9JML**, who told me “It has been



● Fig. 3: The RT-524 Low band v.h.f. Transceiver, (slight modification to the microphone socket but otherwise original).



● Fig. 4: Inside the RT-524 showing the modular construction, easy to repair in the field. The valve power amplifier (p.a.) is at the top centre.

more than 30 years, but I believe that I used to use something like this radio when I was a radio relay operator for the Long Range Reconnaissance Patrol on top of Nui Ba Den mountain in Tay Ninh Province (Vietnam). We powered it with some truck batteries. Normally we preferred to use the smaller AN/PRC-25 or -77 radios because the batteries for those were less of a hassle. The bigger transceiver was more immune to intermod, though. Since the whole mountain top bristled with antennas, intermod was a real problem. The time-frame for all these fun and games was December, 1968 through late January, 1970”.

The socket marked **X-mode** is for wideband crypto* equipment. **ANT CONT**, just below the X Mode socket, connects the MX-6707 antenna matching unit, part of the AS-1729 antenna. This set was, and is, the standard American f.m. tactical radio, used for example in the famous Humvee/Hummer vehicle.

*Secure, encrypting/encoding or enciphering systems.

German connection

I was pleased to find a Second World War German Airforce receiver in a small back-street shop the other day. The set in question is the Emphanger (receiver) E10L, **Fig. 5**, and it’s shown on the right next to the E10K which I already have.

The two receivers fulfilled the same role of the

RAF’s R1155 in German bomber aircraft. The E10K tuning short waves and the E10L tuning long waves.

The set I bought was in good condition and complete with valves although I’ve not powered it up yet. The E10L’s coverage is the frequency gap between domestic long wave broadcast band and the medium bands. It will receive the Aeronautical Beacons presently on those frequencies, not of great use perhaps...but a nice collectors item never the less.

I have the matching transmitter for the K range, which covers the 3.5MHz Amateur band, and hope to get a fully working station arranged soon. Incidentally, I managed to pick up some ancillary items for this system on my last trip to France which will all help to make a working station. (Reports on the air will be most welcome when I get it going).

Time’s Up!

Well that’s about it once again, time is not what it used to be! I’ll take this opportunity to wish you all a very happy Christmas, health and happiness for the



● Fig. 5: The German E10K, left, and E10L receivers. Simple controls are tuning, volume and beat frequency oscillator (b.f.o.) on/off. The 4 pin socket on the lower front is the headphone jack.

coming New Year. As always you can write to me at: **62 Cobden St, Kidderminster, Worcestershire DY11 6RP**, or via E-mail at **G4BXD@qsl.net** You’re also welcome to have a look at my web pages at **www.qsl.net/g4bxd**

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FT-1000-FIELD..£2,299.00		TSB-2000£1,499.00		IC-7400.....£1,400.00		DX-70TH.....£599.00	
FT-847£1,149.00		TS-50S.....£599.00		IC-R8500£1,199.00		DX-77£599.00	
FT-920£1,099.00		TM-D700E£429.00		IC-910H.....£1,129.00		DR-610£369.00	
FT-100D.....£849.00		TM-V7E£375.00		IC-706mkIIIG£849.00		DR-605£269.00	
FT-817£575.00		TH-D7E£299.00		IC-R75£599.00		DJ-G5E£265.00	
FRG-100.....£399.00		TMG-707E£279.00		IC-718.....£549.00		DR-150£259.00	
FC-10£299.00		THF-7E.....£249.00		IC-2725E£399.00		DJ-X2000£449.00	
FT-7100M.....£299.00		THG-71E.....£210.00		IC-2800H.....£395.00		DJ-X10£249.00	
VX-5R£239.00		RC-2000£199.00		AT-180£329.00		DJ-V5£239.00	
MD-200A8X.....£225.00		MC-90.....£175.00		PCR-1000£319.00		DR-MO6.....£229.00	
VX-1R£165.00		MC-85.....£125.00		IC-207£295.00		DJ-C5.....£189.00	
VR-120D£159.00		MC-60A.....£110.00		IC-T3H£155.00		DJ-195£159.00	
FT-1500M.....£159.00		MC-80.....£69.95		SM-20£125.00		DJ-193£139.00	
VR-120£129.00		PS-52£229.00		SM-8.....£125.00		DJ-X3.....£115.00	
SP-8£125.00		PS-53£229.00		CT-17£99.00		DR-135£229.00	
MD-100A8X.....£100.00		PS-33£199.00		SP-21£69.00		DJ-496£175.00	

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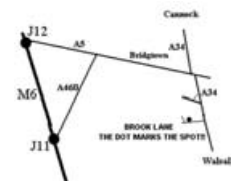


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AKD	6001	6m FM TRANSCEIVER	£135.00	KENWOOD	R-2000	RECEIVER	£225.00	TRIO	TR-9130	2M ALL MODE TRANSCEIVER	£250.00
ALINCO	DJ-580E	270CM HANDY TRANSCEIVER	£140.00	KENWOOD	R-5000	RECEIVER	£499.00	TRIO	TS-780	DUAL BAND BASE TRANSCEIVER	£275.00
ALINCO	DJ-G5EY	DUAL BAND HANDY	£199.00	KENWOOD	R-5000	RECEIVER + CONVERTER	£600.00	WELZ	AC-38M	200W MOBILE MATCHING NETWORK	£50.00
ALINCO	DJ-X10	WIDE BAND RECEIVER	£275.00	KENWOOD	SM-220	SCOPE - TS-940 etc	£200.00	YAESU	FP700	POWER SUPPLY	£100.00
ALINCO	DR-140	2M MOBILE TRANSCEIVER	£120.00	KENWOOD	SP-31	SPEAKER	£60.00	YAESU	FP-757HD	HEAVY DUTY POWER SUPPLY	£120.00
ALINCO	DR-605E	2M / 70CMS MOBILE	£200.00	KENWOOD	SW-100E	SWR METER	£25.00	YAESU	FRG-100	HF RECEIVER	£300.00
ALINCO	DX-70	HF MOBILE + 6M	£399.00	KENWOOD	TH-22E	2M HANDY TRANSCEIVER	£99.00	YAESU	FRG-7700	HF RECEIVER	£220.00
ALINCO	DX-70TH	HF MOBILE + 6M	£475.00	KENWOOD	TH-251E	HANDHELD 2M	£140.00	YAESU	FRG-8800	RECEIVER INCLUDES CONVERTER	£399.00
AMERITRON	QSK-5	AMPLIFIER SWITCH / PRE HEAT	£200.00	KENWOOD	TH-77E	DUALBAND 2M/70CMS HANDHELD	£130.00	YAESU	FRG-9600	RECEIVER	£200.00
AOR	AR-3000A	WIDE RECEIVER	£475.00	KENWOOD	TH-79E	HANDY TRANSCEIVER	£189.00	YAESU	FT-1000MK5	200W DSP HF TRANSCEIVER	£2,000.00
AOR	AR-3030	HF / VHF RECEIVER Inc converter VHF	£450.00	KENWOOD	TL-120	LINEAR LOW DRIVE AMPLIFIER 100W HF	£150.00	YAESU	FT-1000MP	BASE TRANSCEIVER	£1,300.00
AOR	AR-3030	HF RECEIVER	£399.00	KENWOOD	TM-231E	2M MOBILE TRANSCEIVER	£120.00	YAESU	FT-1000MP AC	HF BASE DSP TRANSCEIVER	(Late serial no) £1,550.00
AOR	AR-7030	TOP RECEIVER	£550.00	KENWOOD	TM-241E	2M MOBILE TRANSCEIVER	£120.00	YAESU	FT-1000MP V 200W DSP HF TRANSCEIVER	£1,900.00	
AOR	AR-8000	WIDE BAND RECEIVER	£199.00	KENWOOD	TM-251E	MOBILE TRANSCEIVER	£140.00	YAESU	FT-101Z	MINT CONDITION!!	£250.00
AOR	AR-8200II	WIDE BAND SCANNER	£275.00	KENWOOD	TM-255E	TRANSCEIVER 2M MULTIMODE	£395.00	YAESU	FT-101ZDKIII	HF TRANSCEIVER inc FM	£375.00
AOR	AR-8200 mki	WIDE BAND RECEIVER	£230.00	KENWOOD	TM-455E	70CM MULTIMODE MOBILE TRANSCEIVER	£450.00	YAESU	FT-225RD	2M BASE MULTIMODE CLASSIC!	£399.00
AOR	ARS000	TOP CLASS RECEIVER	£999.00	KENWOOD	TM-741E	DUALBAND TRANSCEIVER WITH DETACHABLE FRONT	£275.00	YAESU	FT-23R	HANDY TRANSCEIVER	£180.00
AZDEN	PCS-4000	2M TRANSCEIVER	£99.00	KENWOOD	TM-751E	TRANSCEIVER 2M MULTIMODE	£325.00	YAESU	FT-2500M	MOBILE TRANSCEIVER	£190.00
BNOS	AMPLIFIER	432-10-50 70CM 50Watt	£99.00	KENWOOD	TR-751E	2M MULTIMODE TRANSCEIVER	£350.00	YAESU	FT-290RMKII	2M ALL MODE TRANSCEIVER	£180.00
CAPLO	SPL-3000	ANTENNA TUNING UNIT	£199.00	KENWOOD	TR-851E	70CM MULTIMODE MOBILE TRANSCEIVER	£395.00	YAESU	FT-290RMKII	MOBILE 2M MULTIMODE TRANSCEIVER	£275.00
DAIWA	CNW-419	ATU	£190.00	KENWOOD	TS-400AT	TRANSCEIVER WITH BUILT IN ATU	£499.00	YAESU	FT-41R	HANDY TRANSCEIVER	£120.00
DATONG	FL-2	FILTER	£60.00	KENWOOD	TS-470D	TRANSCEIVER HF DSP ATU MOBILE/BASE	£650.00	YAESU	FT-470	270CM HANDY TRANSCEIVER	£140.00
DIAMOND	SW-1000	POWER METER - HF TO 23CMS	£110.00	KENWOOD	TS-680	HF 6M MOBILE/BASE TRANSCEIVER	£400.00	YAESU	FT-650AC	26.5MHz 100w BASE STATION TRANSCEIVER	£599.00
DRAKE	SW-2	RECEIVER	£275.00	KENWOOD	TS-690	HF 6M Inc ATU	£550.00	YAESU	FT-690RMKI	6M MULTIMODE MOBILE TRANSCEIVER	£250.00
FAIRHAVEN	RD-500	WIDE BAND RECEIVER	£575.00	KENWOOD	TS-711E	SM BASE STATION TRANSCEIVER	£399.00	YAESU	FT-690RMKII	6M PORTABLE	£375.00
GRUNDIG	SAT800	SATELITE 800 MILLENNIUM	£400.00	KENWOOD	TS-790E	270CM BASE STATION TRANSCEIVER	£699.00	YAESU	FT-726R	2 / 70 / HF TRANSCEIVER	£400.00
ICOM	AT-150	AUTO ATU	£175.00	KENWOOD	TS-790E	2m / 70cm/23cm BASE TRANSCEIVER	£999.00	YAESU	FT-726R	2 / 70 / 6m TRANSCEIVER	£575.00
ICOM	IC-2100H	2M MOBILE TRANSCEIVER	£150.00	KENWOOD	TS-850SAT	HF TRANSCEIVER MINT!	£800.00	YAESU	FT-730R	70CM MOBILE TRANSCEIVER	£120.00
ICOM	IC-251	2m MULTIMODE TRANSCEIVER	£295.00	KENWOOD	TS-950SD	HF/ 150W DSP BASE TRANSCEIVER	£1,100.00	YAESU	FT-736R	2m / 70cm TRANSCEIVER	£650.00
ICOM	IC-275E	25W TRANSCEIVER	£525.00	KENWOOD	TS-950SDX	HF 150W DSP FULLY LOADED	£1,700.00	YAESU	FT-736R	2m / 70cm / 6m TRANSCEIVER	£750.00
ICOM	IC-471E	70CM BASE MULTIMODE TRANSCEIVER	£299.00	KENWOOD	VFO-120	LATE S.NUMBER TS120 VFO	£50.00	YAESU	FT-747GX	TRANSCEIVER	£299.00
ICOM	IC-706MK1	HF / 6M / 2M (10w) TRANSCEIVER	£450.00	KENWOOD	VS-1	VOICE SYTHESISER	£30.00	YAESU	FT-757GKMKII	TRANSCEIVER	£395.00
ICOM	IC-706MK11	HF / 6M / 2M TRANSCEIVER	£550.00	KENWOOD	VS-2	VOICE SYTHESISER	£30.00	YAESU	FT-757MK1GX	HF TRANSCEIVER	£375.00
ICOM	IC-728	HF TRANSCEIVER	£399.00	KENWOOD	YG-455CN-1	270Hz CW CRYSTAL FILTER	£100.00	YAESU	FT-767GX	HF BASE 100watt built-in ATU	£599.00
ICOM	IC-737	HF inc ATU BASE STATION TRANSCEIVER	£575.00	KENWOOD	YK-88A-1	AM FILTER	£40.00	YAESU	FT-77	INCLUDES FM MINT!	£275.00
ICOM	IC-756	HF / 6m All Band Transceiver	£999.00	KENWOOD	YK-88C-1	500Hz CW NARROW FILTER	£40.00	YAESU	FT-790R	70CM MULTIMODE MOBILE TRANSCEIVER	£225.00
ICOM	IC-756PRO	ICOM TRANSCEIVER	£1,600.00	KENWOOD	YK-88CN1	270Hz CW FILTER 8.83MHz IF	£40.00	YAESU	FT-80C	0-30MHz COMMERCIAL TRANSCEIVER	£375.00
ICOM	IC-775DSP	HF 200W BASE STATION TRANSCEIVER	£1,499.00	KENWOOD	YK-88S-1	2.4KHz SSB NARROW FILTER 8.83MHz IF	£40.00	YAESU	FT-847	HF / 2 / 6 / 70cm BASE TRANSCEIVER	£900.00
ICOM	IC-8500	WIDE BAND RECEIVER	£899.00	KENWOOD	YK-88SN	1.8K SSB FILTER (TS-440 / R5000)	£40.00	YAESU	FT-920AF	HF/6M BASE WITH DSP	£899.00
ICOM	IC-910	270 CM BASE TRANSCEIVER	£999.00	KENWOOD	YK-88SN-1	1.8KHz SSB NARROW FILTER 8.83MHz IF	£40.00	YAESU	FT-ONE	HF BASE TRANSCEIVER	£450.00
ICOM	IC-R2	HANDY SCANNER	£99.00	KENWOOD	TS-2000	HF / VHF / UHF ALL MODE MULTIBANDER	£1,350.00	YAESU	FTV-901	TRANSVERTER Inc 2m Mod	£165.00
ICOM	IC-R3	HANDHELD RECEIVER	£299.00	KENWOOD	AT-120	ANTENNA TUNER	£75.00	YAESU	FV-707	VFO UNIT	£99.00
ICOM	IC-R7000	RECEIVER MINT! CONDITION	£550.00	KENWOOD	TS-50	HF TRANSCEIVER	£425.00	YAESU	MD-100A8X	DESK MICROPHONE	£80.00
ICOM	IC-R72	RECEIVER	£399.00	MAGNUM				YAESU	MH-34B4B	SPEAKER MICROPHONE For VXSX VX-1R	£15.00
ICOM	IC-R75	HF / 6m RECEIVER	£475.00	DELTA FORCE	10M MOBILE AM/FM/USB/LSB/CW		£149.00	YAESU	MH-35	SPEAKER MICROPHONE	£10.00
ICOM	IC-T81E	QUAD BAND HANDY 2m/6m/23cm/70cm	£250.00	MICROSET	RU-20	70 CMS AMP	£60.00	YAESU	MMB-16	MOUNTING BRACKET	£20.00
ICOM	IC-T8E	HANDY TRANSCEIVER	£175.00	MICROWAVE	MODULES			YAESU	NT-29	CHARGER	£30.00
ICOM	PCR-1000	COMPUTER SCANNER	£200.00		28/144	TRANSVERTER 28/144 £125.00	£125.00	YAESU	PA11U	PSU FOR FRG-100	£20.00
ICOM	PS-15	20A POWER SUPPLY FITS ALL ICOM	£110.00	MIDLAND	MIDLAND 48 80 CHANNEL CB		£55.00	YAESU	VR-120	RECEIVER FM /WFM/AM	£99.00
ICOM	RC-7000	REMOTE CONTROL	£40.00	PACCOM	TINY 11	TNC	£99.00	YAESU	VR-5000	TOP RANGE SCANNER RECEIVER	£450.00
ICOM	ICT-7E	270CM HANDY TRANSCEIVER	£170.00	PACCOM	TNC-320	TNC	£90.00	YAESU	VX-1R	HANDHELD TRANSCEIVER	£120.00
ICOM	UT-84	TOPE SQUELCH UNIT	£25.00	PLESSEY	PR-2250	HF RECEIVER BEST QUALITY CLASSIC!	£1,200.00	YAESU	VX-5R	2 / 70 / 6 HANDIE 5W	£220.00
ICOM	IC-R9000	TOP CLASS COMMUNICATIONS RECEIVER	£2,995.00	REALISTIC	PRO-394	HF RECIEVER	£99.00	YAESU	XF-114SN	2KHz SSB FILTER	£60.00
ICOM	IC-756ProII	HF / 6M DSP BUILT IN ATU	£2,000.00	REALISTIC	PRO-2006	400 CHANNEL SCANNER	£110.00	YAESU	YO-100	SCOPE VERY RARE!	£150.00
ICOM	IC-706mkIIG	HF / 6M / 70CMS / 2M TRANSCEIVER	£750.00	SGC	SGC-2020	HF TRANSCEIVER	£450.00	YAESU	FT-7100	2M / 70CMS DUALBAND TRANSCEIVER	£249.00
ICOM	AT180	MATCHING ATU FOR THE IC706	£250.00	SOMMERKAMP	FT290R	2m MULTI-MODE TRANSCEIVER	£180.00	YAESU	FT-480R	2M TRANSCEIVER	£199.00
ICOM	IC-271E	2m MULTIMODE TRANSCEIVER	£325.00	SONY	ICF-SW77	FM/SW/MW/LW PORTABLE AS NEW!	£250.00	YAESU	FT-100	HF/VHF/UHF ALL MODE TRANSCEIVER	£599.00
ICOM	AT-100	AUTO TUNER SUITE IC-751 etc	£225.00	SONY	SW-100E	FM/SW/MW/LW PORTABLE	£90.00	YAESU	FT-840	HF TRANSCEIVER	£425.00
ICOM	IC-271E	ALL MODE TRANSCEIVER	£299.00	SYNCRON	PS-1220VU	20 AMP POWER SUPPLY	£60.00	YUPITERU	MVT-225	AIRBAND SCANNER	£150.00
ICOM	IC-706MKIIGHF / VHF / UHF TRANSCEIVER		£699.00	TOKYO				YUPITERU	MVT-7300	MULTIBAND HANDHELD SCANNER	£199.00
ICOM	AT-180	ATU	£250.00	HY-POWER	HL-30V	2M and 25W AMPLIFIER	£75.00	YUPITERU	OP-90	CASE	£10.00
ICOM	IC-R71E	RECEIVER	£399.00	TOKYO				YUPITERU	VT-125	AIRBAND SCANNER	£120.00
JRC	JST-245	HF 50MHz 1500w AC BASE TRANSCEIVER	£1,295.00	HY-POWER	HL-37V	LINEAR AMPLIFIER	£60.00				
JRC	NRD-345	RECEIVER	£299.00	TONNA	7000E	TERMINAL	£130.00				
JRC	NRD-535	HF RECEIVER	£600.00	TRANSVERTER	QM 70	28/144 TRANSVERTER	£100.00				
KENWOOD	AT-230	ANTENNA TUNER	£120.00	TRIO	R-2000	RECEIVER + CONVERTER	£300.00				
KENWOOD	DFC-230	FREQUENCY CONTROLLER	£70.00	TRIO	TR-2300	TRANSCEIVER PLUS AMPLIFIER 2M	£99.00				
KENWOOD	PS-430	POWER SUPPLY	£100.00								
KENWOOD	PS-50	POWER SUPPLY	£145.00								

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This particular It's A Classic article was planned long ago...but due to the freedom we allow our freelance authors (in choosing what they select for use in their own columns) we sometimes end up 'doubling up' on some topics. This month, for example, we have a truly 'classic' doubling because **Ben Nock G4BXD** is also featuring KW rigs in this column!

particularly the 2000B - still has a part to play on the bands today.

Here in the *PW* office we've been receiving requests from readers to follow up the KW story in the same way that the TW story was presented in the feature The Pioneering TW Communicators (September 2002 *PW*). And, as I've already mentioned as a footnote in Valve & Vintage...this is under way thanks to the assistance of the greatly admired **Roley Shears G8KW**. So, with the

1972 manual).

"The KW 2000B transceiver is a complete unit enabling transmission and reception of single-sideband and c.w. on all Amateur Bands between 1.8 and 30MHz. Reception of a.m. signals is also possible. It is capable of transmitting and receiving either upper or lower sideband. Separate power supply units for operation on 117 or 234V a.c./ and 12V d.c. make the equipment suitable for 'fixed' or 'mobile' stations where a compact

It's A British Classic...

The KW 2000B

Rob Mannion G3XFD has owned several of the famous KW transceivers and here looks at a true modern 'classic' the KW 2000B. It may be an older design...but it was also a pioneer.



● A British 'Classic' - the KW 2000B valved transceiver and its separate power supply/loudspeaker unit. Rob G3XFD says "This beautifully styled lightweight (for its day) transceiver introduced many British Amateurs to the delights of full break-in operation on c.w., including myself".

However, due to the very nature of the way Ben's column is run - covering a variety of topics within the two page format - I'm sure that readers who are interested in older equipment...won't mind too much that the KW subject crops up twice in the same issue.

Many operators may well now regard the KW 2000B and its stablemates to be outdated nowadays...but I firmly believe that the rig is a true classic because it led where others followed. I also consider that the transceiver -

main story still to come...I can get on with looking specifically at one of my favourite rigs...the 2000B.

Deserves Praise

As you'll now realise, I've been a KW enthusiast for many years...but in truth the KW concept deserves praise as it's a superb design for the period...and even now. So, let's take a look at what's behind this classic's design, taken directly from one of KW manuals I have for the '2000B. (This particular quote comes from a

installation, weighing 18lbs (transceiver only) is required.

The receiver section of the KW 2000B transceiver is a double conversion superhet with a crystal controlled first mixer, and a highly stable v.f.o., a mechanical filter for optimum performance on s.s.b (operating on 455kHz) and a crystal controlled carrier oscillator.

Independent receiver frequency tuning (IRT) is provided with a deviation of approximately $\pm 6\text{kHz}$. A product detector is used for all modes of reception*. The audio output stage

- Close up view of the top of the chassis. The completely screened compartment encloses the two 6146B (in this version) p.a. valves.

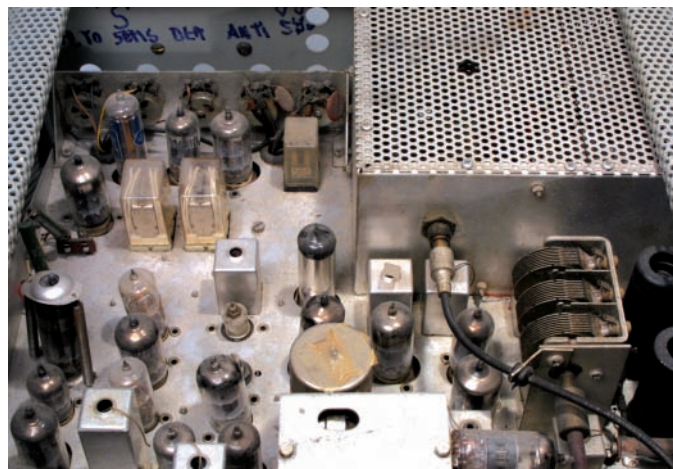
is capable of delivering 1.5W of audio to the loudspeaker. The equipment is fitted with a crystal calibrator 100kHz marker.

The exciter/transmitter section uses the same carrier oscillator, mechanical filter v.f.o. and h.f. crystal oscillator as the receiving section. The p.a. stage has an output of 100W p.e.p. on s.s.b. and 150W d.c. input on c.w. A Pi output stage provides a variable output impedance. Independent transmitter frequency tuning (ITT)

6CH6 pentode, acts as transmit driver. Valve 8 (and 23) are 6146 International Octal based power amplifier beam tetrodes, V9, a 6BE6, is the 1st r.f. mixer and V10, a 6AM6, acts as an h.f. crystal oscillator.

Valve 11, a 6U8, provides the main v.f.o., and V12, a 6BA6 type, acts as the 2nd i.f. amplifier. Valve 13, another 6BA6, is the first i.f. amplifier and V14, a 6AL5, a double diode, is the a.v.c. detector.

Valve 15a, half of a 12AX7



B Transceiver

is provided with a deviation of approximately $\pm 6\text{kHz}$ from the indicated dial reading. The equipment is fitted with Voice Control** but can also be operated with a 'press to talk' function".

*See 'On Air' section regarding reception of amplitude modulation -a.m. - with this equipment.

** 'Voice Control' is more commonly referred to as VOX nowadays.

Valve Line Up

The valve line up (there are 22 of them!) is interesting indeed, and apart from the 6146 types used in the p.a. stage, they're all B9A or B7G base types of all glass (baseless) construction. However, I've got to point out that in some cases one 'bottle' actually has two separate valves within the glass envelope!

Let's now look at the line-up: V1a is a microphone amplifier using half of a 12AX7 double triode, V1b is the 1st VOX amplifier using the second half. V2b, a half of a 12AT7 double triode, is a cathode follower. Valve 3, an EF183 pentode, is a transmit i.f. amplifier, V4, a 12AT7 double triode is first transmit mixer, and V5, another 12AT7, is the 2nd transmitter mixer.

Valve 6, another EF183, is the receiver r.f. amplifier, and V7, a

double triode, provides the tone oscillator, whilst the other half, V15b, acts as the product detector. Valve 16a, half of a 12AT7 double triode, acts as lower sideband (l.s.b.) carrier oscillator, and the other half, V16b, acts as the upper sideband (u.s.b.) carrier oscillator.

Valve 17a, a triode pentode, using the triode section acts as the a.f. amplifier, and the pentode section, V17b provides the audio output amplifier. Valve 18, a 12AT7, is the S-meter amplifier and V19, a 6BE6, is the 2nd receiver mixer.

Valve 20 is a voltage regulator, (OA2), type, and V21a, half of a 12AT7, is the second VOX amplifier. Valve 21b, the other half, acts as the VOX relay actuator and V22, a 6BA6, acts as the 100kHz crystal calibrator source.

Nine solid state diodes are used for various applications, including balanced modulator, IRT, etc. A further 10 diodes are used for c.h.t. rectification and bias supplies.

On The Air

Working the KW 2000B on the air was, and still is, a delight. As I've already mentioned, the transceiver and its earlier cousin introduced me to break-in c.w. working with a good sidetone and 'one knob' transceiver operation. In the late 1960s and early 1970s it was a true

revelation.

Obviously, nowadays we're spoilt with state-of-the-art equipment which come complete with accurate direct reading frequency displays. Despite this, the KW 2000B's easily-calibrated tuning scale (calibrated by the internal 100kHz standard) was very good and proved extremely useful.

On s.s.b. the transceiver was truly superb...some of the audio reports I used to receive (looking back into my log book) were very complimentary in deed. Another aspect which proved to be very helpful - especially to those of us who operated using long wire antennas - was the Pi output tuning system which permitted matching into a wide range of loads.

In those days the selectivity of the transceiver's receiver section seemed adequate...although nowadays it would need to be 'tighter' for working on the busy bands. Although I've never owned one of the KW Q-Multipliers (mentioned by Ben Nock G4BXD in Valve & Vintage) I have used one on the bands when I held the callsign G0RSC (G 0 Radio Society Clayesmore) on behalf of the club which I helped to organise at my daughters' boarding school, located between Blandford Forum and Shaftesbury here in Dorset.

The club's transceiver was a KW

2000B, which also had a Q-multiplier unit. On the air it proved to be very effective indeed...but required careful use! Basically speaking the Q-multiplier uses controlled feedback to generate an extremely high Q to increase selectivity in exactly the same way as a regenerative detector does as the operator adjusts the threshold of oscillation.

Nowadays of course the KW 2000 series are disadvantaged by not covering the WARC bands of 10, 18 and 24MHz. Despite this though...if you're prepared to do some maintenance yourself on the Amateur Bands only* rigs, they'll make an excellent receiver for a keen s.w.l. or a complete station. I really do think that they're superb for c.w. and I'll never forget the encouragement they offered me by providing break in c.w. operation. Sheer luxury in those days!

*Note: Although strictly speaking the KW 2000 series do not cover any broadcast bands...in effect they are able to cover part of the 41 Metre band because of the tuning overlap. Reception of the a.m. broadcasts is achieved by the 'exalted carrier' method. This is because the receiver section is not equipped to demodulate a.m. in the same way as a broadcast receiver.

Instead, by selecting either upper or lower sideband on the



- The cleverly designed wrap round perforated aluminium cabinet helped ventilation and reduced weight on the main transceiver. It was also exceptionally easy to service.

The KW 2000B Transceiver

Recently - on 3.5MHz -I listened in to a very interesting conversation between two Amateurs regarding the use of the Kokusai (Japanese made) 455kHz mechanical filters, which are also employed in the KW transceivers. It seems that even after very many years, these filters are still the subject of some admiration -and application by keen constructors!

However, part of the QSO involved a problem with the Kokusai filter I've not experienced myself. Despite hearing it 'second hand' it's obviously important for anyone owning/considering buying a KW transceiver to be aware of.

Apparently over the years (bear in mind most of the filters will be over 30 years old) the 'Sorbo' rubber foam within which the beautifully constructed mechanical filter is mounted... can degrade. In fact, I've now learned from other sources that the foam rubber can turn into a 'gooey' liquid... damaging the filter.

It's not possible to check the inside of the filter easily, and I assume (not having had the experience myself) that the only indication of a filter failure would be degraded reception of transmission. Obviously, it would be far better to

try receiving first (if you're planning to buy a KW transceiver).

I've no doubt that readers will write in with their comments on this point...and we look forward to publishing nay letters on the subject! as the mechanical filter is common to both receive and transmit.

Pride Of Place

In summing up my look at one of the finest British classic rigs I've ever come across, mine take pride of place in my collection. And I strongly recommend that if you can get hold of a KW 2000B that's in good working order -you do so. It will provide a nice stand-by rig, an excellent high quality 'starter' receiver (and perhaps transmitter later on) for a newcomer to the hobby.

Being a valved transceiver it has the advantage that it's much more difficult to damage the output stages. Valves are much more forgiving than those solid state things! Additionally you can say with pride it's British made, even though the filter is Japanese! It just goes to show...Amateur Radio really is an International hobby!

DNW

broadcast station, the operator can then - using the selectivity of the receiver - slowly tune for 'zero beat' of the wanted transmitter's carrier, and then listen to the wanted sideband. Although the technique may seem a little awkward at first...you'll soon get used to doing it, I assure you!

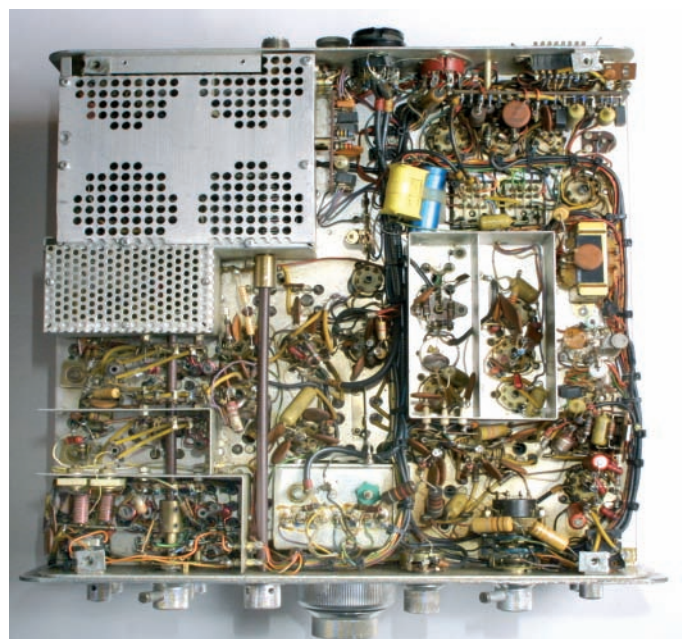
Design Problems

As with any concept...there's bound to be some design problems and of course the KW 2000B had its share. The biggest problem for me was the miniature multi-way plug and connect between the combined power supply and loudspeaker unit to the main transceiver. It could be a real pain if it became intermittent or damaged in any way, and as you may imagine...I found the awkward little spring clips especially difficult as I'm digitally compromised!

Another area of difficulty for me (perhaps I'm heavy handed?) was the otherwise pleasant to use main tuning dial which (on several of the rigs I've owned) came adrift from the main backing plate, making it wobble and eventually breaking the drive cord for the tuning scale. To be honest though, this wasn't really a KW problem...it was obviously a quality control issue going back to the makers of the slow-motion dial used on the transceiver.

Another problem (not apparent on all KW 2000B transceivers -were the rather stiff main controls (particularly the main mode/on/off switch. Interestingly, the model featured in the photographs - produced in August 1972 (one of three KW transceivers in my collection) has some extra levers built into the control knobs. They were (and are) very helpful...especially the one mounted on the band change switch!

- View of the underside of the main chassis. The method of construction saved weight, led to reliable working and in the opinion of G3XFD...is a true work of Art!



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REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

This month I'm going to describe how you can make long distance contacts on the 144MHz band by scattering signals off ionised meteor trails. Read on and you'll be more than ready for the Leonids meteor shower due to peak during the early hours of Tuesday November 19.

If you think that contacting stations on the v.h.f. bands by bouncing signals off a column of ionised gas is difficult... **then you're wrong.** The general principle of scattering radio waves off a meteor trail is easy to understand although the term 'meteor scatter' may be misleading.

It's not the meteors themselves which scatter signals beyond the horizon, but the ionised trails which are left behind as these high velocity fragments burn up. First consider a v.h.f. transmitting station located some 500 to 2000km away from a receiving station. Because of the normal vagaries of v.h.f. propagation and the curvature of the earth it's usually impossible to detect any signals at the receiver. However, if a suitably aligned meteor enters the atmosphere its ionised trail may be sufficient to scatter radio waves from the transmitter to the receiver.

At the receiver the transmissions can be received for a short period as long as the meteor trail is present. Such reflections, called 'pings' and 'bursts', last from a fraction of a second to several minutes.

Meteor trails ionise in the region known as the E-layer and this is where some other propagation modes such as Sporadic-E and Aurora occur. The majority of reflections take place at a height of around 90 to 120km corresponding to a maximum communication distance of about 2200km. From the UK this means that contacts can be made on the v.h.f. bands with stations located as far apart as Iceland (TF) in the north to Morocco (CN) in the south and as far to the west as the ex-Russian Republics.

Reflections are generally longer and stronger on lower v.h.f. frequencies such as the 50 and 70MHz bands. However, because of the very limited access to the 70MHz band within Europe most contacts here will be less efficient as the minimum distance for m.s. work is normally around 500km.

Most meteor scatter communication is carried out on 144MHz, where a high level of European activity makes it ideal for beginners. Contacts can also be made on 430MHz but this is very much approaching

the limit for practical Amateur communications.

RANDOM AND SHOWER METEORS

Meteors occur in two categories; sporadic meteors and those associated with meteor showers. Sporadic or random meteors arrive every day all the time and from all directions. Their rate of arrival, however, varies with the time of day and season of the year.

Sporadic meteors are more plentiful at sunrise, as the Earth sweeps them up as it orbits the Sun and less plentiful at sunset as

code or data. The stations then wait for an incoming meteor to briefly ionise the E-layer region between them to allow communication to occur.

EQUIPMENT USED

So what modes do you use and what equipment do you need to join in the fun? There are three communication modes currently in use, single-sideband telephony (s.s.b.), high-speed Morse (h.s.c.w.) or data (FSK441).

As meteor scatter is essentially a weak-signal mode all communications are carried

DAVID G4ASR DESCRIBES HOW TO CONTACT VHF DX STATIONS BY SCATTERING SIGNALS OFF METEOR TRAILS

the Earth rotates away from them. Random meteors are more prevalent in late summer, July-August and are at a minimum in February. So, the best time to make contacts via sporadic meteors is around 0500UTC during the summer.

Conversely I wouldn't recommend newcomers attempt contacts at 1700UTC on a February evening! However, I would recommend that you commence listening during a meteor shower. As the name infers a shower consists of numerous meteors probably many hundreds or thousand times greater than sporadic meteors.

Shower meteors are very predictable as they travel in fixed orbits around the Sun which the Earth intersects annually in its own orbit. Meteor showers occur virtually every month of the year and I've given details of some of the main showers in **Fig. 1**.

Each shower has its own characteristics - when it's 'visible' above the horizon, the event duration and the speed of the meteors. Note also that most occur during daylight hours so please don't think of them as a night time phenomenon.

Whether you use sporadic meteors or shower meteors the principle of making communications via their ionised trails is exactly the same. Normally both stations point their antennas towards each other and, using specifically timed periods, take it in turns transmitting using either speech, Morse

out in narrow bandwidths of 3kHz or less. This constraint means that a wide band (12.5/25kHz) f.m. transceiver is not suitable for m.s. work.

Irrespective of which of the three modes you choose to use you will need a transceiver or transverter capable of providing a single-sideband (s.s.b.) output. All telephony communications via meteor scatter is carried out in upper sideband (u.s.b.).

HIGH SPEED MORSE

Only a few years ago most high speed Morse was transmitted at a speed of around 300 to 400 words per minute (w.p.m.). Operators would load a message into a memory keyer and then clock it out at a much faster rate into the transmitter. Any received audio signal would be recorded onto a multi-speed tape recorder (typically a cassette recorder with a modified motor speed controller) and then slowed down so that the c.w. burst could be decoded by ear.

A method was later developed by DF7KF who designed a stand-alone digital tape recorder. This small microprocessor controlled unit records audio bursts and pings and simultaneously decodes them whilst still recording incoming signals - quite a leap forward.

With the increased availability of personal computers there has been a leap in

program sophistication. One popular program, *WinMSDSP 2000*, written by **Tihomir Heidelberg 9A4GL** requires Microsoft Windows 95/98 and a sound card. *WinMSDSP 2000* can receive and transmit high speed c.w. at speeds up to 16,500 letters per minute (3300 w.p.m.). At this speed you can receive 275 letters (55 words) in one second. More importantly a 'ping' of say 0.1 second will contain 27 letters or approximately 5 words.

So, it's now possible to receive both callsigns and reports within a time frame that previously would have been impossible to decode with a tape recorder or even the DF7KF digital tape recorder. You can download *WinMSDSP 2000* from the Internet at <http://ham2.cc.fer.hr/9a4gl/>

The *WinMSDSP 2000*

program uses the PC sound card to produce an audio c.w. tone, which is injected into the microphone socket of the v.h.f. transceiver in s.s.b. mode to give a c.w. output. Every time the sound card produces an audio dot or dash the transmitter produces a similar r.f. output.

One point to note is that if you are using a 2kHz tone (for example) the transceiver needs to be set 2kHz lower than your actual transmit frequency. So, if I wanted to call CQ on the meteor scatter c.w. calling frequency, 144.100MHz, I would set my transceiver to 144.098MHz to give the correct transmitted frequency.

DIGITAL MODE

Although the use of high speed c.w. is still very effective a new digital mode written by **Joe Taylor K1JT** has recently taken the meteor scatter world by storm. The program *WSJT* is an acronym for Weak Signal communication by Joe Taylor and comprises of two digital programs, FSK441 for meteor scatter and JT44 for other weak signal propagation modes.

Similar to *WinMSDSP*, *WSJT* uses a PC sound card to produce four-tone frequency shift keying at a 441 baud rate, hence FSK441. These audio tones are then applied to the microphone socket of the s.s.b. transceiver.

Short messages conforming to existing meteor scatter procedures are typed into buffer stores and are transmitted at a transmission speed of 147 characters per second, approximately 1764w.p.m. Needless to say at this speed you only require a very small meteor trail reflection to receive lots of information.

In fact you don't need to copy the signal by ear or slow down the received signal as you would for high speed Morse - you don't even need to be proficient in Morse at all!

Detected signals are analysed and the received text messages displayed on the PC screen.

The real advantage of FSK441 is that it can convert inaudible pings into solid copy. The software is available free from

<http://pulsar.princeton.edu/~joe/K1JT> or <http://www.vhfdx.de/wsjt/>

Before the introduction of *WinMSDSP* and *WSJT* it was necessary to run a power of around 100W into a single long boom Yagi to provide reasonable results with meteor scatter. Of course an amplifier of even greater power will always help!

However, the introduction of *WSJT* has meant that you can effectively run with much lower power and a smaller antenna than would normally be acceptable for m.s.

Fig. 1: Major Meteor Showers

Shower	Dates	Maximum
Quadrantids,	1-6 January	4 January
Lyrids	19-24 April	22 April
Eta Aquarids	1-8 May	5 May
Arietids	30 May-18 June	8 June
Nu Geminids	9-15 July	12 July
Perseids	25 July-18 Aug	12 Aug
Orionids	16-26 Oct	20 Oct
Leonids	15-19 Nov	19 Nov
Geminids	7-15 Dec	14 Dec

Fig. 2: Reporting System

First Digit (Duration)
2 = up to 5 seconds
3 = 5 to 20 seconds
4 = 20 to 120 seconds
5 = over 120 seconds
Second Digit (Strength)
6 = up to S3
7 = S4 to S5
8 = S6 to S7
9 = S8 or stronger

communication. You can use a power level of say 50W into a dipole or 10W into a 4-element Yagi.

So, don't be put off if you have a small station. Just download the software and start listening!

OPERATING FREQUENCIES

Meteor scatter activity can be found on the following frequencies. The c.w. calling frequency is 144.100MHz with resulting contacts spread up to 26kHz higher than the reference frequency.

Stations use a letter system when calling CQ to indicate where they are listening for replies. For example CQJ (the tenth letter in the alphabet) indicates that the QSO is to be made on 144.110MHz. The s.s.b. calling frequencies lie between 144.195-144.205MHz although everyone operates exactly on 144.200MHz. It's chaos!

Users of FSK441 have chosen 144.370MHz as a calling frequency. You'll find much activity here and a similar amount of mutual interference! Thankfully some stations are starting to use a letter system on this mode to spread out activity.

Because of the very short burst lengths normally encountered via meteor scatter a greater level of operating skill is required for s.s.b. and c.w. operation than for normal DX working. In Europe the standard m.s. procedures co-ordinated by IARU Region 1 must be followed to ensure that a maximum

of correct and unmistakable information is passed bothways. The relevant procedures can be found on the RSGB VHF Committee website at

<http://www.scit.wlv.ac.uk/vhfc/iaru.r1.vhfm.4e/5B.html>

Additionally the UK Six Metre Group website at <http://www.uksmg.org/meteor-scatter-operating.htm> give full details of timing, reporting and confirmation procedures.

Accurate timing of transmit and receive periods is very important to avoid mutual interference. High speed c.w. uses 2.5 minute periods, s.s.b. speech uses 1 minute periods (with a growing number of s.s.b. speech operators leaving a break every 15 seconds in case the QSO can be completed in one long burst) and FSK441 uses 30 second periods.

The procedures specify in which period to transmit dependant on direction of transmission. However, because of the location of the UK the IARU rule is overridden by local agreement and you should **always transmit during the second period**. That is minutes 01-02, 03-04, 05-06 past the hour on s.s.b., minutes 2.5-5, 7.5-10, 12.5-15 and so on for

high speed Morse and during the last 30 seconds of each minute for FSK441.

Meteor Scatter reports consists of two numbers as shown in **Fig. 2**. The first number indicates the maximum burst duration and the second indicates the signal strength. Thus the lowest possible report is 26 and the highest is 59.

LEONIDS SHOWER

For the past five years the Leonids meteor shower has been brilliant with an amazing amount of DX worked on the v.h.f. bands. The predictions for this year's event are even better (see <http://www.meteorscatter.net/leolinks.htm>) so, I would encourage everyone to have a go!

The predicted activity peak is 0300-0500UTC on **Tuesday November 19** although the shower will be above the UK horizon between 2300UTC on Monday evening through to 1300UTC on Tuesday. My advice would be to find a clear frequency and use s.s.b. speech, but the choice is yours.

DEADLINES

That's all for now. Good luck during the Leonids shower, let me know how you get on. Thanks for your letters and good luck with the DX. See you again next month.

73 David G4ASR

HF HIGHLIGHTS

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

The Radio Society of Great Britain (RSGB) announced in August that permission had been granted for experiments to begin on 5MHz.

Permission was obtained from the Ministry of Defence (MOD) and the Radiocommunications Agency (RA) for the allocation of five spot frequencies 5.260, 5.280, 5.290, 5.400 and 5.405kHz all with a bandwidth of 3kHz. The experiment is to carry out antenna and propagation studies aimed at advancing the understanding of Near Zenithal Radiation or Near Vertical-Incidence Skywave (NVIS) communications via the ionosphere.

At present, Notice of Variations (NOVs) are only being issued to Class A licence holders but it's hoped to relax this rule as the

time were BS7 Scarborough Reef, VU Andaman & Nicobar Island, 7O Yemen, 3CO Annobon Island, VU Lakshadweep Island and VK0 Macquarie Island. Instructions on completing and submitting the survey form are available at

<http://www.aa5au.com/rttysurvey.html>

SPECIAL EVENTS

Special event stations will be operating in South Korea from the 14th Busan Asian Games until 23 October. The special call signs to be used are **HL14AG** and **DT14AG**. Activity is planned on all bands from 3.5-28MHz including the WARC bands and modes include s.s.b., c.w., RTTY and SCTV.

Rd, Hillsborough, NJ 08844, USA. Ralph also handles the cards for **Denis 4J9NM** who can sometimes be found around 21.285kHz between 1630-1900.

There has been a fair amount of activity from Kyrgyzstan over the past few months including EX1IF, EX7MD, EX8MBB, EX8MCO, EX8MMS, EX8M and EX8W. If you worked any of these stations and need a QSL card from them Vlad EX8F can confirm the contact for you. Your card should be sent direct to **Vlad Y. Sudakov, PO Box 2, Kara Balta 5, 722030, Kyrgyzstan.**

Finally, if you worked any of the following IOTA operations UA0FFP (AS-025), UA0ZY/P (AS-095), UA0ZY/P (AS-095), UA0ZY/P (AS-142), UA0QHZ/0 (AS-152) or UA0QMN/0 (AS-152) and need the island confirmed, then cards can be obtained from QSL manager **Eugene Shelkanovtcev RZ3EC, PO Box 70, Orel 302028, Russia.**

CARL MASON GW0VSW ROUNDS UP THE LATEST HF NEWS & REPORTS ON THE 5MHZ EXPERIMENT

experiment progresses. It's important to note that any Amateurs who wish to participate in the experiment will be required to report their findings and results to the RSGB. They will then collate this information and forward it to both the MOD and RA.

The first NOVs have already been issued and as I type up the column I have already heard two stations in QSO, **Peter G0DZB** in Colchester (57) working **Rob G0UOO** (59) in Kent at 1626UTC.

DIGITAL SURVEY

Don Hill AA5AU, is conducting a 'RTTY Most Needed DXCC Entities Survey'. This is more of a 'digital' mode survey than just RTTY mode since the RTTY DXCC Award includes **all** digital modes.

The entities listed on the form are nearly the same as those on the ARRL DXCC list found on their website <http://www.arrl.org/awards/dxcc/> with only a few exceptions. The more entries Don receives, the more accurate the results.

Anyone who has operated any digital mode is asked to participate and it doesn't matter how many countries you need as long as your input is complete and accurate.

I am sure that *PW* readers will be able to help and add to the 170 submissions received so far. Heading the most needed list at this

The QSL Manager for both calls is **HL0BHQ** direct or via the bureau Four special awards will be available for working the stations and further details are available by sending an E-mail to: ds5psn@hanmail.net

The Mongolian Radio Sport Federation is organising an international DXpedition to celebrate the 840th anniversary of Gengis Khan, the founder of the Mongolian Empire. Operating in the Khentii Province, Ghengis Khan's birthplace, the group will use the call **JU840C** and hope to be active from 21-31st October.

DX NEWS

There are some special prefixes to look for this month with Radio Amateurs in Canada able to use CJ for VA, CK for VE, CY for VO and CZ for VY. The Canadian licensing authority, Industry Canada, has authorised the use of these special prefixes to celebrate the 125th anniversary of Japanese Immigration to Canada. These prefixes can be used until the end of this month.

QSL INFORMATION

You may have worked **Igor 4K5D** in Azerbaijan and want the contact confirmed. Well, you can now get a QSL card via his manager **Ralph Fariello K2PF, 23 Old Village**

YOUR REPORTS

I begin this month with the sad news that regular reporter **Don McLean G3NOF** passed away on the 1 August after suffering deteriorating health for several months. Don was one of three surviving founder members of the Yeovil Amateur Radio Club of which he had been secretary during the early years and more recently a committee member.

Don will be widely remembered for his s.s.b. activities and his support of this column over many years. I am sure you will all join me in sending condolences to his family. (*Tribute on News pages.* Editor)

On to your reports now and **Steve Bainbridge M1SWB/M3SWB** from Liverpool who is a keen PSK operator and this month worked CU3CZ (Azores) 2119, HB9DDJ (Switzerland) 2132 and PY6HL (Brazil) at 2230UTC. All contacts were made using an IC-706 and 10W to a long wire with a.t.u. for 7MHz.

THE 14 & 18MHz BANDS

Martyn Medcalf M3VAM, Chelmsford, Essex spent most of his operating time this month on 14MHz. Using his IC-746 with 10W s.s.b. and SGC-237 tuner with 8.2m of wire Martyn worked IT9VCE (Italy) 0907, N2NU (USA) in New Jersey 0946, SN0HQ (Poland) 1456, EW5HQ (Belarus) 1507, OH/OZ1AA (Finland) 1824, 9A/ON5JE (Croatia) 1836, S58AL (Slovenia) 2132 and VY2SS (Canada) 2224UTC.

All c.w. man **Ted Trowell G2HKU** on the

Isle of Sheppy, Kent has taken things a little easier this month but still found some time to "get on the air when the static noise levels had dropped". Using a Ten-Tec Omni V and G5RV or HF6 vertical antenna Ted had just two contacts on the band both around 2100UTC, BV0IARU (Taiwan) and DU3NXE (Phillippines).

With PSK once again Steve M3SWB used his home-made vertical dipole and a.t.u. finding HF9JP (Poland) 1217, OK1AVO (Czech Republic) 1910, W1ZS (U.S.A.) in Vermont at 2213 and RW3DVG (European Russia) at 2231UTC.

We have two new reporters this month and first off is **Mark Taylor G0LGJ** in Dereham, who enjoys operating mobile using a FT-100 with 100W output to a selection of Pro-Am mobile whips. Mark's 14MHz s.s.b. logbook includes ZK1CG (South Cook Island) 0616, VK3ET (Australia) 0814, 8Q7ZZ (Maldives) 1815 and VU2ID (India) 1853UTC. The total number of countries worked this year as G0LGJ/M is 103! "I just need the QSL cards" say's Mark.

Next is **David Pickard M3ECM**, Rochdale, Lancashire who has only had his licence for a few weeks and was pleased to work his first c.w. station HA2NK (Hungary) at 1555UTC using just 1W and a home-brew dipole at 3m! David also owns a Yaesu FRG-7700 receiver and on 18MHz heard ZB3A (Gibraltar) working several stations including OK1AEZ, SP3LD (Poland) and RU6LWT around 1907UTC.

Using slightly more power than usual **Roy Walker G0TAK**, Kendal, Cumbria found 18MHz 'lively' for most of the day. Contacts here include ES5KJ (Estonia) 1443, UA1OLM/A (European Russia) on EU-153 at 1509, KB3GD (U.S.A.) in Pennsylvania at 1518, BX3/DJ3KR (Taiwan) 1526, JR3GPA (Japan) 1533, LZ2LT (Bulgaria) 1907 and PT7BR (Brazil) 1910.

All contacts were made using a TS-570DG, c.w. at 100W and the antenna was a 80m long wire loop. Roy is waiting for his NOV to give 5MHz "A bit of a bash". You could be our first reporter here Roy!

THE 21 & 24MHz BANDS

On to 15MHz where the 10W s.s.b. of Martyn M3VAM found 4Z8GZ (Israel), P3A (Cyprus), RZ6LZL (European Russia), UT5IZ (Ukraine)

and OI2HQ (Finland) between 1648 and 1818UTC.

Between 1800 and 2100UTC the c.w. of Ted G2HKU reached R1ANF/A (Antarctica), JA5APU (Japan), P4/KE9I (Aruba) and ZC4BS (UK Sovereign Bases on Cyprus). Ted overheard two M3 operators discussing contacts with Cyprus and wonders "If they realise that 5B4 and ZC4 count as separate countries for DXCC. (5B4 being the prefix for the island of Cyprus and ZC4 the prefix for Sovereign Base Areas on the Island called Akrotiri and Dhekelia?) It might also be worth mentioning that both count as the continent of Asia and not Europe". Many thanks for the information Ted.

Recovering from his stint as 'lone' operator of GX4IRC/MM (Ipswich Radio Club Call) is **Mike Baker G3SUK**, Stowmarket. Mike say's "I was pleased to make 230 contacts on 7MHz from a lightship during the Lighthouse

Weekend. I made just one CQ call at 1930 on Saturday evening and then worked a continuous pile-up until well after midnight. One station worked had been trying to call me for three hours!"

With his feet firmly ashore Mike found 15MHz in 'Good shape' and s.s.b. contacts here include IC8WIC (Italy) on Ischia Island EU-031 at 1444 followed by EA8BGY (Canary Islands) 1454, VA7DP (Canada) British Columbia 1822, PY7XC (Brazil) 1854, ZD9IR (Tristan da Cunha) 1906 and EK6TA (Armenia) at 1933UTC. All contacts were made using a IC-746 with 80W to a Carolina Windom. Switching to 24MHz Mike worked just one station, 4X5IW (Israel) at 1505UTC.

THE 28MHz BAND

Finding 28MHz "a little poor this month" was **Paul Burgess M0CCQ** in Ellesmere, Cheshire who used 100W and a G5RV on s.s.b. to work ZS1TB (South Africa) 1752, VP8LGT (Falkland Islands) 1909, N3EON (U.S.A.) in Maryland at 1927, CE9R (Antarctica) the Chilean Base on King George Island 1948 and VP2EY (Anguilla) at 2041UTC.

One other reporter operated on this band, Mike G3SUK, who once again used s.s.b. to log RK3AWL (European Russia), LY1DT (Lithuania), YV5OHM (Venezuela) and FG/IK2JYT (Guadeloupe) between 1815 and 2125UTC.



● Two members of the Marine Funker Club Austria (MFCA), Peter OE1PZC and Sepp OE6ESG at the Blue Danube Harbour Light during this year's Annual International Lighthouse and Lightship Weekend working as OE6XMF/DO.

PW Listening & Operating Watch List. (All times UTC)

Charlie Blake M0AIJ listens and operates 0500-0700 on 7.061MHz s.s.b. with an NRD-525 receiver and Sloping Wire antenna and is also busy with his mobile rig.

Sean Gilbert G4UJC operates around 0700-1100 and 2100-0000 7 days a week on all bands using an IC-746 and loft mounted G5RV dipole antenna.

Rob Mannion G3FXD's station at his new home is now fully operational. He operates most days on 7, 14 and 18MHz using an Alinco DX-70 running c.w. and s.s.b. at 50W to a 30 foot 'fishing pole' vertical. This is mounted on his garage roof and linked to an SGC SG-230 Smartuner. Rob looks forward to working readers on 7MHz between 1700 hours and 1800. He also operates on 14 and 18MHz and occasionally on 3.5MHz late in the evening and also between 1200 & 1300 lunchtimes from the PW offices car park on 7MHz c.w. & s.s.b.

Carl Mason GW0VSW listens and operates on 10.106 or 14.060MHz most mornings at 0700 with a FT817 and inverted Carolina Windom and at 1900 on 14070MHz with PSK.

Brian Parsons GW0KZK listens and operates on 14.250MHz 1000-1200 and 1400-1600 most days using a Yeasu FT-1000MP and 100W into a Carolina Windom or five band vertical.

George Woods G3LPT operates an open net on 29.630 n.b.f.m. at 0830 Tuesday to Friday.

Jon Wheeler G0IUE monitors 28.600 n.b.f.m. every evening between 1730 and 2230 regardless of conditions using a Yaesu FT-920 transceiver running 100W and 2-element tri-band beam.

SIGNING OFF

That's almost it for this time around and my thanks to **Mauro Pregliasco I1JQJ/KB2TJM**, editor of the 425 DX News, for the DX information. All of our reporters have worked a good variety of DX once again.

I am always pleased to hear just what can be achieved with very simple antennas. The mobile set-up used by Mark G0LGJ and short wire antenna used by Martyn M3VAM in particular are working well. Remember that there is no excuse for not being able to operate on h.f. It just takes a little ingenuity at times! Have a good DX filled month.

73, Carl GW0VSW

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If you are a DigiPan user, or use a log file that is in the ADIF format (Amateur Data Interchange Format) the following will interest you. The log in DigiPan can be searched by callsign but cannot be sorted or searched in any other field. That's no longer true!

Dave Guest has written a small piece of freeware for everybody, everywhere that can use it. The freeware called, ADIBASE sorts on any field in the ADI log file and even has a second SubSet search. It's a terrific addition to your software arsenal.

The ADIBASE may be distributed freely and used by anyone for any non-commercial purpose. Read about it and download ADIBASE from

<http://www.n2hos.com/digital/adibase.html>

PSK31

Trevor M5AKA from the Chelmsford Amateur Radio Society, kindly sent me their latest Newsletter. In the issue, two members had written articles about PSK31. This is gaining converts all the time now and seems to be taking over from RTTY with some people.

Data on h.f. is very much alive and well, the PSK31 Rumble was very popular and DXCC on this mode is now quite easy. One major advantage is that low power is the order of the day, together with a predominance of simple antennas. One station regularly uses less than 1W and works most of the DX!

Also in the Chelmsford ARS Newsletter was a photograph showing a presentation of the very latest in Digital mode modems, the CWK-1. This is guaranteed to pull in the DX and with some practice DXCC is easily attainable!

GB7PMB SYSOP

Chris G0CNG, recently attended the EGM of the Shropshire Packet User Group (SPUG), held in Shrewsbury, following the recent death of their GB7PMB sysop, Don G3UQH.

The 15 SPUG members present voted unanimously to wind up the group, and

distribute the group's assets amongst the paid up members, in accordance with their constitution. The meeting was also unanimously in favour of Committee Member, Tony G7BUG taking over the operation of GB7PMB in memory of Don, from his home QTH in Newport, Shropshire.

Operation of the new GB7PMB will now come under the umbrella of Maxpak and a very warm welcome was extended to several ex-SPUG members who have now joined Maxpak and are using GB7MAX as a temporary measure via various access nodes until

many licensees practice the digital arts. (That's old news.)

But there were those quite taken aback over the fact that the poll reflected the surging popularity of PSK. This new mode won the contest hands down, outvoting RTTY by about 2-to-1! (I quote from the website).

"Ouch! said the Contesters and DXers, How can that be? PSK contests don't draw enough entrants to make an event. And, PSK DX? Forget about it!"

The results, despite the obvious statistical weakness of such polling techniques, make

ROGER G3LDI HAS NEWS ON PSK31, A DATA MODE SURVEY AND HOW TO SAVE MONEY ON 'PHONE CALLS!

GB7PMB comes on-line. By the time you read this, GB7PMB should be on-line with the initial user access frequencies of: 50.650, 70.3375 and 144.950MHz. All the frequencies will be 1K2 user access, 430MHz will follow later, probably on 433.650 subject to RA Site Clearance.

We wish Tony all the very best in his new venture. It was expressed that the new BBS will continue to serve North Shropshire well from the home of Tony, just as Don had done continuously since the late 1980s. Secretary, Miles G4GSB who has recently moved QTH to Madeley, south of Telford has offered to provide a user access node at his well sited QTH to serve both GB7PMB and GB7MAX.

Just to remind all those into TCIP that the DY nodes are currently enabled for IP access on 144.8625 and 432.675 respectively with fast routes into CORLEY and KIDDER IP nodes.

In addition for those of you with 9K6 capability on 144MHz, the WV22 node is also IP enabled, with the WV node setup being able to route IP traffic as well as AX25. When connecting to any of these nodes, if you type IPA this will give you the node's IP Address. Please contact Chris G0CNG, for further information or if you'd like an IP Address for your system.

DATA MODES COMPARISONS

The American Radio Relay League (ARRL) website recently devoted some space to an informal piece of research. It was in an attempt to measure the use of our various modes.

Nobody was surprised to find that not

sense when we look at the bands. For instance PSK operates 24/7! RTTY is a 12/1 mode, working around the clock only on those occasional days of special interest.

There are always PSK signals on h.f. if there is even marginal propagation carrying their pipsqueak signal around the globe. And, despite rumors to the contrary, there is good and often rare DX looking for a contact, often without pile-ups of any size. Most RTTY bands are empty most of the time, except for those weekends when contests blossom or when, on rare occasions, rare DX creates the famed pile-ups.

There are other reasons, of course. The PSK mode is simple with free and easy software and it requires very low power into simple antennas.

Almost anybody can figure out how to hook it up and as some old pro said, 'It's as easy as s.s.b. to operate.' And it works like magic, or what seems like magic to the new users who may or may not have substantial digital experience.

So, does this simplicity, low cost and ease of operation condemn those, old or new, who feel that PSK is the best game in town? Not at this QTH, not with this old pro who finds PSK to be the best package in town!

If the ARRL repeats the survey next year, the vote might be 3 to 1 in favor of PSK!" Interesting eh folks?

NEWS FROM BARTG

The last few months have been busy ones for British Amateur Radio & Teledata Group

(BARTG). There have been changes of staff in two major posts (membership secretary and magazine editor) and major changes have also been made to the format and frequency of the BARTG Magazine.

Membership of BARTG is open to anyone with an interest in datacomms within Amateur Radio, whether they are a listener, novice or licensed Amateur. If you are seriously interested in datacomms then it is definitely worthwhile becoming a member of BARTG.

Two of the BARTG committee members, **Phil GU0SUP** and **Dick G3URA**, will be giving a presentation on RTTY Contesting at the RSGB HF Convention (11-13 October, Egham, Surrey). This subject is very appropriate given that BARTG organises a RTTY contest which is believed to be both the longest-running and the second most popular of its kind. The presentation will be followed by a practical demonstration of RTTY operation using one of the HF Convention's demonstration stations.

Following a short break away from the post, **Bill GM0DXB**, has returned as BARTG Membership Secretary. Bill is the person to contact for anything relating to membership. Bill's contact details are: **1 Nobel Place, Roslin, Midlothian EH25 9NN**, E-mail: members@bartg.demon.co.uk

LOWER TELEPHONE COSTS

The following information was sent as an unsolicited E-mail to me. I presume that others will also receive similar E-mails, but in case not, I am reproducing the information here. If you have a large telephone bill (an important consideration for internet users!), this may benefit you and save you some money.

The information was sent from Tom at TelecomPlus (info@fsl.fsnet.co.uk)

To all BT & NTL Customers - Reduce Your Bt Or Ntl Telephone Bill - With A Pig!

If you are an existing BT or NTL customer you may not be aware that due to their significant market share, OFTEL will not let BT reduce the prices they charge their customers in an anti-competitive manner, which is why you are paying so much for your telephone calls. However, there is now a scheme that allows BT & NTL customers to enjoy the lower call charges of their competitors without having to leave BT or NTL. (For example, all weekday national calls are up to 55% cheaper and all weekday local calls are up to 38% cheaper).

Telecom plus was originally set up to provide this service and is able to do so by operating completely independently of British Telecommunications PLC through a network of licensed Independent Distributors. If you would like to try out a 'pig', Click on the link on the following page to access our website.

You can't buy our pigs but you can try one!

This little pig (imagine a small, piggy shaped box) plugs into your BT or NTL telephone socket. It is programmed with up to 15 different 'carriers' so it automatically sends

your call via the cheapest route. You can't buy these boxes, but Telecom plus will send you one free of charge.

You pay a call-charge deposit of £10, which will appear on your bill as a £10 call credit. If you like the savings you make just keep the box. If you're not happy with the savings, send it back.

Have a look at the following website for further information:

<http://www.telecomplus.org.uk/services.ta?exref=619254> (Fig. 1)

YOUR QUESTIONS ANSWERED

Do I have to leave BT or NTL? No, you will remain a BT or NTL customer.

Why haven't I heard of this before?

This service has been available for nearly 4 years, but has not been heavily publicised. The scheme has over 100,000 customers. However, this is a drop in the ocean compared to the total number of telephone subscribers in the UK, so it's not surprising that most people are unaware of it.

How much will I save? Typically, people save between 35-45% but everyone's call usage is different which is why you need to try it.

How does it work? Just plug the 'phone into the box, and the box into the wall socket, and then just leave it. It's that simple.

I already get discounted calls, so why bother? Because the box finds the cheapest route as opposed to a cheaper route it should give you greater savings.

Why is the box pig shaped? To distinguish it from other plug-in boxes which simply route all of your calls via one alternative carrier. Piggy boxes are for saving money!

Will I get 15 different bills? No

Is it legal? The box is fully BABT & CE approved.

DAYTON 2002

If you were lucky enough to attend Dayton this year, you may have met up with some of those in the pictures shown here in Figs 3, 4, 5 show some of the attendees to the RTTY meetings.

More pictures from Dayton can be found on the following website:

http://www.qsl.net/wa9als/Dayton_2002/w1zt.htm There are others, taken by **John WA9ALS**. They are on: http://www.qsl.net/wa9als/Dayton_2002/Dayton_thumbnails.html

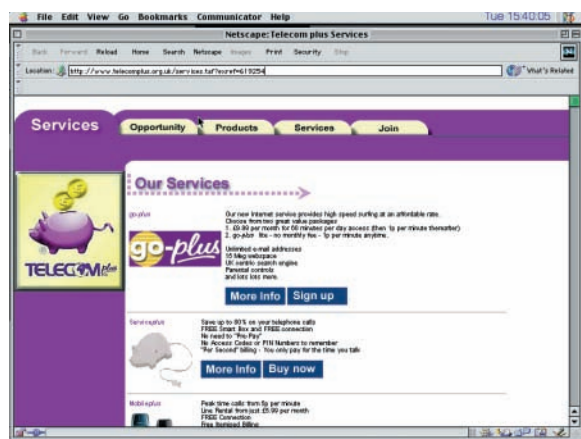


Fig.1



Fig.2

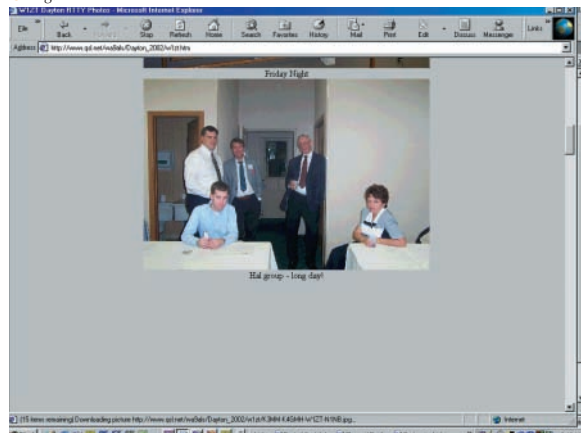


Fig.3



Fig.4

That's all for this month, so until next time 'keep keyboarding' and let me know of any interesting finds.

Roger G3LDT

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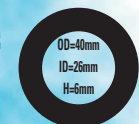
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Radio Finland (YLE) is pulling the plug on its overseas radio services in English, German and French. Services in Finnish and Swedish (for Finnish nationals abroad) will continue, as will transmissions in Russian. This seems a shame, because YLE has put out programmes in English, German and French for over 60 years, although in the past two years, this has been mainly aimed at domestic listening. The closing date for the axed services is 27 October.

So what's the point in axing the overseas services? There is a small reduction in transmitter costs from 46422 to 45122 hours, and the saving

with some practical equipment that will begin to establish digital near-f.m. quality sound on short, medium and long wave. Start-up of the public system is on track for 2003, and as this article went to press DRM announced two receivers, to be shown at the **International Broadcasting Conference (IBC)** at Amsterdam in September.

The first receiver is the **DRM Software Radio**. If you want to be part of the **DRM software Radio Project** and access DRM transmissions when trials begin in December, here's your chance.

For only 60 Euros (£40) you can buy the software. You have to have a fairly recent computer and you will need a front-end receiver,

Other new-technology radio projects are having a rough ride – heavy start up costs and the need to persuade listeners to buy new radios, where one system is not compatible with another. The **XM** satellite radio system in North America is experiencing heavy losses, and **WorldSpace** is still struggling. **Global Radio** is scheduled to start in Europe in 2005.

Is there room for everyone? Probably, but not for quite a long while.

ANALOGUE RADIO

Meanwhile, back in the world of analogue radio, a company called the **Isle of Man Broadcasting Company** has been planning a new service on long wave, to be called **MusicMann 279**, using 279kHz, and covering at least Britain and Ireland. The company has a 10-year operating licence, but has already been told that it can't site the antenna near a prominent hill-top on the Isle of Man because of its appearance. Now they are planning an offshore platform, but more local objections have surfaced, which won't be heard for several months.

Do not despair about international a.m. broadcasting. The most recent edition of the AIB's **Global Broadcasting Guide** lists over 80 stations broadcasting in English, even after the withdrawal of YLE from the scene. Some comparatively minor stations keep up a huge flood of transmissions, so that their countries can maintain contact with neighbours, friends and foes.

Take Egypt for example. **Radio Cairo** keeps going in 31 languages. Their English schedule alone can be heard at: 0200-0330 America on 9.475; at 1215-1330 Asia on 17.595; at 1630-1830 Africa on 15.255; at 2030-2200 Africa on 15.375; at 2115-2245 Europe on 9.990 and at 2300-0030 America on 9.900MHz.

Italy also keeps a big enterprise afloat. The **RAI International** broadcasts in 27 languages, including Albanian, Amharic, Esperanto, Somali and Slovene. True, they only broadcast each language in little chunks. RAI's English schedule is 0055-0115 America on 9.675, 11.800; at 0445-0500 Europe, Africa on 7.325, 9.875; at 1935-1955 on 5.970, 9.745; at 2025-2045 Africa on 6.135, 9.670, 11.800 and at 2200-2255 Asia 1900.

There's still plenty going on out there on international analogue radio. But eventually, digital promises to open up even more interesting opportunities. Watch this space!

Bye for now, Tom

TOM ROUNDS UP THE NEWS FROM THE BROADCAST BANDS, AND IT SEEMS THINGS ARE IMPROVING.

on the staff who have been running the services. But what about the loss of goodwill for Finland from the listeners?

The concentration on nationals was the reason given by Radio Norway when it closed its English service. Perhaps the Scandinavian gloom gets into radio executives' brains?

For a last listen to YLE try: (Monday to Saturday) 0630-0658 on 15.135 Europe, Asia, Australia, 21.670 Asia, Australia and at 1230-1259 on 15.400 and 17.670MHz North America.

INDONENSAN SERVICE 60TH

The 60th anniversary of **Radio Australia's** (RA) Indonesian service is taking place. With all the political troubles of the past few years, the big players such as **BBC World Service** and the **Voice of America** have been pouring money into their coverage of the region, including television. But radio remains popular, including foreign radio, and in a recent survey, Indonesian from RA came second only to the BBC.

So, why has all the effort been put into the Indonesian Service? In reply Radio Australia boss **Sue Howard** was very clear and reported that in spite of drastic cuts to RA by the Australian Government, the Indonesian service never gave up. The small dedicated team have kept on providing an independent service that focussed on local issues. Perseverance pays!

The RA's schedule is far too complex to reproduce here, but the website www.abc.net.au/ra gives full details.

GOOD NEWS

Now, some good news from **Digital Radio Mondiale (DRM)** saying that at last they are ready

ideally an AOR 7030, or a receiver that can be modified with an extra intermediate frequency (i.f.) of 12kHz. The DRM receiver is a modified Fraunhofer design, and will include possible logging of reception, to be sent back to DRM. To check your qualifications, and to register your interest, go now to www.drm.org

The second item is a **world-band receiver** developed by Coding Technologies, with the BBC and German manufacturer AFG. It is



production-ready, and in the words of DRM Chairman Peter Senger "offers equipment manufacturers a low-cost track towards mass production".

I'll be seeing these receivers first hand, and meeting the DRM folk at IBC and will report back next month. It looks as though the whole project will go ahead, but its financiers will need strong nerves and deep pockets.

Trader's Table

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Advertisements from traders for equipment that is illegal to possess, use or which cannot be licensed in the U.K. will not be accepted. While the publishers will give whatever assistance they can to readers or buyers having complaints, under no circumstance will the magazine accept liability for non-receipt of goods ordered, late delivery or faults in manufacture.

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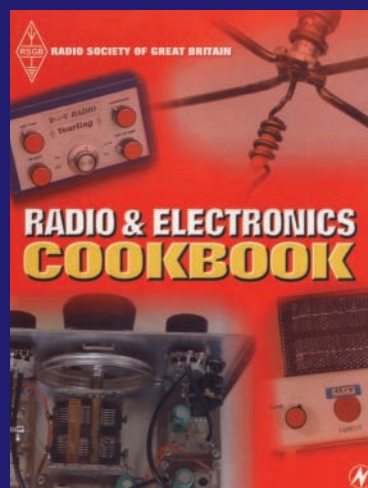
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topical**talk**

The reaction, by readers, to a simple Bargain Basement advert has led to some very interesting comments in the *PW* office. In fact...the Editorial team could not be in any doubt whatsoever regarding the versatility of Amateur Radio as a hobby!

Amongst the one-inch-to-the-mile scale maps¹ which are still coming in, other unusual types have arrived. These included a map especially designed for helicopter pilots (produced in the days before satellite navigation) for use in Belgium, Holland and the western (low countries end) of Germany. Appropriately enough it was sent by a Belgian reader, who Rob intends to

Incidentally, there was a rather strange coincidence with our Editor receiving the helicopter map...because a few days later he was delighted to get one of the - increasingly rare - Second World War 'Escaper's Maps', **Fig. 1**, printed on to silk for the benefit of RAF aircrew attempting to return home after being shot down. This map (covering most of France, part of Spain, and the Swiss border) was a gift from long time *PW* reader and supporter **John Gomer G8UNZ**, from Colchester. Rob is intending to show it to other readers during his club talks...to help illustrate the 'other interests' and 'parallel hobbies' in which Amateur Radio enthusiasts also dabble.

The topic of 'parallel hobbies' and interests became quite a conversational point here in the office. It really is fascinating just how varied, and just how keen Radio Amateurs are in their other activities. **Tex Swann G1TEX/M3NGS** for example - has got a large collection of microscopes of all shapes, sizes and is always on the look-out for more.

shows Amateurs like to
associate themselves
with other activities and

pastimes. The list goes on and on! Our Editor points out in his latest Keylines (doesn't he look funny sat on that locomotive!) that he met many Amateurs during the 7.25inch gauge open day, and he also remembers riding on the preserved Talylyn Railway in Wales where both the engine crew, the ticket collector and the Guard - a Vet by profession- were all Amateurs (G8s every one of them Rob said!).

So, whether it be model engineering, photography, orienteering - the *PW* team would like to hear about your associated interests. We'd like you to contact us with details, especially on those activities which can actively benefit from your Amateur Radio hobby (or the other way round of course). We've got no doubt there'll be some fascinating letters and you could win the £20 voucher and maybe end up writing an article too!

$\rho_{\mathcal{W}}$

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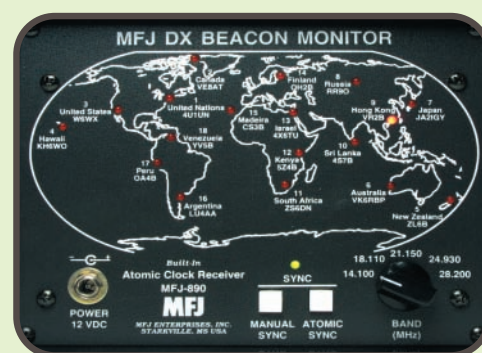
* Did your club enter the *PW* Club Spotlight Competition? We reveal the winners this month!

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