May 2010 £3.50 ISSN 0141-0857

NOW IN ITS 78th YEAR!

Practical WIRELESS

Britain's Best Selling Amateur Radio Magazine

It's 70MHz Contest Time!

All the details you need to enter the second PW four metre fun event

Practical Way

Versatile coils with George Dobbs G3RJV

Buying Second-hand

With Chris Lorek G4HCL

Doing it by Design

With Tony Nailer G4CFY

In the Shop

With Harry Leeming G3LLL

What Next?

Operating abroad with Colin Redwood G6MXL

Antenna Workshop

Build an effective 14MHz Band Loft Antenna

9 770141 085105 05

WATERS & STANTON

SCOTTISH STORE • W&S @ JAYCEE, 20 WOODSIDE WAY, GLENROTHES, FIFE, KY7 5DF - CLOSED MONDAYS
• ENQUIRIES: 01592 756962 / 0845 5050128 FAX: 01592 610451 EMAIL: jayceecoms@aol.com
• OPENING TIMES: Tue-Fri: 9.15am - 5pm Sat: 9am - 4pm

HEAD OFFICE & SOUTHERN STORE • SPA HOUSE, 22 MAIN RD, HOCKLEY, ESSEX, SS5 4QS
• ENQUIRIES: 01702 204965 FAX: 01702 205843 EMAIL: sales@wsplc.com • OPENING TIMES: Mon-Sat: 9am - 5.30pm

Introducing "Smashing Prices"

For the best and latest prices on radios, go to www.wsplc.com and click Smashing Prices

At Waters and Stanton we want to offer you the best possible prices and service. This means tracking market deals, price movements and reacting to supplier's offers. So the prices in this advert may now be even lower or there may be "Deals." Check our web front page and see just what our latest ***"Smashing Prices"*** prices are.

SMASHING PRICES! Check any item showing the Smashing Prices logo:

FAST SAME DAY DESPATCH SERVICE!
Orders must be received before 3pm.

Come & See Us At...
Kempton Park Rally - Sunday 18/04/10
& Grab Yourself A Bargain!

SAVE £30 on VX-8E! ~~£329~~

YAESU **Whilst stocks last! £299**

Your chance to make a big saving on this great radio. It gives triple band operation covering 6m, 2m & 70cms. It is sturdy & shower proof and comes from a famous pedigree. Wideband receiver includes AM/WFM modes, Barometric sensor included, VV or UU operation possible, Waterproof to IPX57 spec, Bluetooth ready for safe mobile comms, APRS ready with optional microphone. **LIMITED STOCKS AT THIS PRICE!**

YAESU HF Transceivers

FT-2000 The classic HF & 6m 100W transceiver with PEP (performance upgrade) ready installed. Dual receive and fantastic filtering make this an impressive performer. And despite what you may read, we still have the largest, most up-to-date stock of Yaesu in the UK! **£2079 D**

FT-2000D	200 Watt version of FT-2000 with built-in PSU.	£2649.95 D
FT-950	100W HF - 6m transceiver with DSP & Auto ATU	£1099.95 D
FT-450AT	100W HF - 6m with automatic ATU & latest updates	£679.95 D
FT-450	100W HF - 6m transceiver - great value.	£589.95 D
FT-DX9000contest	200W HF - 6m "formula one" contest machine	£4599 D
FT-DX9000D	Deluxe fully loaded base station	£7695 D
FT- DX9000MP	Amazing 400W "legal limit" radio	£8549 D
FT-857D	HF to 2m mobile. portable or base - up to 100W	£574.95 D
FT-817BHIDSP	Fitted with DSP module exclusive to W&S	£549.95 D

bhi RadioMate

New Updated Software Version!

W&S are pleased to endorse this accessory for Yaesu mobile and portable HF radios. Quick & easy band change, Quick & easy modulation selection, Quick memory function, Quick & easy intelligent direct freq. input. PLUS Swap VFO A/B, VFO A=B, Split VFO mode, Tune function. All this for a realistic price. **£89.95 C**

FT-817ND

A great radio, whatever your interest is. With 2.5 watts from battery or 5 watts from ext. 12V, it slips into a brief case or rucksack with ease. Many operators have DX tales to tell with this mighty midget. Offers SSB, CW & FM. **+ FREE CSC-83 Case!** **£439 D**

YAESU More NEW Radios from Yaesu!

FT-1900E £114.95

FT-2900E £124.95

FT-7900E £229.95

Further details and any latest price changes, please check our web site.

YAESU VHF Mobiles & Handhelds

FTM-10SE	50/40W 2m/70cms stereo FM	£289 D
FT-2800	2m Mobile 65W wideband receiver	£124 D
FT-7800	Dualband 50W mobile, AM airband	£189 D
FT-8800	Dualband Mobile 50W / 30W	£289 D
FT-8900	10/6/2m & 70cm Mobile	£334 D
VX-3E	2m / 70cm Handheld Wideband receive	£139 D
VX-7R	Waterproof dualband handy (silver or black)	£259 C
VX-6E	2m/70cms handy, 5W Wideband Receive	£199 C
FT-60E	2m/70cms, 5W handy Wideband Receive	£142 C

VX-8DE **NEW**

The New VX-8DE has all the great features of the VX-8E but with expanded APRS capabilities & will be with us about the time you read this advert. **£399 D**

ICOM HF Transceivers

IC-7600 FREE USB keyboard!

This HF-6m transceiver is the successor to the IC-756 series. It takes features from the flagship IC-7800 and the more recent IC-7700, putting them into a package that brings the price within reach of many more hams. **£3379 D**

IC-7800	HF / 50MHz All-Mode 200W. A masterpiece of ham radio engineering	£7999 D
IC-7700	1.8-54MHz 200W with built-in PSK-31 + keyboard	£5499 D
IC-7400	160m-70cm 100W base station with large easy to read LCD display	£1339 D
IC-7400	***DEAL!*** Plus SM-20 base mic. and SP-21 speaker	£1499 D
IC-7200	HF & 6m DSP 0.005-3335MHz wideband receive with USB port	£759 D
IC-718	160m-10m 100W transceiver that brings HF to those on a budget	£449 D

IC-7000 100W 1.8-440MHZ all-mode transceiver with 2.5" colour display. An incredibly small package with a quite amazing performance. **£939 D**

DEALS: IC-7000 + Power Mite NF PSU £989 D
IC-7000 + TFT-7000 screen £1019 D
IC-7000 Power Mite NF & TFT-7000 £1069 D

Receivers & Scanners

IC-R20

IC-R5	***LAST FEW*** Handheld scanner 0.15 - 1310MHz	£172.95 C
IC-R6	***NEW*** Handheld scanner (see opposite page)	£172.95 C
IC-R20	Handheld scanner 0.15 - 3305MHz	£314.95 C
IC-R1500	PC scanner 1.01 - 300MHz	£449.95 C
IC-R8500	Base receiver 1.01MHz - 2GHz	£1379.95 D
IC-R9500	Base receiver 5kHz-3.3GHz	£8899.95 D

KENWOOD HF Transceivers

TS-2000E The TS-2000E is the classix all-band, all-mode base station covering HF - 70cms at up to 100 Watts. Includes dual channel receivers and DX-cluster monitor with built-in TNC. **£1489 D** **TS-2000X** +23cm **£1749 D**

TS-480HX Ideal for mobile, portable or base station. Gives a massive 200W on HF and 100W on 6m. **£849 D**

TS-480SAT This model gives 100 Watts on all bands up to 6m, but adds a built-in automatic ATU. **£749 D**

KENWOOD Handhelds

TH-F7E	2m/70cm 5W (2-pin Kenwood) SMA **+FREE Clip Mic**	£229.95 D
TH-K2E	2m 5W 4-Key Keypad (2-pin Ken) SMA **+FREE Headset**	£159.95 D
TH-K2ET	2m 5W 16-Key Keypad (2-pin Ken) SMA **+FREE Headset**	£165.95 D
TH-K4E	70cm 5W (2-pin Kenwood) SMA **+FREE Headset**	£159.95 D

Carriage Charges: A=£3, B=£4, C=£6.95, D=£10, E=£12

Orderline

01702 206835

Online Catalogue

www.wsplc.com

UK's Lowest Prices

Zero Deposit
Zero Interest

Interest Free Credit - No Deposit, No Interest if settled in 12 Months!

See article below for more details...

BUY NOW - PAY 2011!
INTEREST FREE NO DEPOSIT

BUY NOW PAY LATER AT BOTH STORES

On most items over £200 in value it is now possible to buy with a finance agreement and pay nothing for 12 months without incurring ANY interest charges. If paid in full within 12 months then a £29 settlement fee is payable. **Typical example** of Buy Now Pay Later: Cash price - £600. Pay no deposit and pay the full amount in 12 months. **Pay no interest – just £29 fee OR - 29.8% APR** - Then repay £30.85 per month for 36 months. No settlement fee. Total amount due £1110.60. Interest is calculated from date of agreement. All finance is subject to status – written quotation on request. A Direct Debit agreement must be signed at the time of purchase.

We can arrange over phone or e-mail

Get that dream radio now!

Enjoy it today - not tomorrow

NOW IN STOCK!
NEW AIRNAV RADARBOX-3D

RadarBox 3D - The world's ultimate virtual radar system with Google Earth as a map overlay & new 3D aircraft picture library.

Full Package **£489.95 C**

Current owners can upgrade to 3D with RADARBOX-UG for just **£109.95 C**

Icom
VHF/UHF Mobile/Handy

IC-E208 Dualband Mobile
*Freq range 144-146MHz, 430-440MHz Tx
*55/50W (3 pwr steps each band)
*Wideband Rx: 118-173, 230-549 & 810-999MHz

£254 D

IC-910H £1249 D
2m / 70cm 100W Base station all modes with option for 23cm module (UX-910 £359)

IC-910HX £1449 D
As above but with 23cm module ready fitted and a big saving as well.

IC-2200H £199 D
2m 55W FM mobile with rugged construction and with digital option.

IC-E90
6m / 2m / 70cm Handheld Transceiver. **£234 C**

IC-E92D £369 D
Dual band handheld with DSTAR

IC-E2820 £384 C

True dual band mobile. Great design with detachable head. Optional DSTAR module.

IC-E2820+UT123 £539 C
This adds the UT-113 DSTAR module.

Kenwood
VHF/UHF Mobile/Handy

TM-V71E
*2m 70cm
*Wideband Receive
*Built-In Echolink
*Removeable Control Head *CTCSS Encode/Decode
*Supplied w/ DTMF Mic.

£289 D

TM-271E £165 D
2m FM 60W Mobile Transceiver. MIL-SPEC DTMF, Mic. Built-in CTCSS & DCS encoder / decoder.

TM-D710E £429 D

Kenwood's new mobile FM station is great! APRS, Built-in TNC DTMF Mic & Weather Station ready.

Two NEW Kids On The Block!

IC-E80D Handy £369
ID-E880 Mobile £499

- *D-STAR DV mode standard*
- *Wideband receive*
- *External GPS connection ready*
- *DPRS(R) (Digital Position Reporting System) ready*

Check our web site for any last minute price changes

Vibroplex USA
Morse Keys

V-ID *Paddle* Iambic Deluxe Chrome Base. **£199.95**

V-CM	"The Code Mite"	£63.95 C
V-CWJ	Iambic key	£114.95 C
V-SRD	chrome base, red paddles	£154.95 C
V-SRS	Black base black paddles	£135.95 C
V-ODBK	Original Deluxe Bug	£229.95 C
V-OSBK	Standard Bug Key blk	£179.95 C
V-SKD	Straight Key Deluxe	£199.95 C
V-SKG	Straight Key Gold 24K	£299.95 C
V-VKS	Vibrokeyer Standard	£164.95 C

For the complete range of keys, please check our web site. www.wsplc.com

W2IYH USA
Audio Equipment

W2-EDGE
An 8-channel graphic equaliser designed by hams for hams. **£259.95 C**

IPLUS	Single controller to route your external audio to 3 radios	£209.95 C
EQPLUS	Audio Compressor speech processor & downward expander	£329.95 C
W2-DUO	Dual band audio equaliser and noise gate	£154.95 C

We also stock a wide range of leads to match your radio @ www.wsplc.com

Watson
Cross Needle Meters

NEW
High Quality Meters

These are high quality, accurate VSWR meters with large, clear display featuring cross-needle movements.

WCN-200 £69.95 C
- *1.8 - 160MHz 0 - 30 / 300 / 3000 Watts*
- *(600W max above 30MHz) PEP or Average. SO-239 sockets*

WCN-400 £69.95 C
- *140 - 525MHz 0 - 30 / 300 / 600 Watts*
- *PEP or Average Accuracy +/- 5%*
- *Input loss 0.2dB Sockets SO-239*

WCN-600 £89.95 C
- *1.8 - 525MHz 0 - 30 / 300 / 3000 Watts*
- *(600W max above 30MHz) PEP or AVG*
- *Accuracy +/- 5% Input loss 0.2dB*
- *Sockets SO-239 Weight 720g*

Bencher
Morse Key Paddles

Morse Paddles Of Distinction
A range of high quality keys from the USA.

Hex-Paddle	Iambic paddle	£199.95 C
BY-1	Twin paddle, black base	£119.95 C
BY-2	Twin pad. chrome base	£139.95 C
BY-3	Twin paddle, gold base	£299.95 C
BY-4	Twin pad. gold parts	£189.95 C
ST-1	Single pad, black base	£119.95 C
ST-2B	Single pad, chrome b.	£144.95 C
RJ-1	Straight key, black base	£109.95 C
RJ-2	Strght key, chrome base	£129.95 C

FlexRadio Systems — NEW

FLEX-1500

160m - 6m Low Cost Low Power Transceiver **£549 C**

The new 160m-6m software defined transceiver that rocks the world when it comes to price and performance. It's tiny, measuring 10 x 15 x 5cm yet produces 5 Watts out. No soundcard needed, just plug into your USB port on your laptop. It has an incredible dynamic range, The perect package for your laptop PC. Order yours today for Spring delivery.

Watson
VSWR/PWR Meter

W-420 *SPECIAL OFFER!*

VSWR/PWR Meter 118-530MHz 5/20/200 Watts

Was £49.95 Now £34.95

Tokyo Hy-Power
HF Linear Amplifier

HL-45B HF/6m linear amplifier 1.8-28.00 & 50MHz 5W in 45W max out

£469.95 D

Butternut Verticals

These antennas are extremely efficient and use no traps. The large, air-spaced coils are the secret, and resonant adjtments can be made at ground level.

HF-2V	80, 40m DX vertical. 9.75m. Easy erect.	£289.95 D
HF-6V	80,40,30,20,15,10m self support 7.9m	£389.95 D
HF-9V	As HF-6V but adds 17,12 & 6m. 7.9m	£449.95 D

Carriage Charges: A=£3, B=£4, C=£6.95, D=£10, E=£12

WATERS & STANTON

General Enquiries
01702 204965

UK's Lowest Prices

Online Catalogue
www.wsplc.com

W&S On The Internet! We Twitter at twitter.com/wsplc

(We also Blog and have a Facebook account ~ Just follow the links from our homepage)

Peet Bros. Weather Stations

These are high quality systems made in the USA to exacting standards. All APRS Ready - compatible with Kenwood TM-D710E & include data software.

Ultimeter-100

Desktop weather station with outside sensors.

£129.95 C

Ultimeter-800 inc. humidity **£169.95 D**
Ultimeter-2100 inc. pressure **£239.95 D**
WSF-10100 rain gauge +cable **£79.95 C**

Watson Walk-About Antennas

Base loaded telescopic whips that plug into your FT-817 and give you total HF portability

AT-10	10m single band whip	**£19.95 A**
AT-12	12m single band whip	**£19.95 A**
AT-15	15m single band whip	**£19.95 A**
AT-17	17m single band whip	**£19.95 A**
AT-20	20m single band whip	**£19.95 A**
AT-30	30m single band whip	**£19.95 A**
AT-40	40m single band whip	**£21.95 A**
AT-80	80m single band whip	**£21.95 C**

SGC Auto ATU

SG-211

~~Was £219.95~~

Now £199.95 C

SG-211 "Stowaway" auto antenna tuner back in stock & better price, not weather-proofed. HF + 6m Up to60W. Powered by internal battery.

Heil Sound Audio Equipment

Pro-set-4 & 5

The standard headset with a choice of NC-4 or 5 inserts. Requires AD-1 patch lead.

£114.95 C

For Icom transceivers, choose the **Pro-Set-IC** with "Icom" Element **£129.95 C**

Pro-set-Plus

With the Pro-set Plus you have the benefit of dual NC-4 / NC-5 mic capsules that can be selected. Requires AD-1 patch lead.

£189.95 C

Pro-Set-PLUS-IC Icom Element **£194.95 C**

AD-1 Connector Leads One to suit any ham rig, tell us your radio. **£16.95 A**

GM-4 & 5

These "Gold Lime" mics contain the NC-4 or NC-5 capsule. Can be handheld or mounted on a stand (clip supplied). Requires CC-1 cable kit for rig.

£119.95 C

CC-1 Cable Kits One to matc every ham rig, tell us the radio you need it for. **£29.95 A**

MFJ Radio Accessories

MFJ-998

W&S £649.95 C

• 1.5kW SSB & CW • Digital & Analogue x-needle VSWR • 1.8 - 30MHz • 20,000 memories • Radio interfaces optional • Built-in antenna selector • Field upgrade-able firmware • Auto bypass protection

MFJ-925	Compact auto tuner	**£169.95 D**
MFJ-927	200W remote auto atu	**£249.95 D**
MFJ-928	Basic auto atu	**£199.95 D**
MFJ-931	Artificial ground	**£112.95 C**
MFJ-932	Mini loop tuner	**£139.95 C**
MFJ-934	Artificial ground + ATU	**£199.95 C**
MFJ-935B	Portable loop system	**£199.95 C**
MFJ-945E	Mobile atu 300W	**£129.95 C**

MFJ-929

AUTO TUNER 1.8-30MHz 200W

LCD readout, 20,000 memories, long wire & coax, radio interface.

W&S £209.95 C

MFJ-991B	Auto atu 150W	**£209.95 D**
MFJ-993B	Auto atu 300W	**£249.95 D**
MFJ-994B	Auto atu 600W	**£339.95 D**
MFJ-962D	1.5kW ATU	**£289.95 D**
MFJ-969	160m - 6m 300W	**£209.95 D**
MFJ-971	Portable atu	**£118.95 C**
MFJ-974B	Balanced ATU 3.5-30MHz	**£189.95 D**
MFJ-986	3kW differential tuner	**£349.95 D**

MFJ-112B

World map clock.

~~Was £32.95~~ **Now £22.95 A**

MFJ-1260	Mic control 1 in/2 out	**£99.95 C**
MFJ-1263	Mic control 2in/2 out	**£109.95 C**
MFJ-1275	Sound card adaptor	**£109.95C**
MFJ-1625	Window Ant + Tuner	**£199.95 D**
MFJ-16B01	Dipole centre SO-239	**£21.95 A**
MFJ-16C06	6x dog-bone insulators	**£4.95 A**
MFJ-16E01	300Ω end fed SO-239	**£10.95 D**
MFJ-1796	40m-2m vertical	**£239.95 D**
MFJ-1798	80m-2m vertical	**£299.95 D**
MFJ-1908H	43ft fibre glass mast	**£239.95 D**
MFJ-1922	Digital screw driver control	**£99.95 D**
MFJ-1924	Prog. screw drvr control	**£129.95 C**
MFJ-1925	ATAS-100 controller	**£72.95 C**
MFJ-202B	Receiver noise bridge	**£79.95 C**
MFJ-250X	1kW dummy load (x-oil)	**£55.95 C**
MFJ-260C	300W dummy load	**£44.95 C**
MFJ-261	100W dummy load	**£32.95 C**
MFJ-265	2.5kW load fan cooled	**£199.95 C**
MFJ-403	Micro CW keyer	**£66.95 C**
MFJ-403P	Micro travel iambic	**£79.95 C**
MFJ-4103	PSU for FT-817	**£52.95 C**
MFJ-417	Pocket morse tutor	**£76.95 C**
MFJ-4403	Trcvr volt conditioner	**£109.95 C**
MFJ-442	Slim electronic keyer	**£199.95 C**
MFJ-461	Pocket morse reader	**£99.95 C**
MFJ-4714	4-way remote ant switch	**£87.95 C**
MFJ-4726	6-way remote ant switch	**£159.95 C**
MFJ-490	Memory keyer + paddle	**£244.95 C**
MFJ-495	Memory keyer	**£189.95 C**

MFJ-269 *Antenna Analyser*

- *1.8 -170 & 415-450MHz*
- *Frequency Counter*
- *LCD readout*
- *SWR & impedance*
- *N-socket (Ant), BNC (Counter)*
- *AAx10 or ext. 12V DC*
- *Size 103 x 173 x 60mm*
- *Weight 750g*

W&S £349.95 C

Hustler HF & Mobile Antennas

Verticals

Hustler verticals are known around the world for their performance and sturdy construction.

6-BTV	6 band inc 30m	**£259.95 D**
5-BTV	5 band 80-10m	**£219.95 D**
4-BTV	4 band 40 - 10m	**£179.95 D**

Mobiles

Base Whip Sections

MO-1	137cm Folds 1/3rd Up	**£38.95 C**
MO-2	137cm Folds Halfway Up	**£38.95 C**
MO-3	137cm Non Folding	**£29.95 C**
MO-4	67cm Non Folding	**£26.95 C**

Resonator Top Section

RM-10	10m	150-250kHz	**£21.95 C**
RM-11	11m	150-250kHz	**£21.95 C**
RM-12	12m	90-120kHz	**£21.95 C**
RM-15	15m	100-150kHz	**£21.95 C**
RM-17	17m	120-150kHz	**£26.95 C**
RM-20	20m	80-100kHz	**£26.95 C**
RM-30	30m	50-60kHz	**£29.95 C**
RM-35	40-30m	7-10MHz	**£29.95 C**
RM-40	40m	40-50kHz	**£29.95 C**
RM-50	60-40m	5-7MHz	**£29.95 C**
RM-60	60m	5MHz	**£32.95 C**
RM-80	80m	25-30kHz	**£32.95 C**

Diamond HF Antenna

BB7V

The small space answer!

- *HF 2 - 30MHz Vertical*
- *No radials needed*
- *250W PEP 6.7m length*
- *VSWR less than 2:1*
- *Weight 2.3kg*
- *50 Ohms SO-239*

£325.95 C

Butternut Mini Beam

HF-5B *Butterfly 5-Band Mini Beam*

20m,17m, 15m, 12m & 10m. Just 12.5ft span - DX from a small garden!

- *5 Band Coverage 10 - 20m*
- *1.2kW PEP (500W CW)*
- *Full coverage on 12m, 15m & 17m*
- *1.5MHz on 10m & 200kHz on 20m*
- *12.5ft span. 6.5ft turning radius*
- *Forward gain up to 5dB*
- *F/B ratio up to 20dB*
- *Front to side ratio up to 30dB*
- *Weight 10kg*

This antenna has NO traps. It uses linear loading and capacitive elements to achieve its small size. We have just a few at this special pre-antenna season price!

Was ~~£449~~ £399

Watson VHF/UHF Antennas

VHF-UHF Verticals

W-30	2m/70cms 3/6dB length 1.15m 150W SO-239	**£49.95 C**
W-50	2m/70cms 4.5/7.2dB length 1.8m 150W SO-239	**£54.95 C**
W-300	2m/70cms 6.5/9dB length 3/1m 150W SO-239	**£74.95 D**
W-2000	6m/2m/70cms 2.15/6.2/8.4dB length 2.5m 150W	**£89.95 C**

VHF-UHF Mobile Whips

W-2LE	2m 0dBv length 0.48m	**£10.95 C**
W-285	2m 3.4dBv L. 1.33m	**£14.95 C**
W-77LS	2m/70cm 0/2.4dBv L. 0.43m	**£14.95 C**
W-770HB	2m/70cm 3/5.5dBv L. 1.1m	**£19.95 C**
W-7900	2m/70cm 5/7.5dBv L. 1.58m	**£31.95 C**
W-627	6/2/70cm 2/4.5/7.2dBv L.1.6m	**£34.95 C**

GAP Antennas HF Verticals for DX

Challenger-DX 8-band HF-VHF

• Bands: 80/40/20/15/12/10/6/2m. • 2kW PEP SSB • VSWR: Better than 2:1 • Height 9.6m (31.5ft) • Radials 3 x 7.6m (25ft) • 3ft drop-in ground socket supplied • Can be mast mounted • Weight 8kg

£299.95 D

Voyager-DX 4-Band LF

• Bands: 160, 80, 40, 20m • 2kW PEP SSB • VSWR: Better than 2:1 • Height 13.72m (45ft) • Radials 3 x 17.4m (57ft) • Requires guys - brackets supplied • 2ft ground pivot assembly included • Weight 13.6kg

£399.95 D

Eagle-DX 6-Band

• Bands: 40, 20, 17, 15, 12, 10m • 2kW PEP SSB • VSWR: Better than 2:1 • GAP centre fed • Height 6.4m (21ft) • 2m (80in) 3 x counterpoises • Support pipe user (31.75mm max) • Weight: 4.9kg.

£339.95 D

WATSON New Range of Coax Switches

These Watson premium grade RF coax switches have been created to fulfil a cost effective need for RF switches that are able to cater for the ever widening commercial RF spectrum.

New 4-Way Switches

CX-SW4N **£59.95 C**
DC - 1.5GHz 1.5kW 5x N-Type Connectors.

CX-SW4PL **£56.95 C**
DC - 800MHz 1.5kW 5x SO-239 Connectors.

2-Way Switches

CX-SW3N **£49.95 C**
DC - 1.5GHz 3-way coax switch 1.5kW 3x N-Type Connectors.

CX-SW3PL **£41.95 C**
DC - 800MHz 3-way coax switch 1.5kW 3x SO-239 Connectors.

2-Way Switches

CX-SW2N **£32.95 C**
DC - 3GHz 2-way coax switch 2kW 3x N-Type Connectors.

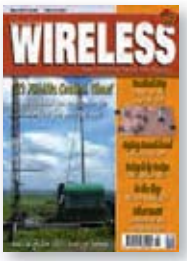
CX-SW2PL **£26.95 C**
DC - 1GHz 2-way coax switch 2kW 3x SO-239 Connectors.

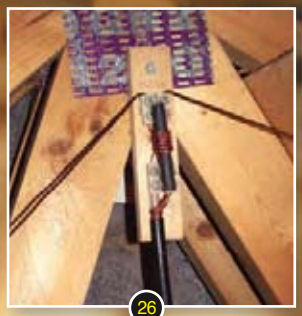
Carriage Charges: A=£3, B=£4, C=£6.95, D=£10, E=£12

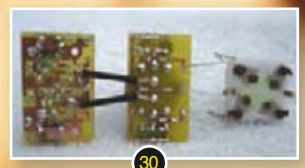
Practical Wireless May 2010

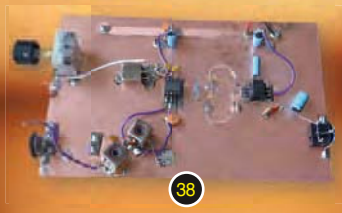
contents

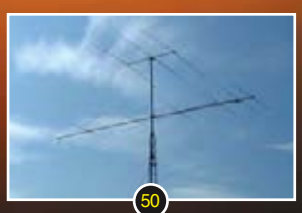
Volume 86. Number 5. Issue 1236. On sale 8 April 2010











6 Keylines
Rob G3XFD discusses the problems that can be caused when childrens' photographs are offered for news items.

7 Radio Waves – Readers' Letters
Your chance to air your views and discuss topics of interest.

10 News
See what's happening and of what's of interest in the world of Amateur Radio.

13 Further 500kHz Experiments & *WSPR*
Roger Lapthorn G3XBM updates his adventures on l.f. and has proved you don't need to shout – 'Whispering' is very effective!

18 The Second *Practical Wireless* 70MHz Low Power Contest
Colin Redwood G6MXL steps onto the rostrum to announce the second *PW* 70MHz Contest. Over to you Colin!

21 Buying Second-hand
Chris Lorek G4HCL gives a few ideas and hints on shopping for a tiny dual-band hand-held transceiver.

26 Antenna Workshop – An Effective 14MHz Band Loft Antenna
Mike Jones G3UED presents a 14MHz Band Loft Antenna for those stuck for space but keen on trying 14MHz for DX operating.

30 Doing It By Design
This month **Tony Nailer G4CFY**, looks to extending the capabilities of the active pre-selector developed for the *PW* Upwey project.

38 Carrying On The Practical Way
This month the **Rev. George Dobbs G3RJV** discusses 'some very useful coils' that could prove extremely versatile for his keen home-brewing readers!

44 Valve & Vintage
The mixture of military and marine equipment on show indicates that **Ben Nock G4BXD** is representing the 'Kidderminster Kollection' again!

50 VHF DXer
This month, **David Butler G4ASR** takes a look at your reports and has news of UK v.h.f. and u.h.f. beacons.

54 HF Highlights
Carl Mason GW0VSW presents his round-up of your activities on the h.f. bands.

57 What Next?
With the summer holiday season approaching, **Colin Redwood G6MXL** looks at what needs to be considered before operating abroad.

62 In The Shop
This month **Harry Leeming G3LLL** starts by mentioning his favourite Yaesu transceiver – the FT-990 – the 'sell and forget' rig.

66 Club News
Find out which clubs meet where and when.

70 Morse Mode
This time **Roger Cooke G3LDI** starts with a request, suggests a starting age for learning Morse and mentions web resources

72 Traders' Tables
74 Classified Advert
75 Bargain Basement
76 PW Publishing Bookstore
80 Subscriptions
81 Topical Talk

Please note: Due to lack of space this month, **Stef Niewiadomski's** article *Valve Classification* has been held over and will be published as soon as possible. My apologies. **Editor.**

Front cover: Thank you to the 70MHz contesters for the front cover photo and other photographs featured this month! Cover design by Steve Hunt.

Published on the second Thursday of each month by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel: 0845 803 1979. Printed in England by Holbrooks Printers Ltd., Portsmouth P03 5HX. Distributed by Seymour, 2 East Poultry Avenue, London EC1A 9PT, Tel: 020 7429 400, Web: http://www.seymour.co.uk. Sole Agents for Australia and New Zealand - Gordon and Gotch (Asia) Ltd.; South Africa - Central News Agency. Subscriptions INLAND £38, EUROPE £47, REST OF WORLD £57, payable to *Practical Wireless*, Subscription Department. PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel: 0845 803 1979. *Practical Wireless* is sold subject to the following conditions, namely that it shall not, without written consent of the publishers first having been given, be lent, re-sold, hired out or otherwise disposed of by way of trade at more than the recommended selling price shown on the cover, and that it shall not be lent, re-sold, hired out or otherwise disposed of in a mutilated condition or in any unauthorised cover by way of Trade, or affixed to or as part of any publication or advertising, literary or pictorial matter whatsoever. Practical Wireless is Published monthly for $50 per year by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW, Royal Mail International, c/o Yellowstone International, 87 Burlews Court, Hackensack, NJ 07601. UK Second Class Postage paid at South Hackensack. Send USA address changes to Royal Mail International, c/o Yellowstone International, 2375 Pratt Boulevard, Elk Grove Village, IL 60007-5937. The USPS (United States Postal Service) number for Practical Wireless is: 007075.

Rob Mannion's

keylines

Rob discusses the problems that can be caused when photographs of children are offered for news items.

Nowadays, Amateur Radio clubs are often becoming actively involved in encouraging people of all ages into our wonderful hobby. Indeed, I find it particularly pleasing to see so many young faces – of school age children – being featured in photographs sent in to *Newsdesk*. A very good recent example, is the front cover of the April issue where the **North Wales Amateur Radio Society** (NWARS) helped local Brownies during their **Thinking Day On The Air** event.

Unfortunately, some news items sent in for publication in the *PW Newsdesk* featuring children have run into problems because of the complicated regulations regarding child protection. The common practice in TV news programmes, when children are featured (and prior permission for the childrens' faces to be shown hasn't been obtained) is for the camera lens to be focused onto the lower half of the children (rather odd in itself in my opinion!) or a general 'out of focus' shot is shown, making it impossible to identify individuals.

Obviously, we can't adopt the TV method in *PW* – and personally speaking I think it's an absolute nonsense. Although having worked in broadcasting myself – I can understand the (as **it is TV**) the producer's demand 'we must have a picture at any price'!

It's important that we publicise the efforts of local clubs and from this end, **Tex Swann G1TEX** and I will always do our best to feature photographs of youngsters enjoying Amateur Radio. However, from your end (perhaps as Honorary Secretary (HS) or Public Relations Officer (PRO), you can do your best to check (it's best done **before** you take photographs) that individuals and groups are fully aware the photographs will be published. Primarily, of course, you must make all the responsible adults (in charge of groups of youngsters) aware that prior permission is required.

Permissions are usually readily granted when requested and those – for whatever reason – who don't wish to be photographed and identified, can be moved out of shot. It's better than having a digitally edited 'gap' on the final photograph!

Surname & Callsign

While on the subject of identities, it's worth mentioning that one of the biggest problems we face when presenting news items featuring names and callsigns, is that almost invariably we'll have the given name and the callsign – but not the surname! Of course, club members usually know each other as 'Rob G3XFD', or 'Tex G1TEX' rather than as 'Rob Mannion G3XFD', etc. But obviously, when it comes to sharing club activities with a wider audience – surnames are required.

Indeed, much of my *Newsdesk* work involves checking the RSGB *Yearbook* entries to link up surnames with the callsigns, so that we can provide the full information, rather than incomplete news. The *Yearbook* yields many surnames, but sometimes I have to refer back to the news-provider for information – especially when a 'Details Withheld' (DW) entry appears. Obviously, this is the correct approach, although when a deadline is looming and an E-mail has been sent late at night, I obviously can't really expect a reply before the morning!

Fortunately, some DW Amateurs still have an fully detailed mention at *QRZ.com*, and occasionally a Google search with a callsign will bring up a surname. However, there can still be problems, especially when I'm informed that the Amateur concerned can't have their surname published because of 'Security or personal reasons'. In these cases, to ensure their security and personal safety isn't comprised through *PW*, I will then delete any mention of given name, surname and callsign to fully respect their privacy.

There are many ways where club HSs and PROs can help us when sending news items in and these include providing full details about the club, address where meetings are held, post codes of venue, E-mail address and (if possible) a 'phone number for publication. Sometimes, I don't even have the surname of the person who has sent the news report in!

But you can help us to help you – by requesting the *PW Authors Guide* (sent as a pdf file) from me. Although specifically designed to help budding authors – it will assist you in compiling the information to help produce the best news item to effectively promote your club or organisation!

Rob Mannion G3XFD/EI5IW

Practical Wireless
PW Publishing Limited
Arrowsmith Court
Station Approach
BROADSTONE
Dorset BH18 8PW

Tel: 0845 803 1979
Fax: 01202 659950

Editor
Rob Mannion G3XFD/EI5IW
rob@pwpublishing.ltd.uk

Technical Editor
NG (Tex) Swann G1TEX/M3NGS
tex@pwpublishing.ltd.uk

Art Editor
Stephen Hunt
steve@pwpublishing.ltd.uk

Advertising Typesetting/Admin
Peter Eldrett
peter@pwpublishing.ltd.uk

Advertisement Sales
Roger Hall G4TNT
roger@pwpublishing.ltd.uk

Finance Manager
Alan Burgess
alan@pwpublishing.ltd.uk

Book Orders
bookstore@pwpublishing.ltd.uk

PW Publishing Website
www.pwpublishing.ltd.uk

Our 0845 numbers are charged at the BT Standard local Rate. Callers with an appropriate BT inclusive call package can call this number free!

Directors: Stephen Hunt & Roger Hall

Subscription Administration
Webscribe
Practical Wireless Subscriptions
PO Box 464
Berkhamsted
Hertfordshire HP4 2UR, UK
pw@webscribe.co.uk
www.mysubcare.com
☎ 01442 879097
Fax: 01442 872279

Subscriptions
Subscriptions are available at £38 per annum to UK addresses, £47 Europe Airmail and £57 RoW Airmail. See the Subscriptions page for full details.

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.

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. See the Book Store page for details.

Placing An Order
Orders for back numbers, binders and items from our Book Store should be sent to: PW Publishing Ltd., Post Sales Department, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW, with details of your credit card or a cheque or postal order payable to PW Publishing Ltd. Cheques with overseas orders must be drawn on a London Clearing Bank and in Sterling. Credit card orders (Access, Mastercard, Eurocard, AMEX or Visa) are also welcome by telephone to Broadstone 0845 803 1979. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Broadstone 01202 659950.
The E-mail address is bookstore@pwpublishing.ltd.uk

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

readers' letters

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

Star Letter

Silent Key LA3KY Very Much Alive!

Dear Rob
It is a long time since we exchanged E-mails or had a QSO together on 40m c.w., although I am still reading *PW*! A short time ago I missed a back issue and ordered a copy by 'phone and I was served by **Steve Hunt** at the Book Store. I asked Steve to say 'hello' to you. I have received the back issue a week ago.

Recently, I had a 'phone call from **Knut Kolstad LA2WRA**, in Molde, Norway. I know Knut very well and he is also a reader of *PW*. He told me that the Norwegian Resistance hero from the Second World War, and who was now a silent key at the age of 92 was mentioned in *PW* March 2010. He was though to hold the call sign **LA3KY**. Unfortunately, that is not correct. In the Norwegian Radio Amateurs call listing, LA3KY is **Kurt Malvin Haugland** of Uskedalen in Norway. In the index I can see there are about 20 persons with the second name Haugland, but none with the first name of Knut. As far as I understood from Knut LA2WRA, many years ago he had an 'eyeball' QSO with Knut Haugland and at that time told he my friend that he never was licenced as a Radio Amateur. Knut and I will continue to do investigations and will send you information as soon as we have some news. 73 de Norlief.

Update E-mail: Hi Rob! I have good news for you. This morning I was looking at the Norwegian telephone director (**www.Telefonkatalogen.no**) and looked for Kurt M. Haugland LA3KY, in Uskedalen. I found his telephone number and I phoned immediately and was lucky to first talk to his XYL and also Kurt. He knew of the mistake that had also been made by others, but fortunately he was in no way angry about what had been going on!

Indeed, Kurt has taken all the problems – including the fact that someone had marked him as being Silent Key on *qrz.com*! – with a smile and I told him about *PW*, and that you and I had been exchanging E-mails for a number of years. In fact, Kurt had also been a reader of *PW*, so he knew the magazine well. Kurt is a young 54 and he's doing his job as an electrician. The morning I telephoned he had returned home to collect something, so I was lucky to catch him as he's busy. Kurt still has his equipment and a 3-element yagi for 20m, but he isn't active very much at the moment.

Regarding myself Rob as you were asking for an up-date, in September this year I will be 73 years old. I am not too busy at the radio but together with some retired friends, one in Oslo and one in Bergen, we do a breakfast QSO every morning at 10 o'clock. I am lucky to have my IC-706MkIIG at the corner of the kitchen table. My two radio friends are both from this area and my wife **Aud** and I have known them both from the 1950s. So she also likes to listen to the morning QSOs that last for only 15 minute or so. When you are getting old you have not the same spirit as in younger days! Therefore I am not so eager as I was 50 years back. Since I have a lot of components (some secondhand) I should be more active with the soldering iron. You know the sight and also the ability to keep small things between the fingertips will not improve as you get older. I am lucky that both so far are okay!

I still like to read *PW* and enjoy – very much – **Rev. George Dobbs G3RJV's** articles, **Tony Nailer G4CFY's** *Doing it by Design*, Letters from the readers and your *Keylines* and *Topical Talk*.

I have another interest in radio – broadcasting. Many years ago I helped to build up a local radio station called *Bygderadio – Vest* (English translation. *Countryradio – West*) and three years ago I was asked to produce night program from 10pm until midnight) on Friday evenings. I do this once a month together with a friend. Playing music, talking with the listeners on the telephone, presenting small exercises and telling jokes. We have four teams doing this job. Therefore we're only on the air once every 4th. Friday. (No payment for this job). As far as I know there are approximately six or so small v.h.f. repeaters located in this area for our broadcasts (approximately 10W each) serving around 30 – 40,000 people. However, I don't believe all of them are listening to the programs. Hi!!!!

Here I have to end this very long E-mail (hopefully entertainment for many minutes eh?). I wish you good luck with *PW* and the 21 years as an editor. Within four years you can celebrate the 25th anniversary. Have a nice weekend together with the family. Best 73 from your friend 'Nol'.
Nørlief Bjorneseth LA9FG
FrøHolm
Volda
Norway

Editor's reply: *Thank you Norlief, it's great to hear from you again my friend and catch up with your news! Indeed, it seems that I have (along with other people) made an embarrassing mistake. I'm also very grateful to* ***Knut Kolstad LA2WRA*** *and the many other Norwegian* PW *readers, including* ***Geir Christiansen LA5ZO****, who have written to me to stress that the real LA3KY –* ***Kurt Haugland*** *– is very much alive and well. In fact Kurt is enjoying his Amateur Radio Hobby and skiing, as you will see on the* Topical Talk *pages, where I explain the background to this most unfortunate error.*

Silent Key LA3KY

Dear Rob,
First of all, thanks for a great magazine! I picked up the latest issue from a newstand in Aberdeen this week before flying home. However, I was surprised when I came to page 10 and to my surprise saw LA3KY had become a Silent Key some months ago.

Unfortunately, someone seems to have made a terrible mistake here. The actual callsign is listed as issued to LA3KY **Kurt Malvin Haugland**, in Uskedalen, Norway. Please note that he is not **Knut Magne Haugland**, the Second World War hero who recently died. Incidentally, I don't even think Knut Magne Haugland ever was a licenced Radio Amateur. 73 to everyone at *PW*.
Geir Christiansen LA5ZO
Sirdal
Norway

Converting Illegal CB Transceivers

Dear Rob,
In 1991 the RA introduced the possibility of converting illegal CB transceivers to operate on the 10 metre band. I duly applied for authority to convert a multi-mode CB transceiver to 10 metres and was issued with a "Notice of Authority" signed on behalf of the Secretary of State and detailing the frequency range (28 to 29.7MHz) make, model and serial No. of the equipment and a note that it was not transferable.

The radio is still in use and as far as I know the authority to use it still applies. Kind regards and keep up the good work with *PW*.
Frank Whitehead G4MLL
Mickleover
Derby
Derbyshire

Receivers Suitable For The Younger Constructors

Dear Rob
I read with interest **Ted Wager's** letter *Building & Using Receivers For The Young*, March 2010. I have four grandsons who will soon be of an age where they would enjoy building and using a receiver if, and this is a crucial point, the ideas and construction techniques were accessible to young minds and hands. The resulting receiver should be sufficiently capable in order to reward their efforts and motivate further interest.

An example of a kit suitable for young folk is provided by **Rex Harper W1REX** (the Tuna-Tin man) whose website **www.qrpme.com** shows a **Kid's Kit #1, Learn the Code**. This is a simple construction kit that requires only a small Phillips and regular screwdriver to assemble. When built, the kit becomes a Morse Code practice set. It's kit building Rob, but not as we know it!

Like Ted, I wonder whether it would be possible to create a modular design which would be accessible to the young? Agreed it's a challenging design brief but it could start a young person on a lifelong enjoyment of Amateur Radio. Regards.
Ralph Riddiough GM4SQO
Ayr
South Ayrshire
Scotland

Editor's comment: *Thank you for the suggestions Ralph! Any more suggestions readers? We'd particularly like to hear from keen youngsters as to what they would like to 'have a go at'.*

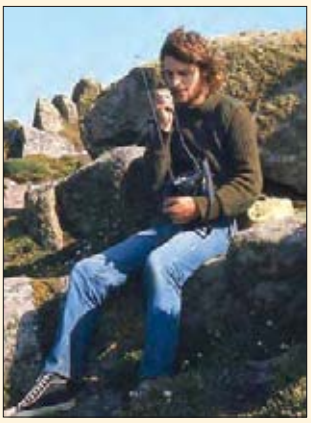
Back Into The Hobby & Microwaves

Dear Rob,
I'll try not to waffle too much though it's too easy to do so as a relative old-

A Note From New Zealand & Photos From The Past!

Dear Rob,
A quick note from ZL...where I've been having a sort out of old photo negatives and transparencies. In a forgotten box were these two gems I've sent to you with my letter. They were taken in mid 1977 on the traditional 'OE' ('Overseas Experience') to the UK (something that all New Zealanders aspire to). The QSL cards were on a board at Alexandra Palace, where I think it was an RSGB event. I recall mobile stations being talked in on h.f. and v.h.f. with local operators moving cardboard models around a large map...all very Battle of Britain in style and approach! Top of the must-do list was to organise a G-callsign. I can't remember exactly where in London the headquarters of the licencing authority was then, might it have been Waterloo Bridge?

Anyway, a long story shortened, a few days later a G-call arrived in the mail and it was **G4GAY**! Heavens above– how anyone who thought that could use that on GB3LO had to have his head examined! Needless to this particular New Zealander was soon back at the requesting another call! After explaining the less than useful allocation, howls of laughter could be heard from the office behind the counter and a new call was soon issued, and **G4GEG** was used around the UK on the Trio-2200 seen in the picture. Taken at Lands End in the summer of 1977. Keep up the good work cheers for now and my regards to yourself and **Tex G1TEX**.
Paul Barratt G4GEG/ZL1AJY
Birkenhead
Auckland
New Zealand



Editor's comment: *Thanks for the laugh Paul and the memories too! Anyone recognise their QSL card?*

Getting Older & Microwave Projects

Dear Rob,
Are we really heading towards your 25th anniversary as Editor of *Practical Wireless*? It doesn't seem that long from my perspective. I can remember your entrance to the helm of *PW* as if it was yesterday. This means of course, that we're both going to be nearly 25 years older when you get to the big date! A frightening thought, eh?

I remember the *Exe* 10GHz microwave transceiver, too. I even recall being in very close proximity to an *Exe* transceiver which was in working order. Unfortunately, even though I considered I might have a go at actually building one, I got cold feet!

Your clarion call for microwave articles has not fallen on deaf ears, here. However, I am surprised that your plea for for help in the direction microwave enthusiasts appears to have fallen on stony-ground. One reason might be that those people who operate at microwave frequencies are very few and far between – and more importantly, except for the first outer edges of microwave activity (23cms), no commercial equipment is specifically produced for Amateur Radio use.

One last thought. I think you're right on the subject of "illegal CB Transceivers." Radio Amateurs should be allowed to convert these s.s.b. rigs that are being used by "foreign HGV drivers" and others on 27MHz. I can assure you that the "clandestine" import of these rigs goes on unabated. 73.

Ray Howes G4OWY
Weymouth
Dorset

Send your letters to:
Rob Mannion
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: pwletters@pwpublishing.ltd.uk

timer! At the end of 2007 I decided to get back into Amateur Radio, since retirement was on the horizon and I thought I might have some time again. I had bought odd copies of *PW* (I enjoyed the 75th anniversary issues) and at the end of last year finally got a regular order in to the newsagent. I was delighted after collecting the new issue on Thursday to see your editorial with comments about microwaves!

In 1978 I got my B licence and stuck with that, since my interest then was primarily v.h.f. and up –in the early 80s I bought a Gunn diode and mixer diodes from Birkett's but never got round to doing anything with them. Recently, having got back into home-brew, my plan is gradually to work up in frequency and see how far I get. Presently I'm building a 23cm transverter. I wouldn't have written at all, except for the fact that last week I tested the receive side and it works, so I'm very hopeful of getting operational on 23cm soonish.

You can see details of the present state of this on my web pages at **www.marwynandjohn.org.uk/GM8OTI/homebrew.html** look down the page for the "current project". There are more details of earlier steps on the 23cm transverter project page.

It has been great for me to get back into making p.c.b.s (and I'll probably go 'photoresist' in due course now I've started to use the p.c.b. design tool). Surface mounting (SMD) is great fun – it's a great method of construction, though needing great care and a steady hand. It's also good to try to use components that are readily available – many SMD components are really cheap, including the lower power microwave semiconductors (presumably as a result of mobile phones, WiFi etc).

The one thing about moving up to these frequencies is that most Amateurs won't have suitable test equipment – including me. I do have a decent (if old and repaired by me) 30MHz scope, a home made (TTL) frequency counter, and various other bits of h.f. test equipment, but microwaves were always going to be a bit tricky. Along the way I have built an 'RF sniffer' that will detect small microwave signals up to at least 7GHz (probably 10) and that was a great help in setting up the local oscillator multipliers for the 23cm transverter. (Details of the sniffer also on the website.)

I spend a lot of time thinking about how best to go about the next step – it's very much a stepwise exercise for me, building what I need as I go. It would be wonderful to have a microwave spectrum analyser, etc. but being retired that's not very likely (fortunately if I do get stuck there are members of the club who could help with that sort of thing, but I like to be independent).

As a sort of "Guinea pig" doing what it looks as though you are thinking about, I'd like to help if I can, whether by writing or just passing on what I'm learning. I'm certainly making use of what others have already done and will find out more as I progress.

One reason for my approach is that I don't have a good QTH for radio, so most of my operating is /P (I do a bit of SOTA activating). That means relatively low powers (battery weight!) and devious collapsible antennas. So you won't find me building a high power microwave set-up yet until I'm ready to try moon bounce from the home QTH! Let me know if anything I'm doing looks to be along the lines you are looking for. Best 73.

John Cooke GM8OTI
Braid Hills
Edinburgh
Scotland

Editor's comment: *Thanks John, we're delighted to accept your offer of help! We hope to publish John's first article later in the year readers.*

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

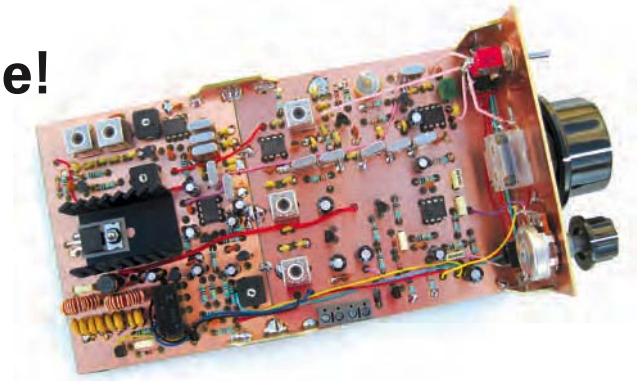
news & products

A comprehensive round-up of what's happening in our hobby.

It's QRP In The Country Time!

Somerset-based **Walford Electronics** invites *PW* readers a new event to be held on July 18th 2010 at **Tim Walford G3PCJ**'s Upton Bridge Farm, in Long Sutton, Langport, Somerset, near Yeovil. Tim G3PCJ and his wife Janet will welcome everyone. Full details will be provided in the Spring on the Walford Electronics Website, but a wide range of electronic activities are anticipated, including an opportunity to operate the G3GC replica 1938 Transmitter, informal home construction competition and advice clinic, and the Somerset Range kits to operate, (They're for sale too!), bring and buy stall, transformer throwing competition, with food and drink from local sources.

Janet Walford will be leading short farm tours. The event is free and West Country clubs are invited by this notice to let Tim know if they would like a free table (numbers are limited) for displays or Club sales, etc. If the weather permits it will be held outside, otherwise it will be under cover in the farm barns.



Tim Walford G3PCJ will be on hand during the 'QRP In The Country' event to describe and demonstrate his latest kit projects. The photograph shows the new Tone superhet receiver attached to the Parrett transmitter 1.5W 3.5MHz s.s.b. rig.

Please contact Tim Walford G3PCJ at **walfor@globalnet.co.uk**
The Somerset Range of kits can be seen at **http://www.users.globalnet.co.uk/~walfor/**
Walford Electronics, Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ
Tel: (**01458**) **241224**, FAX (**01458**) **241186**

Isle Of Man Foundation Success!

The **Isle of Man Amateur Radio Society** recently held a Foundation Licence course, resulting in all eight students gaining a pass. Those licensed so far include: **Dave Williamson MD6TSW**, **Henry Dorman MD3ZFQ**, **Izzy Dorman MD6IZI**, **Michael MD3ZGV** and **Peter Morgan MD6IOM**. Henry and Izzy follow their parents **Andy Dorman GD0AMD** and **Jane Dorman GD1LVY** into the Amateur Radio world, whilst Peter follows his dad **Andy Morgan GD1MIP**. The three younger members of the club Peter aged nine, Izzy aged 16 and Henry aged 12 are pictured getting to grips with their new hobby in the shack of one of the club tutors **Godfrey Baillie-Searle GD4EIP**.

Any person with an interest in radio wishing to study for the exams or join the club, they're welcome to contact the Club Secretary Andy Morgan via E-mail **GD1MIP@manx.net** or via phone 07624 412711. You can also take a look on the internet **http://iomars.blogspot.com** and for those using Facebook can log in and search on **GT3FLH**. The club has the ability to offer training to all age groups and abilities in various centres throughout the Isle of Man.

Andy Morgan GD1MIP
E-mail gd0nfn@manxbroadband.com
Web site http://iomars.blogspot.com/

The three keen younger new Radio Amateurs – Peter MD6IOM, Izzy MD6IZI aged 16 and Henry MD3ZFQ, with their Instructor, Gordon Baillie-Searle GD4EIP.

Hambleton ARS In Full Steam At Vintage Vehicle Rally!

The **Hambleton Amateur Radio Society**, based in Northallerton, North Yorkshire will be operating a Special Event (SE) callsign **GB2VVR** from the **Head of Steam Museum**, **Darlington Railway Museum**, **North Road Station**, **Darlington DL3 6ST**, on May 23rd between 1000 and 1600. The Event is the **Vintage Vehicle Rally** and it's being held in the museum grounds. The SE station will be active on 3.5, 7 and 14MHz (80, 40 and 20m) during the day, a special event QSL card will be issued.
Ian Stevenson M3XNM (Club Chairman) E-mail **m3xnm@yahoo.co.uk**

Club meetings take place every fortnight on a Wednesday evening. Doors open at 7.30pm with activities usually starting shortly after 8pm. For more information about the Club or directions, please contact our Club Secretary **Tim Allison G0TYM**.Tel: (**01642**) **711334**. Club meetings are held at the Mencap Centre, **off Quaker Lane, Northallerton DL6 1EG**.
Web site: **www.radioclubs.net/hambletonars/about.php**
www.darlington.gov.uk/Culture/headofsteam/welcome.htm

MyHamShack.com From EI5DD

Steve Wright EI5DD invites **PW** *readers to take up his offer of a free web page!*

Steve Wright EI5DD, who is based in County Galway in the west of Ireland, contacted *Newsdesk* with an invitation to our readers: "My Ham Shack is a place where you get a **free personal web page** for you and your shack. You can upload pictures, build your connection network, keep a station blog and more. Go to **www.MyHamShack.com/Register.aspx**
You can check out MYHamShack to see what it's all about at **www.MyHamShack.com/EI5DD**. 73, to everyone at *PW*. **Steve EI5DD**.

Royal Naval Amateur Radio Society Celebrates 50 Years

The **Royal Naval Amateur Radio Society** (RNARS) was formed in 1960 and to celebrate the 50th anniversary, a special callsign **GB50RNARS** is being aired by members of the Society throughout the year. From the beginning of January, the call has been on air in various modes including c.w. (of course!) s.s.b., RTTY and data modes.

The bands used so far have included those between 1.8MHz and 23cm, resulting in over 1700 contacts with stations as far away as Australia (VK). During the whole of April, the callsign will be used from the Bridge Wireless Office of **HMS *Belfast,*** which is permanently moored near Tower Bridge in London.

The **Belgian** and the **Royal Netherlands Naval Amateur Radio Societies** are also running special anniversary callsigns this year. They include: **ON50RN**, **PA50RNARS**, **PB50RNARS**, **PC50RNARS**, **PE50RNARS**, **PF50RNARS**, **PG50RNARS** and **PH50RNARS**.

A special Anniversary award is available to Short Wave Listeners and Licenced Radio Amateurs who hear or contact RNARS members and the Specials Event stations during 2010. Full details can be found on the RNARS web site at: **www.rnars.org.uk**

An Anniversary dinner has been organised for June 26th at **HMS *Collingwood*** in Fareham. For bookings, please contact **Ray Ezra G3KOJ** (QTHR) via E-mail: **penray93@tiscali.co.uk**

A Society get-together weekend has also been organised in August at Coventry in the West Midlands. Tickets can be obtained from **Doug Hotchkiss G4BEQ** (QTHR) E-mail **g4beq@tiscali.co.uk**

Membership of the RNARS is not a requirement to attend either of these social events. The **RNARS** can be contacted by post at: **The Royal Naval Amateur Radio Society**, **HMS *Collingwood***, **Newgate Lane**, **Fareham**, **Hampshire PO14 1AS**. The Chairman, **Mick Puttick G3LIK**, can be contacted by telephone on (**02392**) **255880**.

Shefford Club Mass Construction Projects Score!

Victor Brand G3JNB reports: "The Shefford Club Members have completed their latest winter project, a neat little digital 'PIC based LC meter' built using club kits. It was developed by **Richard Porter G3NII** from the design by **Phil Rice VK3BHR**. They use low-cost liquid crystal display (l.c.d.) units sourced by **Bryan Bourne M0BIK**, and the kits themselves were prepared by **Dick Giles G4LBH**. The kits were complete in every aspect and were supported by very detailed instructions, including several 'help and support' sessions plus final set-up and testing by Richard G3NII.

Ken Amos G4YRF, Chairman of the Shefford & District ARS, reports that building work is alive and well at Shefford and that their annual construction contest is always well supported and of an increasingly high standard, witness the outstanding entry by **Andy Barter G8ATD**, for the 'Major Project' class, with his *Elector* Sweep Frequency Generator/Spectrum Analyser. For more pictures and information go to their new and developing web site at **www.sadars.co.uk**

73 Victor Brand G3JNB E-mail **victor@g3jnb.freeserve.co.uk**

Fig. 1: Shefford Club members proudly show off their completed home-brew kits.

Send all your news to:
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: newsdesk@pwpublishing.ltd.uk

Warrington Amater Radio Club Web Site Software

Newsdesk received an E-mail from **Jack Hardcastle G3JIR** with some interesting news regarding the **Warrington Amateur Radio Club** (WARC) website: "Dear Editor, I would like to bring to your notice the article published by **Horst Steder DJ6EV** and myself in Nov/Dec ***QEX***, published by the **American Amateur Radio Relay League** (ARRL). The associated software is now available on the WARC website **www.warc.org.uk** then click on **Projects**)."

Horst Steder DJ6EV (above) and Jack Hardcastle G3JIR (below) worked closely together to produce filter design software that's now available via the Warrington Club's website.

"As well as the software, several of my earlier ladder crystal filter articles, which are relevant, are included (with appropriate copyright release). Besides my own articles there are several other contributions from club members, including additional information on the award-winning CDG2000 transceiver. I would be pleased if you could spare space in *Practical Wireless* to alert your readers to this website and possibly add it to your 'links' page too?" Regards.
Jack HardcastleG3JIR
jack.g3jir@btinternet.com
www.warc.org.uk/

Jersey GB3GJ Repeater To Rise Again!

Newsdesk heard some good news from the Channel Islands in mid March: It began,"March 16th and the **Jersey Amateur Radio Repeater Group** have some good news relating to the new repeater. **Peter Bertram GJ8PVL** and **Rob Luscombe MJ0RZD** met with the **Jersey Electricity Company** to discuss the way forward and all of this could, with luck, see the repeater on air by the end of May 2010.

The original site at Westmount fell through late in 2009 when the provider indicated the costs that the repeater group would be expected to meet in terms of obtaining loading calculations for the mast, agreeing a lease and other associated matters. Thanks to **Mike Turner GJ0PDJ** providing some much needed assistance a new site at Queens Road was secured on the Jersey Electricity Company's building.

It has been agreed that they will provide a power connection and a position on the existing mast for the antenna as well as a location at roof level for the equipment free of charge as the repeater group is now a registered charity. Whilst the repeater will not have security of tenure (in other words if someone else needs the space they will get preference) the repeater will have a site for the foreseeable future. So once again the group are into scrounging whatever they can to get things underway so anyone who can lend us their time and assistance this will be gratefully received. If you think you can help please talk to any of the repeater group Committee (via web site) or E-mail at **mj0rzd@robluscombe.com**

In the meantime **Phil Taylor MJ0JER** has taken delivery of and set up the repeater unit, the cavities have been ordered from Finland and the antenna and lightning protection from Radio Structures in the UK.

Further details from Rob Luscombe MJ0RZD
Tel: **07797 923916**
Web site **www.robluscombe.com**
The Jersey Amateur Radio Society at **www.radioclubs.net/gj3dvc/**
The Jersey Amateur Radio Repeater Group at **www.radioclubs.net/gb3gj/**

The new site for the Jersey Repeater – GB3GJ on the top of the Jersey Electricity Company's main office building.

Another Triumphant New Zealand January Buildathon!

David Searle ZL3DWS, the ZL3 Buildathon Co-ordinator in New Zealand, E-mailed *Newsdesk* saying "Hi *PW*! I'm delighted to say that 62 people joined in the fun and built 21 MK484 a.m. radio and 10 ZL3 Pixie Twins during the latest Builathon. Saturday January 30th was a warm Christchurch summer's day as 62 builders, parents and helpers assembled at Kendal School, Burnside, for the 3rd ZL3 Radio Buildathon."

"The Events are sponsored by the **Christchurch City Council**, The **New Zealand Association of Radio Transmitters** (NZART), **The Radioscience Education Trust Inc.** and **NZ Vintage Radio Society**, Christchurch. They are designed to encourage electronic construction by anyone of any age and spark an interest in Amateur Radio."

"Two projects were built during the morning. A miniature a.m. broadcast receiver was successfully completed by 21 builders, mostly school age."

"The second project was the ***ZL3 Pixie Twins*** transceiver and 10 units were successfully completed by licensed Radio Amateurs. These 3.5MHz QRP c.w. transceivers are a variation on the world famous *Pixie 2*."

"Thanks to the special efforts of **Brent Officer ZL3TUI** and **Doug Pratt ZL2BCF**, an Amateur Radio station was set up on site so all could see and hear Amateur Radio in action. Students from ten Christchurch primary, intermediate and high schools participated."

"Many people contributed to the success of the day, but special thanks are extended to these Christchurch Radio Amateurs who showed builders how to solder, identify components and complete a successful project; **Mike Barnes ZL3TMB**, **Tony Buckland ZL3HAM**, **Ron Collyer ZL3RCA**, **Rory Deans ZL3HB**, **Malcom Gordon ZL3UU**, **Owen Pimm ZL3GM**, **Keith Reid ZL4NZ**, **Keith Stanton ZL3QH**, **John Walker ZL3IB**.

If you, or a youth, community or school group you know (anywhere in the world!), are interested in coming along to the next ZL3 Buildathon, please contact us now!

David W Searle ZL3DWS
ZL3 Buildathon Co-ordinator
PO Box 20-256, Christchurch 8543 NZ
Tel: **03 358 2424** (8am – 8pm)
E-mail **davidsearle@contactplus.co.nz**
Web sites **http://sites.google.com/site/zl3buildathon/**
http://sites.google.com/site/zl3buildathon/world-map

David Searle ZL3DWS welcomes everyone to the Buildathon.

The youngsters all thoroughly enjoyed building their MK484 a.m. radios – under close supervision.

There was even time to chat to friends during breaks in QSOs!

A helping – steadying – hand can save many burnt fingers at a Buildathon!

Feature

Further 500kHz Experiments & WSPR

In the December 2009 issue *Practical Wireless,* I described my first attempts at a very basic transmitter for 500kHz using WSPR ('Whisper'), the weak signal beaconing mode invented by **Joe Taylor K1JT**. My effective radiated power (e.r.p.) then was just 6μW and four different stations were able to receive my signals.

However, since last December a number of small but significant improvements have since been made and the effective radiated power (e.r.p.) has now increased 150-fold to around 1mW! This is still a tiny signal, but the difference it has made to the range has been very dramatic. Let me explain.

The Complete Transverter

The complete transmitting-receiving transverter is shown in the photographs **Fig. 1** and **2** (boxed and unboxed). This was the first improvement step. My original circuit used a 2N3904 and 2N3906 as a power amplifier (p.a.) stage producing around 700mW. This circuit worked well but the output was low.

A simple way of increasing the output was obviously required and, as IRF510 field effect transistors (f.e.t.s) are ideal for use in a p.a. at 500kHz, an alternative design was soon put together. The measured output power was then just over 5W.

I 'field tested' the circuit within hours and several more stations were reporting my signal, including **Michel Brunel F5FK** in France and **Rick Strobbe OR7T** in Belgium – my QRP 500kHz signals were going international! Then, a report from **John Pumford-Green GM4SLV** up in the Shetland Islands – adjacent to the delightfully named river *The Burn of Twatt* – and 896km away, practically made me fall off my chair! But even **better** results were to come in the following few weeks.

Grounding Improvements

At this point I was still using just my copper water pipes in the house as the earth connection and grounding improvements were a priority. So, I inserted a further earth stake just outside the back of the house, together with a feeble attempt at a couple of very short radials each no more than 10m long. These were all connected to the existing ground connection. To my disappointment antenna current barely changed suggesting that very little improvement had taken place.

Up to this point, my antenna had remained as the 5-6m long coaxial cable feeder to my 28MHz halo, which itself was acting as a small top capacity hat. The next change was to remove the halo and replace it with a spiral top capacity hat/inductor, **Fig**.s **3** and **4**. This consisted of seven turns of wire gradually spiralling in to the top of the vertical wire.

The idea was to increase the current flowing in the vertical section of what is, in effect, a very short Marconi antenna. Once again, I was expecting an

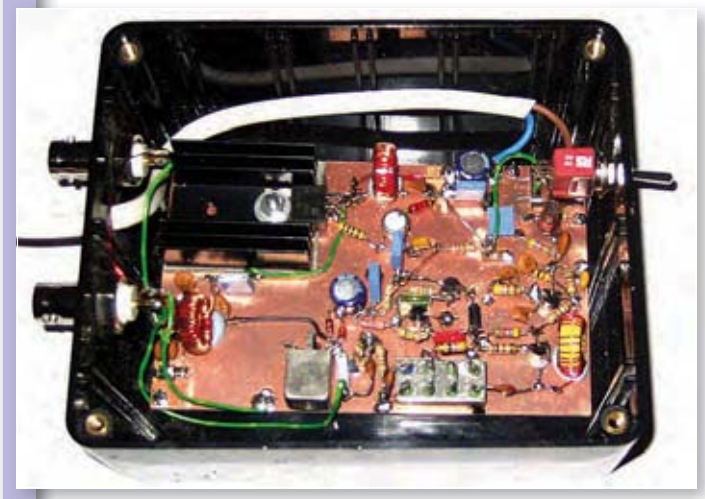


Fig. 1: The new transverer in its box provide a full 5W output from a single IRF510 f.e.t.

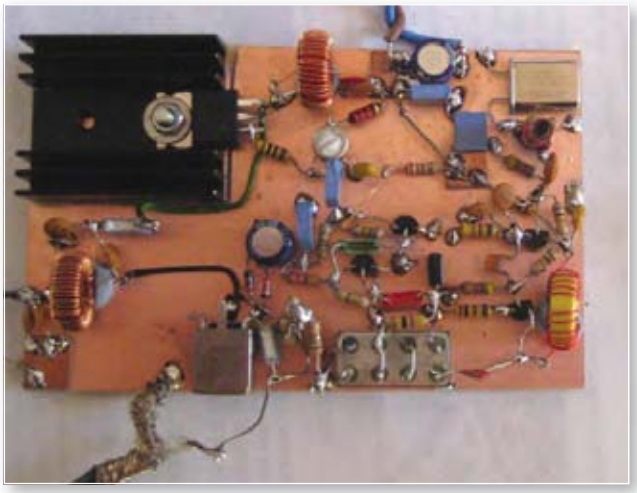


Fig. 2: The transverter, before boxing up.

Roger Lapthorn G3XBM updates his adventures on l.f. and has proved you don't need to shout – 'Whispering' is very effective!

Continued on page 17

Manufacturers of radio communication antennas and associated products

HUSTLER HF Verticals

Brilliant ground mounted antennas that work!

4-BTV	4 Bands 40-10m, Power 1000 Watts, Length 6.5m	£179.95
5-BTV	5 Bands 80-10m, Power 1000 Watts. Length 7.6m	£219.95
6-BTV	6 Bands 80-10m, Power 1000 Watts, Length 7.3m	£259.95

MOONRAKER VHF/UHF Mobiles

GF151	Glass Mount 2/70cm, Gain 2.9/4.3dBd, Length 78cm complete with 4m cable and PL259	£29.95
MRM-100	MICRO MAG 2/70cm, Gain 0.5/3.0dBd, Length 55cm, 1" magnetic base with 4m coax and BNC	£19.95
MR700	2/70cm, Gain 0/3.0dBd, Length 50cm, 3/8 fitting	£9.95
MR777	2/70cm, Gain 2.8/4.8dBd, Length 150cm, 3/8 fitting	£17.95
MRQ525	2/70cm, Gain 0.5/3.2dBd, Length 43cm, PL259 fitting (high quality)	£19.95
MRQ500	2/70cm, Gain 3.2/5.8dBd, Length 95cm, PL259 fitting (high quality)	£24.95
MRQ750	2/70cm, Gain 5.5/8.0dBd, Length 150cm, PL259 fitting (high quality)	£34.95
MR2 POWER ROD	2/70cm, Gain 3.5/6.5dBd, Length 50cm, PL259 fitting (fibreglass collinear)	£24.95
MR3 POWER ROD	2/70cm, Gain 2.0/3.5dBd, Length 50cm, PL259 fitting (fibreglass collinear)	£29.95
MRQ800	6/2/70cm Gain 3.0dBi/5.0/7.5dBdBd, Length 150cm, PL259 fitting (high quality)	£39.95
MRQ273	2/70/23cm Gain 3.5/5.5/7.5dBdBd, Length 85cm, PL259 fitting (high quality)	£49.95

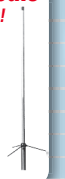
DIAMOND ANTENNA Yagi Antennas

Diamond performance from the superb Diamond factory

A502HBR	6m 2 Elements, Power 400W, Gain 6.3dBi, Radial Length 3m	£89.95
A144S10R	2m 10 Elements, Power 50W, Gain 11.6dBi, Boom Length 2.13m	£84.95
A144S5RR	2m 5 Elements, Power 50W, Gain 9.1dBi, Boom Length 95cm	£45.95
A430S15R	70cm 15 Elements, Power 50W, Gain 14.8dBi, Boom Length 224cm	£65.95
A430S10R	70cm 10 Elements, Power 50W, Gain 13.1dBi, Boom length 119cm	£49.95

MOONRAKER Mono Band Collinear Verticals

Totally encapsulated GRP fibreglass antennas which require no tuning!



BM33	70cm 2 X 5/8, Gain 7.0dBd, Length 100cm, N-Type	£44.95
BM45	70cm 3 X 5/8, Gain 8.5dBd, Length 155cm, N-Type	£54.95
BM55	70cm 4 X 5/8, Gain 10dBd, Length 250cm, N-Type	£74.95
BM60	2m 5/8, Gain 5.5dBd, Length 155cm, N-Type	£54.95
BM65	2m 2 X 5/8, Gain 8.0dBd, Length 250cm, N-Type	£79.95
BM75	2m 3 X 5/8, Gain 9.0dBd, Length 430cm, N-Type	£99.95
BM140	4m 1/2, Gain 2.75dBd, Length 230cm, N-Type	£69.95
BM260	6m 1/2, Gain 2.75dBd, Length 285cm, N-Type	£89.95

MOONRAKER HF Mobiles

Get great results with the Moonraker range of HF mobiles !
... from as little as £17.95!

AMPRO-10	28MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-12	24MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-15	21MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-17	18MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-20	14MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-30	10MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-40	7.0MHz, Length 220cm, 3/8th fitting (slimline design)	£17.95
AMPRO-80	3.5MHz, Length 220cm, 3/8th fitting (slimline design)	£19.95
AMPRO-160	1.8MHz, Length 220cm, 3/8th fitting (heavy duty design)	£49.95
ATOM-20S	14MHz, Length 130cm, PL259 fitting (compact design)	£24.95
ATOM-40S	7.0MHz, Length 165cm, PL259 fitting (compact design)	£26.95
ATOM-80S	14MHz, Length 165cm, PL259 fitting (compact design)	£29.95

Tarheel Motorised Mobile

The best USA motorised antennas available here from Moonraker the European distributor – All models in stock now!

Little Tarheel II 3.5-54MHz 200W max length 48" £349.95

MOONRAKER GP2500

All Band HF Vertical

This is the perfect answer for anyone with limited space and requires no radials. Covering 80 through to 6M with a VSWR below 1.5:1!

Frequency 3.5-57MHz without tuner, Power 250 Watts, Length 7.13M

All at an amazing £199.95!

NEW GP2500F fibreglass version now in stock £249.95

MOONRAKER Dual and Triband Collinear Verticals

Diamond quality – Moonraker prices ! These high gain antennas have been pre-tuned for your convenience, easy to use, easy to install, and a choice of connection ... look no further

SQBM105P	2/70cm, Gain 2/4.5dBd, RX 25-2000MHz, Length 70cm, SO239 (Radial Free)	£39.95
SQBM105N	2/70cm, Gain 2/4.5dBd, RX 25-2000MHz, Length 70cm, N-type (Radial Free)	£44.95
SQBM110P	2/70cm, Gain 3/6dBd, RX 25-2000MHz, Length 100cm, SO239 (Radial Free)	£54.95
SQBM110N	2/70cm, Gain 3/6dBd, RX 25-2000MHz, Length 100cm, N-Type (Radial Free)	£59.95
SQBM200P	2/70cm, Gain 4.5/7.5dBd, RX 25-2000MHz, Length 155cm, SO239	£54.95
SQBM200N	2/70cm, Gain 4.5/7.5dBd, RX 25-2000MHz, Length 155cm, N-Type	£59.95
SQBM500P	2/70cm, Gain 6.8/9.2dBd, RX 25-2000MHz, Length 250cm, SO239	£64.95
SQBM500N	2/70cm, Gain 6.8/9.2dBd, RX 25-2000MHz, Length 250cm, N-Type	£69.95
SQBM800N	2/70cm, Gain 8.5/12.5dBd, RX 25-2000MHz, Length 520cm, N-Type	£129.95
SQBM1000P	6/2/70cm, Gain 3.0/6.2/8.4dBd, RX 25-2000MHz, Length 250cm, SO239	£79.95
SQBM1000N	6/2/70cm, Gain 3.0/6.2/8.4dBd, RX 25-2000MHz, Length 250cm, N-Type	£84.95
SQBM223N	2/70/23cm, Gain 4.5/7.5/12.5dBd, RX 25-2000MHz, Length 155cm, N-Type	£69.95

MOONRAKER Multiband Mobile

Why buy loads of different antennas when Moonraker has one to cover all! SPX series has a unique fly lead and socket for quick band changing

SPX-100	9 Band plug n' go portable, 6/10/12/15/17/20/30/40/80m, Length 165cm retracted just 0.5m, Power 50W complete with 38th PL259 or BNC fitting to suit all applications, mobile portable or base ... brilliant!	£44.95
SPX-200	6 Band plug n' go mobile, 6/10/15/20/40/80m, Length 130cm, Power 120W, 3/8th fitting	£39.95
SPX-200S	6 Band plug n' go mobile, 6/10/15/20/40/80m, Length 130cm, Power 120W, PL259 fitting	£44.95
SPX-300	9 Band plug n' go mobile, 6/10/12/15/17/20/30/40/80m, Length 165cm, High Power 200W, 3/8th fitting	£54.95
SPX-300S	9 Band plug n' go mobile, 6/10/12/15/17/20/30/40/80m, Length 165cm, High Power 200W,PL259 fitting	£59.95
AMPRO-MB6	6 Band mobile 6/10/15/20/40/80m, length 220cm, 200W, 3/8th fitting, (great for static use or even home base – can tune on four bands at once)	£69.95
ATOM-AT4	10/6/2/70cm Gain 2m 2.8dBd 70cm 5.5dBd, Length 132cm, PL259 fitting (perfect for FT-8900R)	£59.95
ATOM-AT5	5 Band mobile 40/15/6/2/70cm, Length just 130cm, 200W (2/70) 120W (40-6M) PL259 fitting, (great antenna, great price and no band changing, one antenna, five bands)	£69.95
ATOM-AT7	7 Band mobile 40/20/15/10/6/2/70cm, Length just 200cm, 200W (2/70) 120W (40-6M) PL259 fitting, (Brilliant antenna HF to UHF with changeable coils)	£79.95

MOONRAKER Yagi Antennas

All Yagis have high quality gamma match fittings with stainless steel fixings! (excluding YG4-2C)

YG27-4	Dual band 2/70 4 Element (Boom 42") (Gain 6.0dBd)	£49.95
YG4-2C	2 metre 4 Element (Boom 48") (Gain 7dBd)	£29.95
YG5-2	2 metre 5 Element (Boom 63") (Gain 10dBd)	£49.95
YG8-2	2 metre 8 Element (Boom 125") (Gain 12dBd)	£69.95
YG11-2	2 metre 11 Element (Boom 185") (Gain 13dBd)	£99.95
YG3-4	4 metre 3 Element (Boom 45") (Gain 8dBd)	£59.95
YG5-4	4 metre 5 Element (Boom 104") (Gain 10dBd)	£69.95
YG3-6	6 metre 3 Element (Boom 72") (Gain 7.5dBd)	£64.95
YG5-6	6 metre 5 Element (Boom 142") (Gain 9.5dBd)	£84.95
YG13-70	70 cm 13 Element (Boom 76") (Gain 12.5dBd)	£49.95

MOONRAKER ZL Special Yagi Antennas

The ZL special gives you a massive gain for the smallest boom length ... no wonder they are our best selling yagi's!

ZL5-2	2 Metre 5 Ele, Boom 95cm, Gain 9.5dBd	£49.95
ZL7-2	2 Metre 7 Ele, Boom 150cm, Gain 12dBd	£59.95
ZL12-2	2 Metre 12 Ele, Boom 315cm, Gain 9.5dBd	£99.95
ZL7-70	70cm 7 Ele, Boom 70cm, Gain 11.5dBd	£39.95
ZL12-70	70cm 12 Ele, Boom 120cm, Gain 14dBd	£49.95

MOONRAKER HB9CV

Brilliant 2 element beams ... ideal for portable use

HB9-70	70cm (Boom 12")	£24.95
HB9-2	2 metre (Boom 20")	£29.95
HB9-4	4 metre (Boom 23")	£39.95
HB9-6	6 metre (Boom 33")	£49.95
HB9-10	10 metre (Boom 52")	£69.95
HB9-627	6/2/70 Triband (Boom 45")	£69.95

MOONRAKER Halo Loops

Our most popular compact antennas, great base, mobile, portable, or wherever!

HLP-2	2 metre (size approx 300mm square)	£19.95
HLP-4	4 metre (size approx 600mm square)	£29.95
HLP-6	6 metre (size approx 800mm square)	£39.95

MOONRAKER G5RV Wire Antennas

The most popular wire antenna available in different grades to suit every amateur .... All from just £19.95!

G5RV-HSS	Standard Half Size Enamelled Version, 51ft Long, 10-40 Metres	£19.95
G5RV-FSS	Standard Full Size Enamelled Version, 102ft Long, 10-80 Metres	£24.95
G5RV-DSS	Standard Double Size Enamelled Version, 204ft Long, 10-160 Metres	£49.95
G5RV-HSH	Half Size Hard Drawn Version, pre-stretched, 51ft Long, 10-40 Metres	£24.95
G5RV-FSH	Full Size Hard Drawn Version, pre-stretched, 102ft Long, 10-80 Metres	£29.95
G5RV-HSF	Half Size Original High Quality Flexweave Version, 51ft Long, 10-40 Metres	£29.95
G5RV-FSF	Full Size Original High Quality Flexweave Version, 102ft Long, 10-80 Metres	£34.95
G5RV-HSP	Half Size Original PVC Coated Flexweave Version, 51ft Long, 10-40 Metres	£34.95
G5RV-FSP	Full Size Original PVC Coated Flexweave Version, 102ft Long, 10-80 Metres	£39.95
G5RV-HSX	Half Size Deluxe Version with 450 Ohm ladder, 51ft Long, 10-40 Metres	£44.95
G5RV-FSX	Full Size Deluxe Version with 450 Ohm ladder, 102ft Long, 10-80 Metres	£49.95

Accessories

G5RV-IND	Convert any half size G5RV to full with these great inductors, adds 8ft on each leg	£24.95
MB-9 Choke Balun	for G5RV to reduce RF Feedback	£39.95
TSS-1	Pair of stainless steel springs to take the tension out of a G5RV or similar	£19.95

MOONRAKER Trapped Wire Dipole Antennas

Commercial quality trapped wire dipoles that resonate, so require no ATU!

MDT-6 FREQ:40 & 160m LENGTH: 28m POWER: 1000 Watts £79.95

MTD-1 (3 BAND) FREQ:10-15-20 Mtrs LENGTH:7.40 Mtrs POWER:1000 Watts £69.95

MTD-2 (2 BAND) FREQ:40-80 Mtrs LENGTH: 20Mtrs POWER:1000 Watts £79.95

MTD-3 (3 BAND) FREQ:40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts £129.95

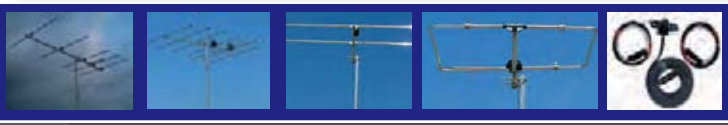
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts £69.95

MTD-5 (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER:1000 Watts £119.95

(MTD-5 is a crossed di-pole with 4 legs)

Moonraker @ M5 Communications
Moto Services Area, Junction 30 M5 South, Exeter, EX2 7HF.
Tel: 01392 427269

NEW Moonraker Satellite shop now open in the West Country



If we advertise it – we stock it!

Come and see us at the amazing Blackpool Radio Rally Sunday 11th April For more information please visit http://www.g1gyc.demon.co.uk/narsa

Continued from page 13

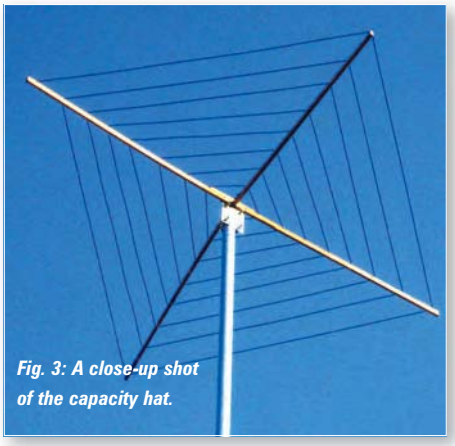


Fig. 3: A close-up shot of the capacity hat.

Fig. 4: The capacity hat on the vertical section has improved e.r.p. significantly.

Timestamp	Call	SNR	Pwr	Reporter	RGrid	km
2010-01-31 03:44	G3XBM	-26	0.001	OK2BVG	JN88ks	1232
2010-01-31 04:30	G3XBM	-26	0.001	GM4SLV	IP90gg	896
2010-01-30 22:50	G3XBM	-18	0.001	GM0UDL	IO77vo	659
2010-01-30 20:08	G3XBM	-6	0.001	F6CNI	JN19qb	418
2010-01-30 20:26	G3XBM	-25	0.001	PA0A	JO33de	417
2010-01-30 19:30	G3XBM	-27	0.001	ON4BB	JO21bc	294
2010-01-30 18:04	G3XBM	-18	0.001	PA0AM	JO11sh	248
2010-01-30 22:16	G3XBM	-24	0.001	M0LMH	IO93gx	223
2010-01-30 22:16	G3XBM	-17	0.001	M0BMU	IO91vr	69
2010-01-30 22:16	G3XBM	-15	0.001	G7NKS	IO92ub	46

Fig. 6: a selection of the stations that have received Roger's signal.

immediate increase in antenna current – but it was barely noticeable. Some 'on the air' reports were needed.

Connecting up the *WSPR* software, I started beaconing with the improved antenna. Immediately the reports suggested my signal had increased by around 5-6dB. This was looking very promising indeed!

Modifying The Transverter

I set about modifying the transverter, see the circuit diagram, **Fig. 5**, so I could use it with my Yaesu FT-817 as a complete transceiver, which was easier than I had expected – especially when I realised the FT817 could be used in 'split' mode. (That is transmitting on one band but receiving on another).

By adding the simple LC and diode change-over circuit so, requiring no relays, the transverter 'passes through' the 500kHz received signal directly to the same connector on the FT-817 from which the 28MHz FSK signal on transmit is coming from. So, by putting the FT-817 to receive on 500kHz and transmitting on 28MHz, full transceiver operation is possible.

Using the system as described, I've had some c.w. contacts with stations around England. These included **Mal Hamilton G3KEV** in Scarborough and **Chris Osborn G3XIZ** in Biggleswade.

When using *WSPR* it allows reception between transmissions, which can be uploaded to the WSPR database. The FT-817 is less sensitive on 500kHz than on 1.8MHz and above, but it's satisfactory in this application as external noise is usually the limiting factor. A small, selective pre-amplifier with good large signal handling would be useful – but it's not essential.

The Results?

In all, my improvements to the p.a., and the changes to the grounding, together with the antenna's improved top-hat have resulted in around 20dB increase in e.r.p. on 500kHz. At the time of writing this up-date (February 2010) the number of stations that have reported my signal has jumped to 75 unique stations in 10 different countries! Most were via the *WSPRnet* online database, but a couple submitted reports directly by E-mail.

The best DX that I've achieved now has increased to 1232km, with a report from **Lubos Bobalik OK2BVG** in Breclav, in the Czech Republic (Locator JN88KS). Lubos has a very good antenna in a quiet rural location!

As an example of how well the system now works, **Fig. 6** shows an example of my unique reports in just one single night.

New Challenges?

Having 'done' 500kHz WSPR with an ultra-simple station now and proved that there is indeed *multum in parum –'much upon too little'* and I think it's time to move on to a new challenge. Not quite sure what this will be, or on what band, but watch this space! ●

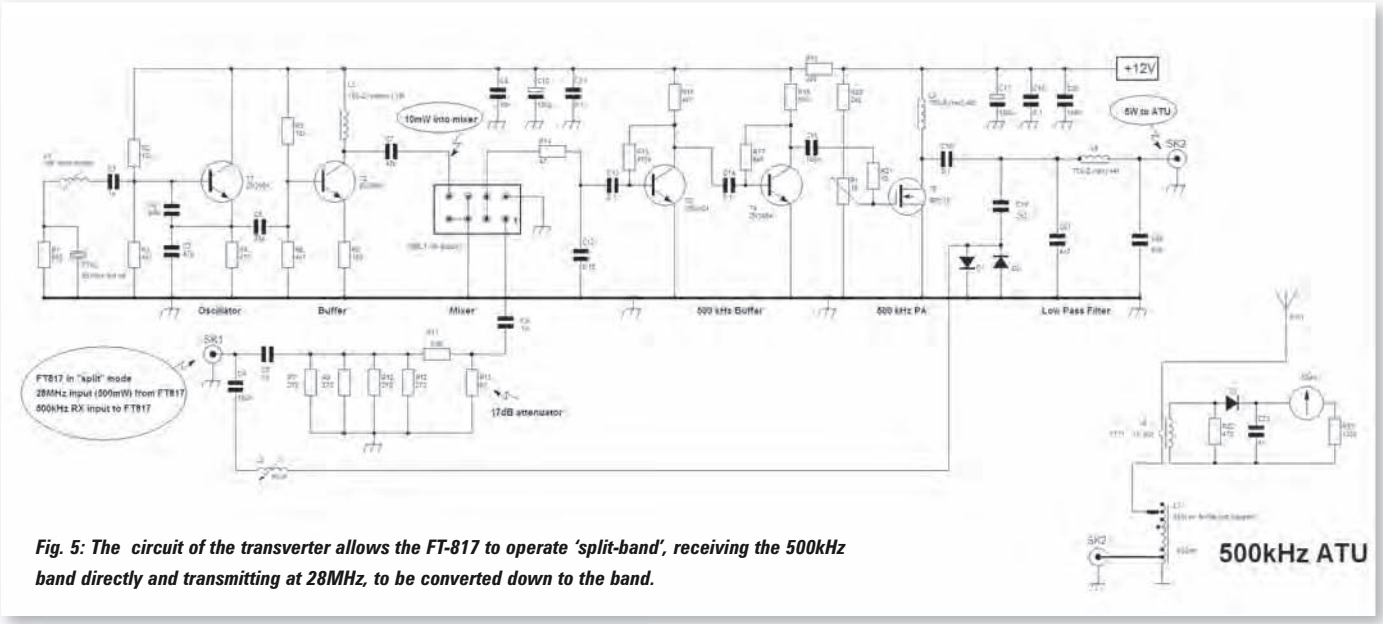


Fig. 5: The circuit of the transverter allows the FT-817 to operate 'split-band', receiving the 500kHz band directly and transmitting at 28MHz, to be converted down to the band.

The Second Practical Wireless 70MHz Low Power Contest

Editor's acknowledgement: **Colin, Tex Swann G1TEX** and I were pleased at the number of entries for the first *PW* 70MHz Low Power Contest in 2009. Because of this, we all think that there was enough interest shown to organise a second event. In thanking Colin G6MXL for his continuing efforts (it's a year-round task!) I ask everyone who 'had a go' last year to do the same this year. And – if you've got equipment for 70MHz – please join us during the contest. Your support will be much appreciated! **G3XFD**.

Welcome to this year's Contest introduction! The Second Annual *Practical Wireless* 70MHz Low Power Contest takes place on **Sunday June 6th 2010** from **1200 to 1700 UTC**. The date and time have been chosen to avoid clashing with other 70 and 50MHz contests that I, as the Adjudicator, am aware of at the time of preparing this article late in February 2010. Hopefully, entrants will be able to take advantage of some good propagation!

The rules are very much in line with those used last year, which are based on the popular *Practical Wireless* 144MHz QRP Contest. The main change this year is to reduce the duration of the contest by one hour, and to run it on the Sunday on the weekend before the *Practical Wireless* 144MHz QRP Contest.

For those new to the 4m band, the *Practical Wireless* 70MHz low power contest is a perfect introduction to the friendly nature of contesting to be found on the band. By choosing a date in June, hopefully there will be some Sporadic-E propagation allowing some long distances to be worked.

The 10W power limit has been chosen to allow Foundation Licence holders to compete on an equal basis with other entrants. The limit of 10W is also a power level to be found on many ex-Private Mobile Radio (PMR) transceivers, and on many transverters. It's also a power level that can be sustained using batteries for several hours.

Choice Of Equipment

The choice of equipment at 70MHz is somewhat limited in comparison with 144MHz. However, please don't let this put you off, as 70MHz is a band where frequency modulation (f.m.) and amplitude modulation (a.m.) modes can be used to make some quite long distance contacts. Indeed, relatively inexpensive ex-PMR equipment running a.m. or f.m. is used by many stations to great effect on the band.

Transverters are another popular way to get on the band, by using a main rig (driving the transverters at low level), usually on 28MHz and, on transmit, converting the 28MHz signal up to 70MHz. On receive the transverter converts the 70MHz signal back down to 28MHz. A few transverters have also been made to enable a main rig on 144MHz to use the 70MHz band. Note that transverters usually require a drive level much less than the full output power of most h.f. and v.h.f. transceivers, sometimes just as little as a few milliwatts.

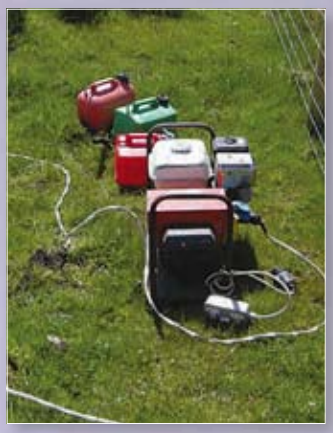
Larger Antennas

With comparable antennas needing to be around twice the size that they are on 144MHz, many stations will perhaps be

Colin Redwood G6MXL steps onto the rostrum to announce the second *PW* 70MHz Contest.

using nothing more than a simple dipole or quarter-wave vertical. Most stations with Yagi antennas are likely to have fewer than six elements.

For operation on a.m. and f.m., vertically polarised antennas are generally used. For operation on upper sideband and c.w. most stations use horizontally polarised antennas.



Operating Modes

For those used to s.s.b. and c.w. on other bands, I would suggest spending some time operating on f.m. and a.m modes. You could be in for quite a surprise at just how many stations are using these modes!

If you are new to 70MHz, the one thing that you may find different to other bands is that slow QSB (fading) is a common occurrence on the band. You may find that stations disappear for a minute or two and then re-appear.

If you're using a directional antenna, please don't forget to rotate it! Last year there was activity from almost all parts of the British Isles, including a number of EI stations. Some stations probably missed out on contacts simply by **not looking** for contacts in all directions, or trying to work stations off the back of their beams.

New Countries

Since last year, several countries have obtained Amateur allocations around 70MHz, including Norway (LA), Finland (OH), Belgium (ON) and Iceland (TF). If propagation is good, these might feature in the logs this year.

Submitting Entries

After the contest, please submit an entry! Although electronic entries via E-mail are preferred, the 'computer-phobes' among you will no doubt be pleased to know that you can easily submit an entry without going anywhere near a computer if you wish!

The preferred form of a log is a computer file sent by E-mail. This may be a file generated by logging software such as *SDV* which can be downloaded at **www.ei5di.com** provided it contains all the information listed in the rules.

The spreadsheet for logs introduced last year proved popular with many entrants. It can be downloaded from the *PW* Contest web site at **www.pwcontest.org.uk Please remember** that submitting logs using the spreadsheet will really assist the adjudicator!

Files in any other suitable format (plain text is fine provided each of the items above is separated by a separating character such as a comma or tab) can also be accepted.

All entrants should please note that:

The contest web site is **www.pwcontest.org.uk** E-mailed entries should be sent to **contest@pwpublishing.ltd.uk**

Postal entries should be sent to: **Colin Redwood G6MXL, 53 Woodpecker Drive, Poole BH17 7SB**. No matter how you submit your entry, please note that it must be **received by June 29th 2010. Late entries will not be accepted.** If you are entering by post, you are recommended to use first class post. **Please clearly mark your entry 'For The 70MHz Contest.**

Make Your Diary Entry!

So make a note in your diary now, the Second Practical Wireless 70MHz Low Power contest takes place on **Sunday June 6th 2010**. Don't forget to charge your batteries a day or two before, and again after the contest in readiness for the *PW* 144MHz QRP contest the next weekend. And don't forget make a note in your diary to remind yourself to **submit your 70MHz entry to be received by Tuesday June 29th!** Let's hope for some good propagation on the day so that we can all have a really enjoyable time. Good luck everyone!

Sunday June 6th 2010

The 2010 Rules

1. General: The contest is open to all licensed Radio Amateurs, fixed stations or portable, using s.s.b., c.w., a.m. or f.m. in the 70MHz (4m) band. Entries may be from individuals or from groups, clubs, etc. The duration will be from 1200 to 1700 UTC on Sunday June 6th 2010.

All stations must operate within the terms of their licence and only transmit within the 70MHz allocation they are licensed to transmit in. Stations using transverters are reminded to be particularly careful to ensure that they don't transmit out of band.

Subject to licence conditions, split frequency operation is permitted for the purpose of working stations in countries with different 70MHz` allocations. Cross-band contacts where either station is **NOT** operating between 69.0MHz and 71.0MHz, will not count for points.

Entrants must observe the band plan for their country and keep clear of normal calling frequencies (e.g. 70.200MHz). Entrants must avoid using any frequency that is obviously in use for non-contest purposes. Please remember that the 70MHz band **is not an exclusive** Amateur band in many countries. **Contest stations must allow all other users (including non-Amateur users) of the band to carry out their activities without hindrance.**

The station must use the same callsign throughout the contest and may not change its location. Special event callsigns may not be used. Entrants not operating as a fixed station must use the /P callsign suffix.

2. Contacts: Contacts will consist of the exchange of the following minimum information:
(i) callsigns of both stations (**including any /P suffix**)
(ii) signal report, standard RS(T) system
(iii) serial number: a 3-digit number incremented by one for each contact starting at 001 for the first contact
(iv) locator (i.e. full 6-character IARU Universal Location for the location of the station).

Information must be sent to, and received from, each station individually, and contacts may not be established with more than one station at a time. Simultaneous transmission on more than one frequency is not permitted.

If a non-competing station is worked and is unable to send his full universal locator, their location may be logged instead. However, for a square to count as a multiplier (see Rule 4), a full 6-character locator must have been received in at least one contact with a station in the square.

Contacts via repeaters or satellites or using digital modes (including DSTAR) are not permitted.

3. Power: The output power of the **transmitter** or **transverter** final stage must not exceed 10W p.e.p. If the equipment in use is usually capable of a higher power, the power shall be reduced and measured by satisfactory means. The simplest way is often to apply a (variable) negative voltage to the transmitter a.l.c. line – reached via the accessory socket. Stations cannot – and should not – rely on feeder loss to meet the 10W power limit.

4. Scoring: Each contact will score one point. The total number of points gained in during the contest will then be multiplied by the number of different locator squares in which contacts were made (a 'square' here is the area defined by the first four characters of the universal locator).

Example: 52 stations worked in IO81, IO90, IO91, IO92 and JO01 squares; final score = 52 x 5 = 260.

Only one contact with a given station will count as a scoring contact, even if it has changed its location, e.g. gone /M or /P. If a duplicate contact is inadvertently made, it must still be recorded in the log and clearly marked as a duplicate (not necessary in computer logs submitted by E-mail).

5. The Log: Logs may be submitted by E-mail or by post. In either case the log must contain the following information for each contact:
(i) time (**UTC - NOT BST**)
(ii) callsign of the station worked (**including any /P suffix**)
(iii) report sent
(iv) serial number sent
(v) report received
(vi) serial number received
(vii) locator received (or location).

The preferred form of a log is a computer file sent by E-mail. This may be a file generated by logging software, provided it contains all the information listed above, or a file in any other suitable format (plain text is fine provided each of the items above is separated by a separating character such as a comma or tab).

Alternatively you can download a spreadsheet from the ***PW* Contest** web site at **www.pwcontest.org.uk**

Give the file a name including the station call sign (e.g. g6mxl-p.log), and send as a standard E-mail attachment to **contest@pwpublishing.ltd.uk**

If a computer log file is not available, a paper log may be sent by post. This must be clearly written on one side of A4 sized paper only, ruled into columns for each of the items listed above. Underline or highlight the first contact of the locator squares worked. At the top of each sheet, write: callsign **(including /P suffix)** of your station
A: Your locator as sent
B: Sheet number and total number of sheets (e.g. 'Sheet No. 3 of 5').
C: 70MHz.

Log sheets and covering information sheets which may be used for paper-based entries are available for downloading from the contest web site **www.pwcontest.org.uk**

6. Entries: The covering information listed below must be provided with each entry. This year there will be an online facility for submitting cover sheet information for the 70MHz contest on the *PW* contest web site at www.pwcontest.org.uk

Alternatively, the information may be written in the E-mail message to which the log file is attached. For entries sent by post, it should be written on a separate sheet of A4-sized paper.
The information required for every entry is:

(a) name of the entrant (or of a club etc. in a group entry as it is to appear in the results table and on the certificate.
(b) callsign used during the contest **including any /P suffix** (e.g. G6MXL/P).
(c) name and address for correspondence.
(d) location of the station during the contest.
(e) full 6-character locator as sent during the contest.
(f) whether single or multi-operator (a single-operator is an individual who received no assistance from any person in operating the stations, which is either his/her permanent home station or a portable station established solely by him/her); if multi-operator include a list of operators' names and callsigns.
(g) total number of contacts and locator squares worked (not required for a log sent as a computer file).
(h) list of locator squares worked (not required for a log sent as a computer file).
(i) a full description of the equipment used including transmitted p.e.p. output power if the transmitting equipment (including any transverter employed) is capable of more than 10W p.e.p. output, a description of the methods used (i) to **reduce** and (ii) **measure** the output power.
(j) antenna used and the approximate station height in metres above sea level (a.s.l.)
(k) if you receive or send a report of poor quality signals (e.g. wide / splattering), full details of the complaint, including time, callsign, nature of complaint and actions taken **during** the contest to investigate and resolve.
(k) the following declaration must be included in the E-mail text or written and signed by the entrant: "I confirm that the station was operated within the rules and spirit of the event, and that the information provided is correct".

Entrants must clearly mark their log as an entry for the 70MHz contest. Failure to supply the required information may lead to loss of points or disqualification.

Entries & Other Information

Entries by E-mail must be sent to **contest@pwpublishing.ltd.uk**
Paper entries should be sent to: ***Practical Wireless* Contest, c/o Colin Redwood G6MXL, 53 Woodpecker Drive, Poole, BH17 7SB.**

Entries must be received not later than Tuesday June 29th. Late entries will be disallowed.

Any other general comments about the station, the contest and conditions during it are welcome (written on a separate sheet of paper in the case of entries sent by post). Photographs of the station are also invited. Please note photographs cannot be returned and may be used for publication in P*ractical Wireless* or on the **www.pwcontest.org.uk** website. If these are not available by the time the entry is submitted, they may be sent later by E-mail or post, **to arrive by August 11th 2009.**

The results will be published later this year in *Practical Wireless*.

7. Miscellaneous: When operating portable, obtain permission from the owner of the land before using the site. In particular observe any restrictions on access associated with Bird Flue, Blue Tongue and Foot & Mouth etc. Always leave the site clean and tidy, removing all litter. Observe the Country Code.

Take reasonable precautions to avoid choosing a site which another group is also planning to use. It is wise to have an alternative site available in case this problem does arise.

8. Poor Signals: Make sure that your transmitter is properly adjusted and is not radiating a broad or poor quality signal, e.g. by over-driving or excessive speech compression. On the other hand, be aware that your receiver may experience problems due to the numerous strong signals it will have to handle, and that this may lead you to believe that another station is radiating a poor signal. Before reaching this conclusion, try heavy attenuation at the received input. The use of a high-gain r.f. pre-amplifier is likely to worsen strong-signal problems, so if you do use one, it is best to be able to switch it off when necessary.

If you receive or send a report of poor quality signals (e.g. wide/splattering), you must record on the cover sheet full details of the complaint including time, callsigns of stations involved, nature of complaint and actions taken **during** the contest to investigate and resolve.

9. Adjudication: Points will be deducted for errors in the information sent or received as shown by the logs. Unmarked duplicate contacts in paper-based logs will carry a heavy points penalty. Failure to supply the complete information required in Rule 6 may also lead to deduction of points. A breach of these rules may lead to disqualification. In the case of any dispute, the decision of the Adjudicator will be final.

Feature

Buying Second-hand

There are plenty of radio goodies about and Chris will guide you through the best buys.

First this month, I must say 'Thank you' to the readers who've contacted me about this column – it looks like *PW* is providing what readers want! Incidentally, right now could be quite a good time to buy, as many Amateurs are still suffering from post-Christmas and New Year 'sale' spending, and have the balance payments of summer holidays to budget for!

Surplus-to-requirements radios are a likely thing for cash-strapped Amateurs to sell – radios, which have been sitting in a drawer and not having been used for a while. Hand-helds rather than home or mobile transceivers are usually in this category, so don't be surprised if there's a temporary 'glut' of these at low prices for a while!

In the last column I detailed a selection of tiny multi-band handhelds, with a power output of just a few hundred milliwatts that are available on the second-hand market. As I promised then, I'm going to look at a couple of higher power multi-band handhelds, which are a popular choice for Amateurs either as a second rig or as a single 'do everything' transceiver for the v.h.f. and u.h.f. bands.

The first 'beefier' rig is the Yaesu VX-5R, an early handheld from around 10 years ago. This seems to be able to be picked up at a very reasonable price right now as owners 'trade up' to newer radios.

The second is the Icom IC-E7, the 'big brother', although still physically quite small, to the low power Icom IC-Q7E, which I detailed last month. The IC-E7 is only around four years old and is still very popular, but don't confuse the IC-Q7E and the IC-E7, as they're quite different handhelds.

The Yaesu VX-5R

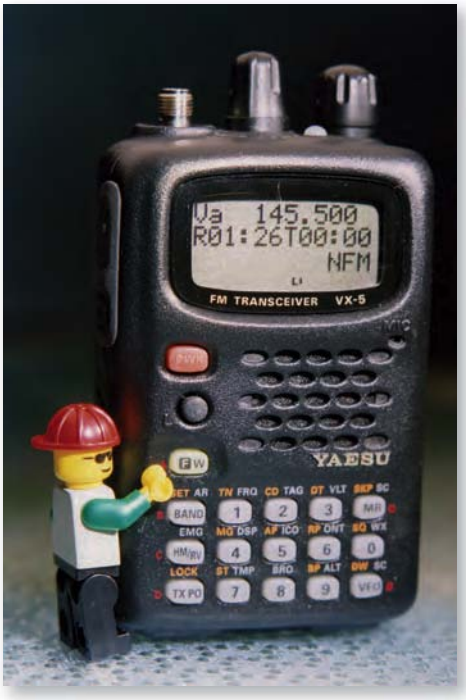
The Yaesu VX-5R (reviewed in the February 2000 issue of *PW*) is a small but powerful three-band transceiver covering 50, 144 and 430MHz (6 and 2m and 70cm). It offers a power output of 5W on 50 and 144MHz and 4.5W on 430MHz, with several selectable low power levels. It measures 58W x 87H x 28D mm and weighs 275g with the battery and set-top antenna fitted.

Usefully for a set of this age, the VX-5R's transmitter deviation can be switched to either 2.5kHz for 12.5kHz channel spacing use, or to 5kHz for 25kHz channel spacing. When I tested a VX-5R some years ago on my lab' equipment it also gave very good rejection of 12.5kHz spaced signals on receive, a good performance.

The transceiver also includes a wide-band receiver, covering 500kHz to16MHz, and 48 to 999MHz – although with much reduced sensitivity across the 540-630MHz range (which is only currently used by TV broadcasting).

An SMA antenna socket is used together with two-section flexible set-top antenna. A small top section screws in for use on 144 and 430MHz. And to extend the antenna, adding 50MHz coverage, this is replaced with a larger screw-in top section – no doubt to add some 'top loading'. If you're buying one second-hand, try to make sure you get both screw-on antenna 'tops' from the seller – although you can use the set on all bands with just the larger top if the smaller one has been lost.

When I used a VX-5R some years ago I found that the 50MHz screw-on top gave me a tremendous improvement in my transmitted 6m signal. The improvement made the difference from being hardly readable through to absolutely fully quieting through my semi-local 6m repeater.



Invariably, I just used the set with the top section attached – rather than messing around with different screw-on tops. Also – here's a hint for better high frequency (h.f.) reception – rather than trying to fiddle around connecting a length of wire to the tiny SMA antenna connector – all you need is a length of about 6m (or more) of plastic insulated wire, with a small screw lug soldered on one end.

Then, you'll have to unscrew the

Chris Lorek G4HCL looks at two multi-band v.h.f./u.h.f. 5W handhelds which are readily available on the second-hand market

small tip section off your set-top helical antenna, slip the lug onto the screw thread, and re-install the tip onto the set-top helical antenna. Next, string the wire around wherever you have the ability to do so! The additional wire will certainly improve your short wave reception – but don't extend the length by too much as you could risk overloading the receiver, remember it's not designed to cope with strong h.f. signals.

As new, the set came with a belt clip and carry strap, battery charger, and a 72-page instruction book. Again, make sure these are included if they're important to you, especially the battery charger. But if the user manual's missing don't worry too much, although it's no longer available on the Yaesu website you can download one from **www.radioamateur.eu/schemi/Vertex_VX5R_user.pdf**

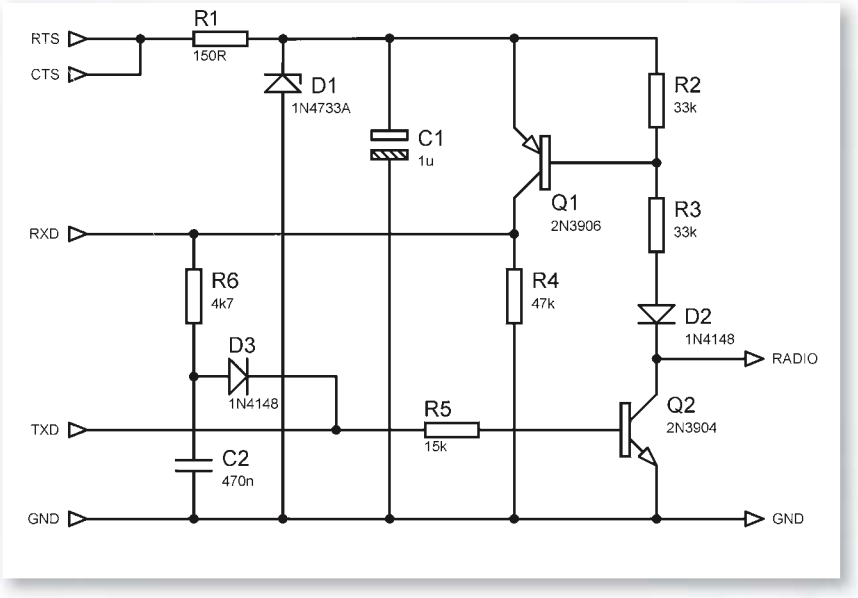


Fig. 1: A suitable circuit RS232 to t.t.l. signal level converter.

Add-On Options

The VX-5R's previous owner may also have some add-on options included, which could also be of use to you. These include a d.c. power cable, an AA battery case for low-power operation, a soft carrying case, a speaker-microphone and a voice activated transmit-receive switching (VOX)| headset.

Note: If they're also offering an SMA to BNC antenna adapter this will be very handy if you want to connect and external v.h.f./u.h.f. antenna for home or mobile use.

The VX-5R has over 200 'Alphanumerically tag-able' memory channels, which you can arrange into five groups, plus a quick-access 'home' channel, and ten pairs of band-limit channels that you can search between. There's even a simple spectrum monitor, although when I used the set I found this muted the receive audio when I selected it.

From past experience by users, I'm going to mention a few more operational tips that don't seem to be in the user manual.

For example, if you want to remove a channel from a **Memory Group**, just get into the Memory Group from which you want to delete a channel. Then press and hold in the [**F/W**] key until the memory channel number starts blinking, then rotate the **Dial** knob to select the channel to be deleted from the Memory Group, then press [**MR**].

The channel itself **will not** be deleted, but it **will be deleted from that Memory Group**. Next, another one that's not obvious; How to change the **Priority Channel**, or return it to **Channel 1**.

The operational tip: It's possible to set the Priority Channel to any 'regular' **Memory Channel** in the transceiver and to do this: (**1**) Press and hold in the (**FW**) button until the Memory Channel blinks, then use the **Dial** knob to select the channel you wish to assign as the **Priority Channel**. (**2**) Next, press the [**BAND**] key. The new Priority will then be assigned. (**3**) To return the **Priority Channel** to **Channel 1** (default), repeat the procedure, selecting Channel 1 in step (1).

Free Remote Programming

A useful free 'add-on' to the VX-5R is remote PC programming using the 'freeware' *VX-5 Commande*r software, **Fig. 2**, and a suitable PC-to-radio interface. **Jim Mitchell KC8UUNJ** has kindly released his program as freeware and you can download it from **www.kc8unj.com**/

Note: If you're also a reader of *PW*'s sister magazine *Radio User* and you take advantage of the *Software Spot* DVDs/CDs from this, you'll already have the software. For the interface lead, you can either buy a CT-91 cable from a Yaesu dealer or make your own using just a couple of transistors and a handful of resistors, capacitors, and diodes.

I've shown a typical circuit here **Fig. 1**, and the VX-5 user manual shows the connections on the 4-pin 3.5mm jack required, (the outer 'ring' at the cable end as ground, and the 'ring' connection just behind the 'tip' connection as data.

The Icom IC-E7

The Icom IC-E7 (reviewed in *PW* and *RU* April 2006) is again a small hand-held transceiver. It's a dual-band 14/430MHz rig with a footprint of less than that of a credit card. However, with a transmitter power output of 1.5W on 144 and 1W on 430MHz, it has a rather larger r.f. output than its lower-powered brother the IC-Q7E.

The transceiver measures 47x81x28 mm, and weigh just 160g. It also functions as a wide band receiver, offering coverage of 495kHz to 999.990MHz. It's, equipped with the a.m., f.m. and wide band f.m. (w.b.f.m.) modes.

Over 1000 alphanumerically tag-able memory channels are available, plus 25 pairs of scan-edge channels and an 'auto write' scan with a dedicated bank of 200 channels. These facilities, when added together, make the set into quite a versatile scanner. Indeed, with all this and 144/430MHz amateur band transceiver thrown in – the set's been quite a popular choice in recent years.

Fortunately, there's now plenty of IC-E7s around in use, so you shouldn't find one hard to find one on the second-hand market. I certainly enjoyed using the one I had to try a few years ago and if you'd like more information it was reviewed in the April 1996 issue of *PW.* (*photocopies of the review are available from the* PW *offices. **Editor***).

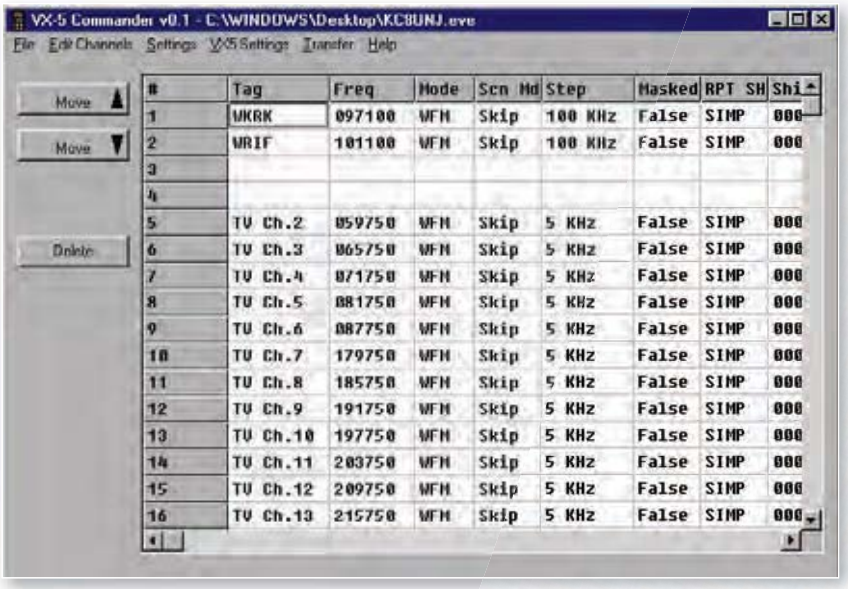


Fig. 2: Jim Mitchell KC8UUNJ has kindly released his program as freeware and you can download it from www.kc8unj.com/

The set is powered from an internal lithium-ion battery and a BC-164 charger dock with a plug-in 'wall cube' type power supply was supplied with new sets. **Note:** Please ensure that your set comes with these, especially the charger dock, as you otherwise can't charge the set's battery as it mates with the battery connections at the base of the hand-held. There isn't a d.c. input socket, the only way to recharge it is using the dock charger. The docks however, are still separately available in case you find a set is sold without the unit.

In common with many other sets, a 4-way 3.5mm jack socket is used for connection of an external speaker microphone. If your seller is offering a dedicated speaker-microphone, or the optional Icom OPC-782 speaker-microphone interface lead (which lets you plug in other 'universal' speaker microphones as well as a normal earphone, etc.) then treat it as a bonus!

In fact, one of the speaker-microphones could be rather useful if you're using the set outdoors. I'm suggesting this because I found that I usually had to hold the set's speaker to my face and ear level to hear incoming audio clearly when I was in a noisy area (such as my local town's high street with noisy traffic passing by). I invariably use a plug-in earphone to help in locations like these.

However a dedicated Icom SP-13 earphone (originally intended for the Icom IC-E90) will fit this and work fine, costing just £4.95 at the time of writing, which is rather less than the OPC782 speaker-microphone interface that costs over £17. Alternatively, if you're handy with a soldering iron you could just buy a 4-way 3.5mm jack plug from Maplin (currently £1.99) and re-wire an earphone to it!

As usual, any other accessories like extra batteries, soft carry case, car 12V d.c. power cable and so on, are useful extras. An 82-page user manual was supplied with new sets, if the seller has lost it, although the manual's no longer available on the Icom UK web site, you can download one from **http://www.dnd.hu/admin/uploads/termek_doc/ICOM_IC-E7_manual_en.pdf**

I found the manual was absolutely essential, as unlike some other, possibly rather simpler hand-helds, I just couldn't use many of the functions of the set if I didn't have the manual to hand!

The IC-7E can be linked to a PC for remote programming. Unfortunately I don't know of a freeware or shareware program for this, so you'll probably need Icom's own *CS-E7 cloning software* which is currently priced at £28.55. You can save on the OPC-478 cloning cable, currently £22.43, by building an interface yourself again as I've shown.

Modifications & Manuals

If you're interested in second-hand equipment and you're exploring possibilities such as searching for user and technical manuals and for modifications, such as performance improvements and wide-band coverage modifications, I suggest that you take a look at the March 2010 issue of *PW*'s sister magazine *Radio User*.

Via *RU* you can get a two-DVD set (or across multiple data CDs if your PC doesn't have a DVD data drive) packed with over 8Gb of Amateur Radio user manuals and modifications. Everything is in PC document screen-readable and printable form for virtually all known hobby radio receivers, transceivers and accessories across the world. All this for a handling cost of £5 to include the DVDs/CDs, instructions, and worldwide post and packing!

Next Time

Next time I'll be detailing some dual-band v.h.f./u.h.f. mobile rigs that are currently readily available on the second-hand market. I'll be immediately following this with a selection of 'get you going' h.f. transceivers available at low cost, together with a number of tips on how to get the very best out of them. See you then! ●

SHOWROOM & MAIL ORDER:
Unit 1,
Purfleet Industrial Estate,
Off Juliette Way,
Aveley RM15 4YA

LOOK OUT FOR OUR SPECIAL OFFER "BUNDLES"

Haydon Communications

LOCAL TO GLOBAL

TEL: 01708 862524
FAX: 01708 868441

Mail Order & showroom open:
Mon-Thurs: 10.00am - 4.00pm
Friday: 10.00am - 3.00pm.

Prices held as low as possible. That's our promise!

TO ORDER ON-LINE SEE www.haydon.info

2-year Yaesu (UK) warranty on all Yaesu products – guaranteed

E&OE

HF TRANCEIVERS

FT-2000D
IF/DSP marvel (200W)

OUR PRICE £2559.99
OR GO LARGE FT-2000D + SP-2000 SPEAKER
£2659.99

FT-950
HF + 6m IF DSP

OUR PRICE £1089.99
OR GO LARGE FT-950 + NISSEI PS-300
£1189.99

FT-450
HF + 6m/ IF DSP

FT-450 only £569.99
FT-450 + MS-1228 ..... £599.99
FT-450AT £639.99
FT-450AT + MS-1228 ... £609.99

FT-897D
Includes DSP

OUR PRICE £639.99
OR GO LARGE FT-897 + MS-1228
£679.99

FT-857D DSP
HF + 6m + 2m + 70cm.

OUR PRICE £569.99
OR GO LARGE FT-857 + MS-1228
£609.99

FT-817 ND

HF + 6m + 2m + 70cms. Incl's battery/charger + antennas. Optional case £22. Extra spare battery £49.99
Our best selling transportable
OUR PRICE £429.99

FT-2000
IF DSP/HF marvel

OUR PRICE £1999.99
OR GO LARGE FT-2000 + SP-2000 SPEAKER
£2099.99

TS-2000E

HF + 6m + 2m + 70cm. Not only is this Kenwood's top machine with IF DSP, it also uses cutting-edge technology in a streamlined package. Not for the faint hearted!
Free MS-1228 28-amp PSU £1449

TS-2000X + FREE MS-1228 PSU £1699.99
TS-480HX £829.99
TS-480SAT £735.99

MD-200

Broadcast quality dynamic mic. It sounds & looks superb. Fits 8-pin round & 8-pin modular radios.
(Optional 6-pin modular adapter £19.99)
OUR PRICE £199.99

MD-100

Superb quality microphone at an affordable price.
OUR PRICE £139.99

SP-2000

External speaker + audio filters. features a large 4.7"/120mm speaker along with a 3-selection hi-cut and 2 section low cut. Dual switched input + headphone socket.
OUR PRICE £139.99

FP-1030

Superb, high quality Yaesu. 30 amp PSU with variable voltage & multiple outlets.
OUR PRICE £159.99

PSUs

DIAMOND GSV-3000

"Linear power supply". 30 amp @ 13.8V. 1-15V variable.
Diamond quality PSU £189.99

DIAMOND GZV-4000

Includes built-in extention speaker

Diamond quality power supplies/ switch mode. 40 amp version.
OUR PRICE £174.99
GZV-2500 25 amp version of GZV-4000 ..... sale price £119.99

NISSEI PS-300

Features: ★ Over voltage protection ★ Short circuit current limited ★ Twin illuminated meters ★ Variable voltage (3-15V) latches 13.8V ★ Additional "push clip" DC power sockets at rear. Dim'ns: 256(W) x 135(H) x 280(D)mm.
A truly professionally made unit built to outlast most PSUs.
30 AMP/12 VOLT PSU
TRUE 'LINEAR' PSU
OUR PRICE £139.99

NISSEI MS-1228

28A at 13.8V yet under 2kgs. (H 57mm, W 174mm, D 200mm approx). Fully voltage protected. Cigar socket & extra sockets at front/rear. Ultra slim.
NISSEI HAVE BECOME RENOWNED FOR PUTTING QUALITY FIRST, YET MAINTAINING A GOOD PRICING STRUCTURE. A TRULY SUPERB POWER SUPPLY UNIT
'Smallest version to date' now with cigar socket.
QUALITY MADE PRODUCT £89.99

ANTENNAS

DIAMOND CP-6

A superb (diamond quality) 6 band trap verticle antenna with trap radials – "rotary" trap system allows "flat wall" mounting. 80m/40m/20m/15m/10m/6m. 200W SSB, HT 4.6m (15ft tall).
SEND SAE FOR DATA SHEET
SALE PRICE £289.99

ATAS-120

Military spec mobile antenna – superbly made. Covers HF + 6m + 2m + 70cm. *Fully automatic. (*certain Yaesu radios).
OUR PRICE £249.99

INTRUDER II

11 band (80-10 6/2/70cm). PL-259 fitting. Colapses to 95cm (~ 3 ft).
£37.99
(2 for £70.00)

NEW INTRUDER III

13 band (80-10/6/2). PL-259 fitting. Includes WARC bands. 13 band version of Intruder II.
£54.99
(2 for £99.00)

DIAMOND V-2000

6m + 2m + 70cm. 2 section (2.5m long) PL-259 fitting.
Superb quality
£124.99

ACCS

MFJ-993B INTELLITUNER

Fully automatic (1.8-30MHz). 300W SSB.
Easy to use ATU. SALE PRICE £239.99

MFJ-949E

SALE PRICE £174.99
● 1.8-30MHz 300W ATU ● Large cross needle meter ● 30/300W PEP power meter ● VSWR ● 3-way antenna selector ● Internal balun + dummy load.

MFJ-259B

HF digital SWR analyser – 1.8-170MHz. (Optional DIP coils £29.99 (Optional case £29.99) £259.99
MFJ-269 HF+VHF+UHF analyser £325.99
MFJ-269P HF+VHF+UHF analyser professional version £349.99
MFJ-901B Superb versitile ATU £109.99
MFJ-260C 300W dummy load £49.99
MFJ-264 1.5kW dummy load £79.99
MFJ-969 Rollercoaster ATU (300W) £199.99
MFJ-962D 1.5kW (metered) antenna tuner ..... our price £269.99

SGC BARGAINS

SGC MAC-200 New auto tuner 1.8-54MHz (200W) wire, vertical, dipole. You name it.
(5 selectable outputs). £289.99
SGC-239 Mini tower ATU (1.8-30MHz) £199.99
SGC-237 HF+6m Tuner £309.99
SGC-230 (HF-200W) ATU £449.99
SGC-Smart lock (specify model) £69.99

VHF/UHF TX

YAESU FT-8900r

10m + 6m + 2m + 70cm. (up to 50W).
+ FREE 6m/2m/70cm mobile antenna
Includes DTMF mic + wideband receive
£325.00

YAESU FT-7800E

2m/70cm + wide Rx. (50W/35W) includes DT, MF, mic
In-car kit £30.00. Extra DC lead £15.00
£189.99

YAESU VX-7R

6m/2m70cm + wide RX. An amazing 6W water proof hand-held. Case £19.99/spk mic £32.99. Cigar lead £24.99/ BNC adapter £6.
£229.99

YAESU VX-8E

6m/2m/70cm. "APRS" handie with Rx:- 0.5-1GHz.
SPECIAL OFFER INCLUDES EXTRA BATTERY
£299.99

YAESU VX-3E

Miniature 2m/70cm Tx - Rx:- 0.5-1GHz £139.99

NISSEI PWR/SWR METERS

RS-502 1.8-525MHz (200W) ..... £79.95 P&P £6.50
RS-102 1.8-150MHz (200W) ..... £49.95 P&P £6.50
RS-402 125-525MHz (200W) ..... £49.95 P&P £6.50
RS-3000 1.8-60MHz (3kW) Incls mod meter £59.95 P&P £6.50
RS-40 144/430MHz Pocket PWR/SWR ..... £34.99 P&P £5
DL-30 diamond dummy load (100W max) ..... £29.99 P&P £5

GIZMOS

AIR NAV 3D

New "3D" tracking system. Designed by professional pilots. See traffic in real time. Internet data sharing. Track aircraft worldwide.
£449.99

AIR NAV PRO

Standard tracking system. As Air Nav 3D but with the option to up-grade to 3D version.
£369.99
(3D Up-grade £89.99).

SANGEAN ATS-909

A superb performance all mode synthesized world receiver with true SSB and 40Hz tunning for ultra clean reception. Other features include RDS facility, 306 memories and WFM. Incl's case/earphones/wind-out antenna. A truly remarkable receiver, especially on SSB – you'll be amazed.
IDEAL FOR NAVTEX RECEPTION
Includes free 240V supply
£159.99
Send SAE for copy of review

REALISTIC DX-394

★ 0.2-30MHz (all mode) ★ Selectable tuning steps ★ 240 or 12V
Optional paded headphones £29.99
SEND SAE FOR REVIEW
OUR PRICE £299.99

LIMITED STOCK

10m PNEUMATIC MAST

We have a small quantity of "military spec" pump-up masts (part of a Government order). All brand new in a crate and supplied with cover (close HT ≈ 6 foot). Anodised green finish.
40m guy kit pack £49.99
Ground fixing spikes (3-off) £35.00
2 foot all ground fixing kit..... £99.99
(Can be hand operated or by compressor/foot pump)

OUR PRICE **£1099.99** Del £40.00.

NEW DIAMOND BB6W

2-30MHz (250W) 6.4m long. End-fed wire antenna. Icludes matching balun. Sling up & away you go.

£199.99

NEW DIAMOND WD-330

Amazing performance. Twin folded dipole. 2-30MHz – and it really works. No ATU required (25mts long). Supplied with 30 mtr PL-259 feeder – ready to go. If you want great transmission, look no where else.
Japanees quality made product

WOW **£199.99**

CUSHCRAFT BARGAINS *Delivery £15.00*

MA5B	Mini beam 10, 12, 15, 17, 20m.....	WOW £419.99
A4S	4 ele beam (10 - 20m).....	£649.99
A3S	3 ele beam (10-20m).....	WOW £539.99
R-8E	Vertical (40 - 6m) "special".....	SPECIAL £499.99

Q-TEK PENETRATOR

"We've sold 100s all over Europe"

★ 1.8 - 60MHz HF vertical ★ 15 foot high ★ No ATU or ground radials required ★ (200W PEP).

SEND SAE FOR LEAFLET

£199.99

W-8010 DIAMOND SHORTENED DIPOLE

80-10m & only 19.2m long! (Up to 1.2kW) Includes 1:1 Balun. Bargain. Superb Japanese quality antenna system.

£159.99

Standard & Deluxe G5RV P&P on either full/half size £7.50

Half size 51ft (now includes heavy duty 300Ω ribbon).....£24.95
Full size - 102ft (now includes heavy duty 300Ω ribbon)...£28.95
Half size (Deluxe) - 51ft (40-10m) £36.95
Full size (Deluxe)- 102ft (80-10m) £42.95
In-line choke balun £39.99

Q-TEK INDUCTORS

80mtr inductors + wire to convert ½ size G5RV into full size. (Adds 8ft either end).....£34.99 P&P £4.00 (a pair)

TRAPS BACK IN STOCK

BALUNS & TRAPS (1kW)

Baluns 1:1 or 4:1 or 6:1 .....£34.99 each P&P £4
Traps 80m or 40m or 20m or 15m..... £39.99 pair P&P £5

DOUBLE THICK FERRITE RINGS

A superb quality ferrite ring with incredible properties. Ideal for "R.F.I". Width 12mm/ OD35mm. 6 for £12.00 P&P £4.00
12 for £20.00 P&P £5.00
30 for £40.00 P&P £10.00

COAX SWITCHES (P&P £6.00)

2 way CX-201 (0-1GHz) SO239.....£19.95
2 way CX-201 'N' (0-1GHz) 'N' £24.95
4 way CX-401 (0-500MHz) SO239.....£79.95
4 way CX-401 'N' (0-500MHz) 'N' £89.95

REPLACEMENT POWER LEADS

DC-1 Standard 6-pin/20A fits most HF .....£22.00 P&P £3
DC-2 Standard 2-pin/15A fits most VHF/UHF.... £10.00 P&P £3
DC-3 Fits Yaesu FT-7800/8800/8900, etc ..... £17.50 P&P £3

YAESU REPLACEMENT MICS

MH-IC8 8 pin Yaesu mic (8-pin round) .....£39.99 P&P £5
MH-4 4 pin fits older HF, etc. (4-pin round) .....£34.99 P&P £5
MH-31A8J 8 pin modular .....£34.99 P&P £5

COAX BARGAINS

True military spec real UK coax

RG-58 Military spec x 100m.
£49.99 or 2 for £90.00
Coax stripping tool (for RG-58).....£4.99
RG-213 Military spec x 100m (10mm dia).
£129.99/100m or 2 for £229.99

Q-TEK TRI-MAGMOUNT

Very heavy duty. Available:- SO-259 or 3/8 – specify.

£44.99

W-8681 PROFESSIONAL WEATHER STATION

● No cable connection needed ● Touch LCD screen ● Atomic locked Date & Time ● Indoor/ Outdoor Temperature (C or F) ● Wind Speed & Direction (mph or kmph) ● Rain gauge (inches or mm) self emptying ● Indoor/Outdoor Humidity ● Barometer Pressure with trends ● Forecaster & Weather Alarm ● USB connection to PC ● PC "EASYWEATHER" software programme ● Historic data storage & display ● LCD panel wall mounts or desk mounts ● Batteries last over 12 months

Professional version OUR PRICE **£79.99**

NEW NOISE FILTER!

A superb TDK 'snap fix' ferrite clamp for use in Radio/TV/ Mains/PC/Phone etc.

Simply close shut over cables and notice the difference! Will fit cables up to 13mm diameter. Ideal on power supply leads/mic leads/audio leads/phone leads.

2 for £10.00 or 6 for £25.00 (P&P £4.00)

HEAVY DUTY SWAGED MAST SET

New extra heavy duty 2" mast set. 4 sections x 5½ foot slot together.

£69.99 each. TWO FOR £130.00 DEL £15.00

NEW SWAGED MAST SETS

20 foot mast. 1½" – 4 x 5 foot sections. (Swaged) **£43.99**

20 foot mast. 1¼" – 4 x 5 foot sections. (Swaged) **£41.99**

H/DUTY CAR BOOT MAST SET

18 foot (1½" dia).
18 foot – 6 x 3 foot (1½") slot together ally sections.

£43.99 each. TWO FOR £79.99 DEL DEL £13.00

NEW CAR BOOT MAST SET

Superb 18 foot (6 x 3 foot sections) that slot together.
Dia: 1¼" ideal to take anywhere.

£43.99

2 for £74.99 del £13.00

HANGING PULLY

Heavy duty die-cast hanging pulley. Hook and go!

£24.99

MAST HEAD PULLEY

A simple to fit but very handy mast pulley with rope guides to avoid tangling.
(Fits up to 2" mast) **£12.99** + P&P £4.50
30m pack (4.4mm) nylon guy rope £12.50
132m roll 4.4m nylon guy (480Kg b/f) ..... £40.00 Del £7.50

NEW EASY FIT WALL PULLEY

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

£12.99 + P&P £4.50

Wall bracket, screws not supplied. Simply screw to outside wall and hang pulley on WALL BRACKET £2.99 P&P £1.00

30m pack (4.4mm) nylon guy (480Kg).....£12.50
132m (4.4mm) nylon guy (480Kg) £40.00

BARGAIN WINCH

500kg brake winch. BARGAIN PRICE

£79.99 Del £10.00

(Now includes cable grip)
Winch wall bracket..... £22.99

LOW LOSS PATCH LEADS £4.50 P&P

Connectors	Length	Price
PL-259 - PL-259	0.6m	£9.99
PL-259 - PL-259	1m	£11.99
PL-259 - PL-259	4m	£14.99
PL-259 - PL-259	20m	£49.99
BNC - BNC	1m	£9.99

EP-300

Over the ear earpiece.

£9.95

P&P £4.00

DB-770H (BNC)

2m/70cm Tx + wide Rx. High gain up to 5.5dB.

£54.99

P&P £5.00

MT-3302

Heavy duty universal mount.

Includes 5m cable **£29.99**

MT-6601

Adjustable roof rack/window bar mount

£19.99

YAESU G-450C

Heavy duty rotator for HF beams, etc. Supplied with circular display control box and 25m of rotator cable.

WOW **£309.99**

G-650C extra heavy duty rotator + 25m cable..... £349.99
G-1000DXC extra heavy duty rotator + 25m cable £419.99
G-2800DXC The goliath of rotators..... £749.99
GS-065 thrust bearing..... £54.99
GC-038 lower mast clamps £32.99

AR788

Quality rotator for VHF/UHF. Superb for most VHF-UHF yagis, 3 core cable required. 3 core cable £1 per mtr.

OUR PRICE **£79.99**

AE-201 thrust bearing £24.99

DIAMOND YAGIS No tuning required

2m/10 element No tuning required SO-239 feed..... £74.99
70cms/10 element No tuning required SO-239 feed..... £48.99

Q-TEK COLINEARS (VHF/UHF) Del £12.50

X-30 GF 144/70, 3/6dB (1.1m)..... £44.99
X-50 GF 144/70, 4.5/7.2dB (1.7m)..... £59.99
X-300 GF 144/70,6.5/9dB (3m)..... £79.99
X-510H GF 144/70, 8.5/11dB (5.4m) £139.99
X-627 GF 50/144/70, 2.15/6.2/8.4dBi (2.4m)....£89.99

DUPLEXERS & TRIPLEXERS

MX-2000 50/144/430MHz Triplexer £59.99
TSA-6011 144/430/1200MHz Triplexer.....£59.99
MX-72 144/430MHz.....£34.99
MX-72 "N" 144/430.....£35.99

MOBILE ANTENNAS Del £10.00

DB-7900 2m/70cm (5.5/7.2dB) 1.6m (PL-259).....£39.99
DB-770M 2m/70cm (3.5/5.5dB) 1m (PL-259).....£24.99
Diamond HV-7CX 7/14/21/28/50/144/430.....£129.99
Diamond CR-8900 10/6/2m/70cm (1.26m) £99.99
Diamond AZ-506 2m/70cm – only 0.67m long.....£39.99
PL-62M 6m/2m (1.4m) PL-259 .....£23.99
PL-627 6m/2m/70cm (1.7m) PL-259.....£44.99

LIGHTNING ARRESTER

SP-350V Replacement fuses £5.00

DC-1000MHz (400W through power). SO-239 fitting. **£24.95** P&P £3.00

Station log books:- 3 for £10

ALLUMINIUM POLES

20 foot (collection only) 2".....£49.99
10 foot (collection only) 2".....£29.99
2.4m (2") Ally pole.....£29.99
5 foot x 2" pole.....£14.99

COPPER ANTENNA WIRE ETC

Hard drawn (50m roll).....£40.00 P&P £7.50
New: 50m roll, stranded antenna wire.....£19.99 P&P £7.50
Flexweave (H/duty 50 mtrs).....£44.99 P&P £7.50
Flexweave H/duty (18 mtrs).....£21.99 P&P £7.50
Flexweave (PVC coated 18 mtrs).....£24.99 P&P £7.50
Flexweave (PVC coated 50 mtrs).....£59.99 P&P £7.50
Special 200mtr roll PVC coated flexweave .....£180.00 P&P £10.00
Copper plated earth rod (4ft).....£14.99 P&P £8.00
Copper plated earth rod (4ft) + earth wire.....£24.99 P&P £8.00
New RF grounding wire (10m pack) PVC coated .....£14.99 P&P £5

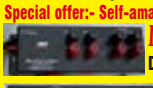
METALWORK & BITS (Del Phone)

2" mast-floor base plate.....£14.99
6" stand off brackets (no U-bolts)..... £8.99
9" stand off brackets (no U-bolts)..... £10.99
12" T & K brackets (pair) £18.99
18" T & K brackets (pair) £22.99
24" T & K brackets (pair) £26.99

All bracket measurements are from wall to end of bracket

U-bolts (1.5" or 2") each.....£1.50
8mm screw bolt wall fixings.....£1.70
8-nut universal clamp (2" to 2").....£7.99
2" extra long U-bolt/clamp £6.99
2" crossover plate with U-bolts £14.99
15" long (2") sleeve joiner.....£18.99
3-way guy ring £5.99
4-way guy ring £6.99
Heavy duty guy kit (wire clamp, etc.) £49.99
Set of 3 powder coated heavy duty fixing spikes (~0.7m long)....£29.99
30m pack (4.4m) 480kg B/F nylon guy.....£12.50
Roll of self-amalgamating tape 25mm x 10mtr.....£8.99
Special offer:- Self-amalgamating 3 rolls..... £20.00

MFJ-1117



DC High current distribution unit..... £59.99

MFJ-1118 metered

High current distribution unit £99.99

RH-9000 BNC

40cm flexible whip for the ultimate in gain. **£29.99** P&P £5.00
Tx:- 2m + 70cm (Rx:- 25MHz-2.9GHz).

RH-9090 SMA

40cm flexible whip that is ideal as replacement. Tx:- 2m + 70cm.
Rx:- 25MHz-2.9GHz **£34.99** P&P £5.00

Mike Jones'

antenna workshop

Stuck for space but keen on trying 14MHz for DX? Mike Jones G3UED could have the solution for you!

An Effective 14MHz Band Loft Antenna

Amateur Radio dipole antennas are generally a half wavelength (λ/2) long at the frequency of operation. They are usually made of copper wire and are centre fed. When at resonance, which occurs when the length of a practical antenna is about 95% of the free-space perfect half-wavelength value, the feed-point exhibits zero (0Ω) reactance (the inductive and capacitive terms cancel) and so it presents a purely resistive load to the feed cable.

The value of this resistance is of the order of 73Ω consisting mainly of the 'Radiation Resistance' plus resistance responsible for inevitable losses. Consequently, a low voltage standing wave ratio (v.s.w.r.) can be achieved when connected to a transceiver with low impedance coaxial cable.

Radiation & Loss Resistance

Radiation resistance is an imaginary resistance representing the radiation capabilities of the antenna and is dependent upon its geometry. Loss resistance is the part which wastes energy as heat generation in the wire, connectors and joints. It also includes losses due to coupling into nearby objects.

So, the higher the radiation resistance, the more of the supplied power is radiated and the more efficient the antenna. Conversely, the higher the loss resistance, the more energy is wasted as heat and the efficiency reduces.

Modern transceivers usually have a 50Ω coaxial (unbalanced) antenna socket. Although 50Ω coaxial cable (I used RG213 cable), presents a small mismatch at the antenna, only a small amount of energy is reflected resulting in an acceptably low v.s.w.r.

The formula used to determine the overall resonant length (L) of such a dipole is:

L= 468/F(MHz) where L is in feet
or
L=143/F(MHz) where L is in metres

The lengths given by the above formulae are the total end-to-end length of a practical horizontal dipole installed in an ideal situation. Each half of the dipole will therefore be one half of the lengths calculated.

For example, using the above formulae for my 14.2MHz (design frequency) antenna, the required length is 10.07m (33ft) for each half.

Sloping the antenna elements to fit into restricted sites is acceptable – the overall wire length to maintain resonance reduces slightly from those calculated above. But, of more concern, is that the radiation resistance and therefore efficiency fall rapidly as the apex angle is reduced (i.e. The overall end-to-end length is reduced). An angle of greater than 90° should be the aim when installing this way.

The final length, for a given installation, is usually found by experiment. Nevertheless, the formulae I've mentioned provides a good starting point.

Proximity to things such as roofs, cabling, metallic objects etc., will further reduce the efficiency due to energy being coupled and dissipated in these nearby objects. So, practical installation considerations all conspire to reduce the radiation resistance and therefore efficiency by reducing the wire length for resonance and the linear length of the antenna and increasing losses due to coupling.

Indoor Or Outdoor?

The ideal installation for a dipole would be erected at a full half wavelength high and clear of all conductive structures, etc. Although this would surpass the effectiveness of an indoor dipole, the latter is often the only one available for many of us. However, despite its lower efficiency, the indoor option should not be discounted when a loft space is available because it can produce surprisingly good results.

Fig. 1: Three lengths of enamelled copper wire are twisted together to form one composite 'wire' to form the balun.

Mike Jones G3UED
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: antennas@pwpublishing.ltd.uk

Note: When using high power, high radio frequency (r.f.) voltages can appear at the dipole ends (the current maximum is at the centre). Consequently, to eliminate fire risks, low power and frequent inspection is recommended to ensure r.f. sparking at these points does not occur.

Unfortunately, loft installation for antennas is often hampered by timber struts and trusses, apart from the usual stored household items! My loft space is a convenient storage space for all-manner of useful items. I say 'useful', but my wife disagrees, of course!

In my case, living in a house of modern construction, the loft is only some 6.4m wide with a 7.9m long ridge running east-west. The roof construction is of the timber trussed type, common in modern houses, with trusses at some 600mm apart reducing the usability of the floor space making it difficult to move about the area.

Where sufficient free space is available, the dipole may be installed by fixing the ends, either by securing them to suitable parts of the roof structure, or by using string to extend the wire in order to reach support points. I used small metal eyelets screwed into timber struts. An additional length of wire will be required to account for knots or loops formed at the wire-ends.

It's also important to ensure the wire elements of the antenna are installed **as far away as possible** from house wiring, pipes, tanks and stored metallic items. However, although the phrase 'as far away as possible' is often used in this context – readers will probably ask the obvious question, "What does this mean in practice?

To answer, I'd have to reply, "Well, in my case, the cabling in my loft runs at right angles to my dipole (which helps to reduce undesirable coupling) with the nearest cabling being some 2m away. Many would say this is far too close, but I have experienced no interference to household devices. I'm also fortunate not to have any pipes or tanks within my loft, which is an advantage!"

Initial Design Considerations

Although it was nearly of sufficient length to install my 20m dipole along the ridge of the loft, I decided not to do this because of electrical wiring running at high level – feeding loft lighting. Additionally, my shack is in a downstairs room with an outside wall at the gable-end of the house and this makes a vertical feeder cable drop in this position more convenient than feeding it vertically down in the centre of the house.

To meet these requirements the dipole centre needed to be at the gable wall, employing sloping elements. **Note:** Despite the lower radiation resistance this brings, together with the consequential lower efficiency, sloping elements in the form of an inverted 'V' can have advantages. This is because that a degree of low-angle radiation occurs and therefore brings the potential to make longer distance contacts. (Or so I hoped!).

Loft installation will lower the radiation resistance from the 73Ω in free space due to close proximity to so many items, not least the roof itself and also the ground. Sloping the elements will cause a further reduction.

Furthermore, as the feed-point impedance will now be well below the ideal 50Ω, a mismatch will occur between the feeder cable (assuming 50Ω coaxial cable) and the antenna causing energy to be reflected. However, in practice I've found this mismatch not to be too

Fig. 2: After winding six turns of the composite 'wire' on the ferrite rod, the individual ends are identified and labelled.

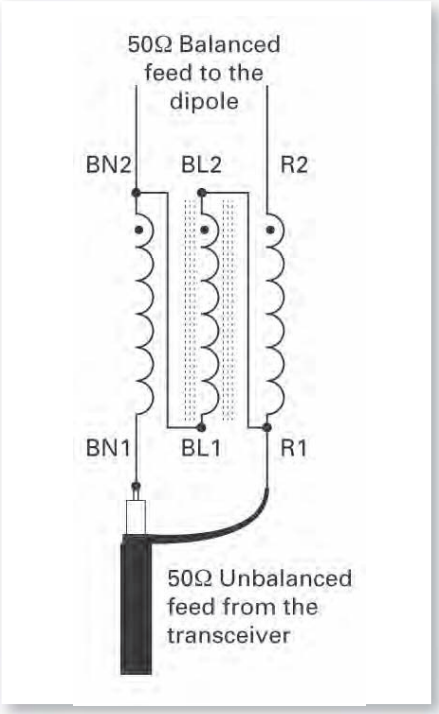


Fig. 3: The circuit and connections of the balun. Points 'BN1 and BN2 are the start and ends of the strand labelled brown. The notation is similar for the 'blue' and 'red' strands.

problematic and I achieve a v.s.w.r. of less than 1.5:1 from 14.000 to 14.270 – a very acceptable bandwidth. (My lowest reading is actually 1.15:1 at 14.100MHz).

Balanced & Unbalanced

A symmetrical horizontal dipole, when centre-fed, presents a balanced termination to the feeder. A coaxial cable, although nicely matched to the output connector of a modern transceiver, presents an unbalanced feed to the antenna. While the impedance match may be acceptable, the unbalanced-to-balanced connection can cause r.f. currents to appear on the coaxial cable screen.

The unwanted r.f. currents can result in undesirable radiation from the feeder cable and interference to household and shack equipment. This stray r.f. can also cause minor r.f. burns to occur in the shack – especially when extraneous metalwork is touched. (The measured and displayed v.s.w.r. may also seen to be erratic).

So, to overcome the undesirable effects, a balanced-to-unbalanced transforming device is used. These are commonly referred to as 'baluns'.

The Balun I chose for my loft dipole was one described by the late **Les Moxon G6XN** in his book entitled *HF Antennas for All Locations* (published by the RSGB and available from the PW Bookstore). The balun provides a 1:1 impedance ratio and is a broad-band device suitable for 3-30MHz and is simple to construct using easily available parts.

I used three lengths of 22s.w.g. (0.711mm diameter) single strand enamelled wire about 400mm long. The three strands were laid alongside each other and twisted together very tightly using two self-gripping pliers (as seen in **Fig. 1**) Six turns of the resulting composite twisted wire was then wound onto a length of scrap ferrite rod 10mm by 85mm (dimensions are not at all critical) as suggested by G6XN.

The tricky part is then to ensure that each end of each winding is correctly identified and connected. To start the process, first remove the enamelling with a piece of fine sandpaper and tin the ends with solder. I then identified the ends with my multimeter and marked them with small pieces of coloured insulation tape, as shown in **Fig. 2**.

The diagram, **Fig. 3**, is a schematic of the balun. Dots identify the three ends that emerge from the same end of the coil and **it's imperative** that the connections are made in the manner shown. The terms R1, BL1 and BN1, etc., refer to the coloured tapes I used to identify the wires.

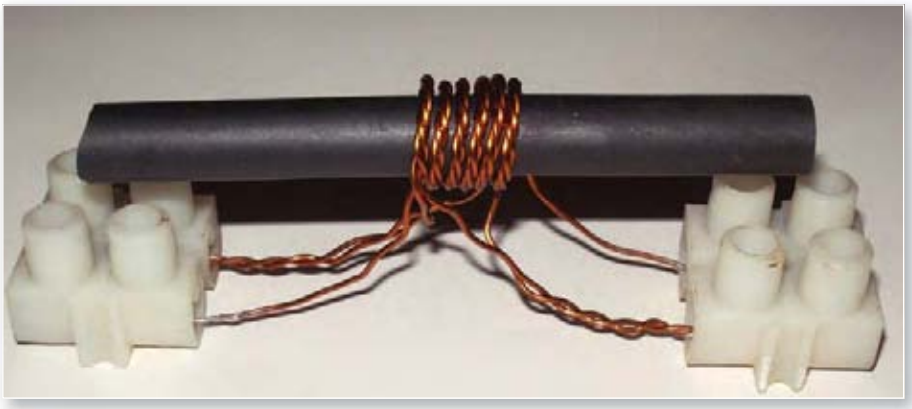


Fig. 4: After winding the six turns at the centre of an 85mm length of 10mm diameter ferrite rod, the ends are clamped into two connections blocks.

Fig. 5: The balun mounted high in the apex of a gable-end wall.

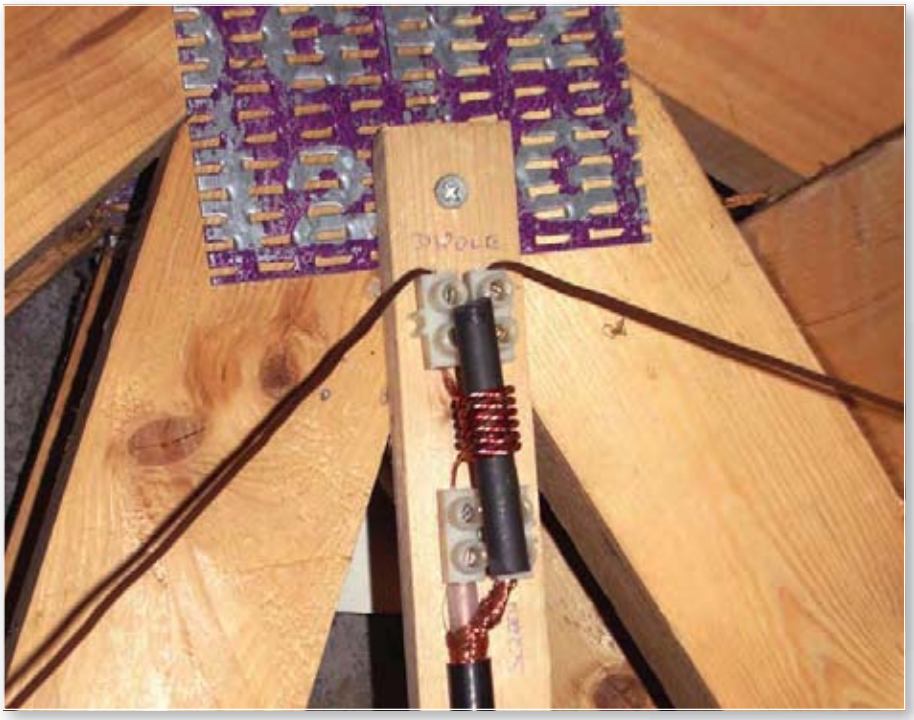


Fig. 6: The balun shown mounted at the apex of the roof joists. The slotted plate is used to hold the junction of the roof joists together!

The photograph **Fig. 4,** shows how the ends of each of the three wires are terminated into (15A) connector blocks to enable connection to the dipole and the feeder cable. I then mounted the two connector blocks onto a piece of wood 25 x 100 x 12.5mm as shown in **Fig. 5**.

Note: Although I've operated my antenna and balun with my rig

Fig. 7: Looking up into the apex of the roof, showing the inverted-V formed with the wires. The angle formed will most likely be different in house of different ages, as roof apex-angles have changed.

Fig. 8: Looking at the open end held tight with string attached to a roof joist.

operating at the 100W level, and there has been no temperature rise noted, care should be taken with low power used initially to ensure no heat is produced.

Installing The Dipole

The pictures **Fig.**s **6** and **7,** show how I installed my dipole and the wire I used was plastic covered multi-stranded equipment wiring of only 1mm diameter (2mm outside diameter), although thicker wire would have been better because it would reduce the loss resistance. The balun, mounted on the piece of wood, forms the centre piece and needs to be positioned as high as possible.

The wire elements of my dipole run away in direction from the outside wall but close to the roof until they meet the loft floor, where I tied them off with string to screw-in eyelets as shown in **Fig. 8**. **Note:** Remember that any wire used to form knots or loops for securing the ends is additional to the dipole length. Any excess should be tied back along the length of the dipole element – where it won't contribute to the radiating length.

Each final element length in my case was 4.8m (15ft 9in). The feeder cable (I used a suitable length of RG213) drops down vertically through the loft floor, through the room below and into my downstairs shack.

The apex angle of my particular installation is somewhat less than 90° and is far from ideal. This is because the radiation resistance of my dipole will be significantly lower than 50Ω – resulting in quite low efficiency.

Testing & Adjustment

I carried out the testing and adjustment using low power on a clear frequency around 14.2MHz, fed through my v.s.w.r. meter. Starting with the original design lengths of about 5m each side, I shortened each wire by about 50mm each side each time until the lowest v.s.w.r. appeared at 14.2MHz.

Note: I've checked and can't detect any stray r.f. in the shack and believe the balun is doing its job.

Despite the low efficiency of my loft installed 14MHz dipole, I've obtained surprisingly good results! I've worked various parts of Europe, North Africa and the Middle East, generally with good reports over the last two years or so when sunspot activity has been at its lowest. Not bad for a simple installation!

The theory and practical considerations described above apply equally to the installation of a dipole for any h.f. band, either indoor or outdoor, and the formulae for calculating the element lengths holds true. And, since the balun described above will cover the range 3-30MHz, it can be used to successfully feed any Amateur band dipole working between 3.5 and 29.7MHz. **Note:** Suitable weather protection for the balun and all the associated connections would be required for outside installation.

My next installation will be dipoles for 18MHz (17m) and 21MHz (15m) and I'm planning to install these with the wire elements connected in parallel with my 14MHz dipole, using the Balun as a common feed for all three.

In theory, because their resonant lengths will be shorter, I should be able to install these with greater apex angles ,which will give better efficiency and (hopefully) I'll achieve good results on those bands too, and I'm planning to share the results I get in a future Antenna Workshop.

Good DX!

●

Tony Nailer's

doing it by design

Tony Nailer G4CFY, looks at extending the capabilities of the active pre-selector developed for the *PW* Upwey project.

The upgrade of the Top Band Receiver project, which was the subject of *DiBD* in *PW* January and March 2010, has stimulated a reasonable amount of interest amongst constructors. Several though, are building receivers for multi-band use and hence need multi-band pre-selectors.

During the autumn of 2009 I modified one of the high frequency (h.f.) metal oxide field effect transistor (m.o.s.f.e.t.) pre-amplifiers to allow it to tune 1.8 to 3.8MHz, for a customer. This same design was then modified to create the active pre-selector for Top Band only for **Colin Merry G4CDM**, as mentioned in the January issue.

Now I will look at extending the design to cover the 3.65, 7.1, and 14.175MHz bands and incorporating the new Spectrum '5u3L' 10mm coils.

Simplest Solutions

As a designer I always try to produce the simplest solution, to minimise wiring and to keep the project cost as low as possible. The solution for the band-switching was to try to utilise a low cost printed circuit board (p.c.b.) mounted moulded nylon switch, initially with four poles each with three ways, or positions. The two unwanted poles and their corresponding ways could be then clipped off.

My idea was to use the existing p.c.b. amplifier board linked to another board with the band switch and appropriate resonating capacitors. This combination would then be linked to a 300+300pF polyvaricon capacitor. The proposed circuit is shown in **Fig. 1.**

Circuit Bandwidth

Let me remind you that the *Q* of a tuned circuit is determined by the ratio of centre frequency to bandwidth. The bandwidth is determined from the points each side on the response where the voltage has dropped to 0.707 of the value at the centre. Then $Q = Fc/Bw$.

The band 3.5 to 3.8MHz is 300kHz (0.3MHz) wide with a centre frequency of 3.65MHz. To allow this to pass

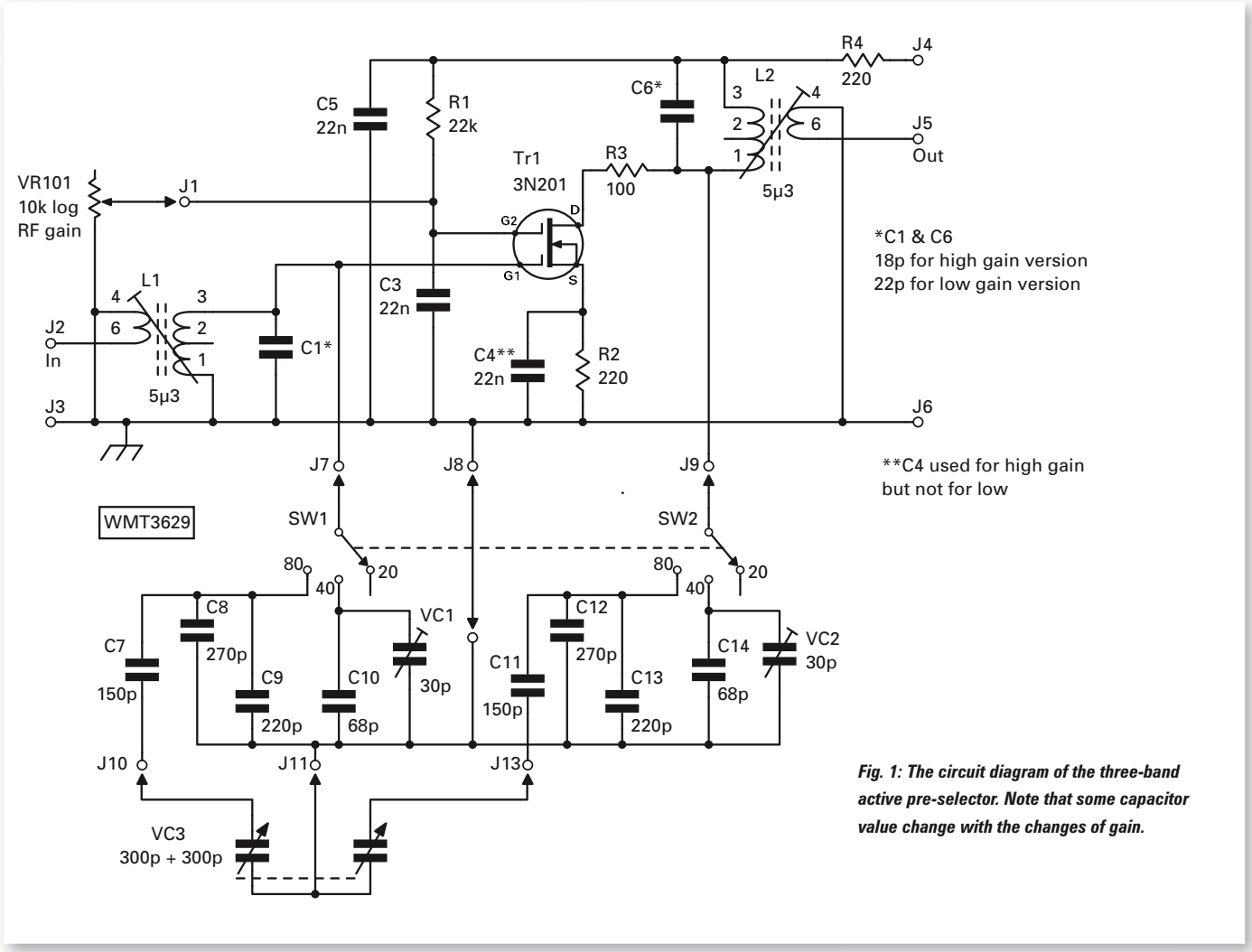


Fig. 1: The circuit diagram of the three-band active pre-selector. Note that some capacitor value change with the changes of gain.

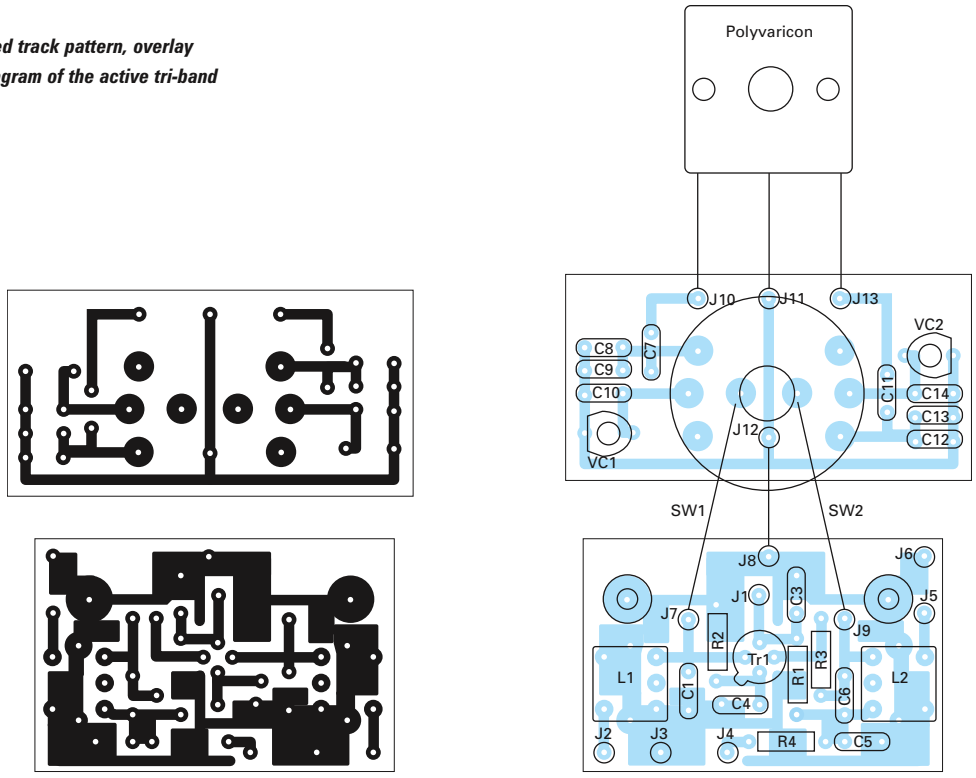


Fig. 2: The combined track pattern, overlay and interlinking diagram of the active tri-band pre-selector.

through a band-pass coupled pair of coils would require a *Q* factor of 3.65/0.3 = 12.167. Coils damped this far down would not provide sufficient out of band attenuation, so this dictates the use of a panel mounted tuning control.

On the 7 to 7.2MHz band the desired *Q* is considerably higher as the centre frequency is 7.1MHz and the required bandwidth only 0.2MHz. Then *Q* = 7.1/0.2 = 35.5. This is sufficiently high to choose a fixed tuned circuit

The Amateur band, 14 to 14.35MHz has a centre frequency of 14.175MHz and a bandwidth of 0.35MHz. Then *Q* = 14.175/0.25 = 40.5. This is also high enough to use a fixed tuned circuit.

Calculations For 14MHz

For ease of setting up, I decided to set the coil to 5μH and resonate the coil at 14.175MHz with a suitable capacitor. Then to switch in parallel another fixed capacitor and a trimmer capacitor (trimcap) for the 7.1MHz band. Finally, for the 3.5 – 3.8MHz band, switching in other fixed capacitors in parallel and the polyvaricon in series with a capacitor to adjust the capacitive swing and thus the centre frequency.

Now C = 1/(4*π*π*F*F*L) or to a first approximation

C = 1/(39.5*F*F*L).

C = 1/(39.5*14.175*10^6*14.175*10^6*5*10^{-6}).

One 10^6 term cancels with the 10^{-6} term, the other 10^6 term on the bottom becomes 10^{-6} on the top, which gives the answer in μF,

Then C = 1/(39.5*14.175*14.175*5)μF,

multiplying the numbers out gives,

C = 1/39683μF (rounded to whole numbers).

C = 0.0000251μF = 25.1pF.

The m.o.s.f.e.t. device often contributes between 2 and 4pF. So, you'd choose 22pF to resonate with the coils on 14.175MHz, taking the device into account.

Calculations For 7.1MHz

If I choose 22pF for the capacitor on 14MHz then together with the m.o.s.f.e.t. this will be about 25pF. Now we need to find the resonating capacitance on 7.1MHz,

C = 1/(39.5*7.1*7.1*5)μF

C = 1/9956 (rounded to whole numbers).

C = 0.0001μF = 100pF, from which we subtract the 25pF already in circuit, leaving and additional 75pF. This can be made up with 68pF in parallel with a 0-30pF trimcap.

Calculations For 3.5-3.8MHz

Now to the slightly more complex problem of the calculations at 3.5–3.8MHz. At 3.5MHz the resonating capacitance is,

C = 1/(39.5*3.5*3.5*5)μF

C = 1/2419 (rounded to whole numbers).

C = 0.000413μF = 413pF.

While at 3.8MHz the resonating capacitance is,

C = 1/(39.5*3.8*3.8*5)μF

C = 1/ 2852 (rounded to whole numbers).

C = 0.00035 = 350pF.

The change in capacitance between band edges is 63pF.

Dual Gang Capacitor

The polyvaricon dual gang capacitor has a range of 10-300pF on each gang. It's necessary to reduce this to just over 63pF, say 70pF. The easiest way to do this is to choose an arbitrary value of capacitance to put in series and to calculate the result, then try another preferred value to home in on the range desired.

Let's begin by choosing say 100pF in series with the maximum value of 300pF.

Ct = (C1*C2)/(C1+C2).
Ct = (100*300)/(100+300),
Ct = 30000/400 = 75pF.

Now 100pF in series with the minimum is likely to be around 8pF so the total swing will be only 67pF, which is a bit tight. So, let's try the next preferred value up of 120pF,

C = (120*300)/(120+300)
C = 36000/420 = 85pF. This looks good, so try the minimum value calculation.
C = (120*10)/(120+10)
C = 1200/130 = 9.2pF.

The swing from 9.2pF to 85pF is 75.8pF. This should give the pre-selector sufficient swing with 4pF overlap at each end.

The padding capacitance in the minimum position needs to be 350pF – 25pF – 9.2pF – 4pF= 311.8pF. The two closest options I can get are 270pF plus 39pF = 309pF, or 270pF plus 47pF = 317pF.

Development Model

Let's now look at a development model. I laid a p.c.b. out for the switch and band capacitors. The board was made and populated with the values calculated; 22pF for 14MHz, 68pF and 30pF trimcap for 7MHz, and 270pF and 47pF for 3.5MHz. In place of the gain control, a fixed value 10kΩ resistor was added.

The made-up unit was connected to my HP8640 signal generator and HP141T 0-110MHz spectrum analyser. The coils were carefully peaked on 14MHz, where 20dB gain was achieved. I noted however, that the bandwidth was quite wide.

Switching to the 7MHz position, the trimcap was adjusted, for resonance. And a gain of 20dB was again achieved, but the bandwidth was this time notably narrower.

On 3.5MHz I noticed that there were unusual signals on the analyser. A signal was observed but with no gain, and the tuning itself was way off. Changing the values of capacitance for this band did put the tuning in the right place – but didn't improve the low gain.

Intermittent Instability

Some spurious signals also showed up intermittently on the 7MHz band and it was only after much trial and error that I realised the cause of the instability. The wires from the amplifier board to the switch board, about 40mm long, were twisted together and coupled input to output.

The single cored wires were changed for similar lengths of RG174, 50Ω coaxial cable, while I noted that the 25mm of each not split into tails would add 2.5pF to the circuit. Repeating the tuning procedure, the circuit was then became stable but still only provided low gain on 3.5MHz. Additionally, on 14MHz the board was off frequency and the 22pF tuning capacitors had to be reduced to 18pF.

Circuit Modification

The p.c.b was modified to connect the drain of the m.o.s.f.e.t to the hot end of the output coil, instead of at the tapping point. The p.c.b. artwork and component layout (as modified) is shown in **Fig. 2**. With the modified circuit, the gain increased to 6dB on 3.5MHz and to 23dB on 7 and 14MHz.

I tried adjusting the coils when in the 3.5MHz position, and the gain then came up to 15dB. On the 7 and 14MHz bands, the gain was unaffected at 23dB, but the coil tuning was clearly more critical for 3.5MHz. Other than that the circuit now appeared to be working about right!

Values of tuning capacitors were slightly lower than calculated on 14MHz, were exactly as calculated on 7MHz and higher than calculated on 3.5MHz. At the end of these tests the coil cores were lower in the windings than originally, meaning the inductance was now lower than 5μH.

The padding capacitors on 3.5MHz were now 220pF and 270pF, and the capacitors in series with the polyvaricon increased from 120pF to 150pF to achieve the swing over the whole band.

Gain & Noise

Pre-amplifiers and pre-selectors often have much higher gain than necessary and this can cause overload and intermodulation in the receiver first mixer. The purpose of a pre-selector is to restrict the range of signals reaching the receiver, and also to reduce the overall system noise figure.

This design now achieves 15dB gain at 3.5, and 23dB on 7 and 14MHz, with a noise figure of about 3dB. Though the gain quoted is voltage gain, in the case where the input and output impedances are the same, the gain is also the power gain. This means that on 3.5MHz the power gain is 15dB, a factor of 32. On 7 and 14MHz it's 23dB, which is a factor of 200.

The power gain factor of the pre-amp divides the noise figure of the following system. So, for example, if the receiver has a 20dB noise figure on 3.5MHz, with the pre-amplifier it will become 20/32 plus the 3dB, giving just 3.6dB. For the same receiver noise figure on 7 and 14MHz the new system noise figure would become (20/200+3)dB = 3.1dB.

Lower Gain Version

One method of reducing the gain of a common source second-generation m.o.s.f.e.t amplifier, and actually increasing linearity and signal handling, is to remove the source de-coupling capacitor. I did this and immediately noted that I needed to increase the tuning capacitors back to 22pF on 14MHz, and readjust the coils on 3.5MHz and the trimcaps on 7MHz.

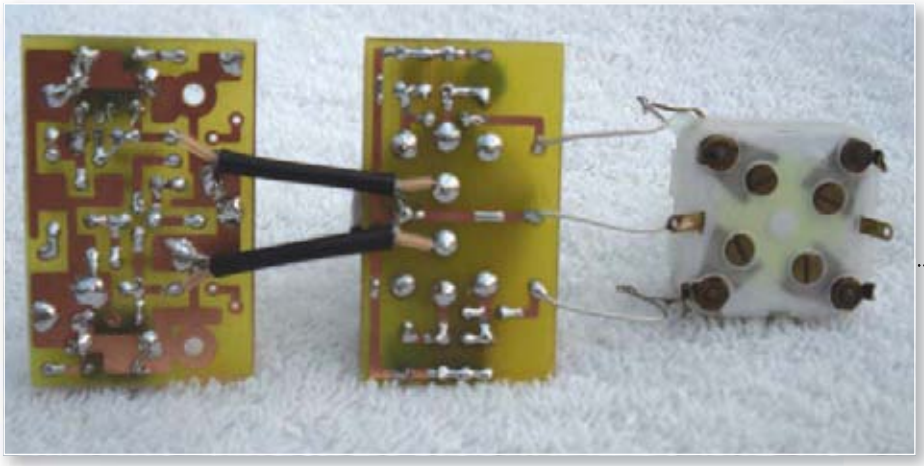
The lower gains are now 10dB on 3.5MHz, 11dB on 3.8MHz, 17dB on 7.1MHz and 18dB on 14.2MHz. This is really a nice gain level for each of the bands, which will reduce the possibility of overloading of the receiver mixer. These gains should still offer worthwhile reductions of system noise figures. Additionally, there's still the facility to further reduce the gain using a panel-mounted r.f. gain control.

Bandwidth Considerations

The pre-selector is very wide-band on 14MHz, but less so on 7MHz and even less so on 3.5MHz. Why is this? The specification for the new series of coils deliberately arranged for each of them to have secondary windings offering an impedance close to 50Ω, when used on a specific band. For the 5u3L coil the effective band was 7MHz.

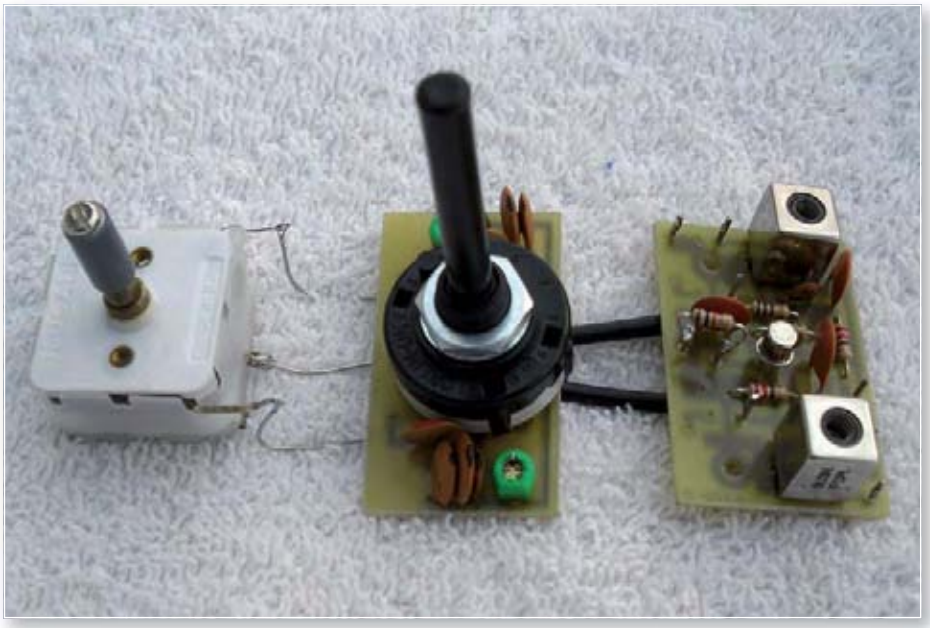
Now as XL = 2*π*F*L, it means that at double

Tony Nailer
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: tony@pwpublishing.ltd.uk



The new tri-band active pre-selector from the component side.

The underside of the linked items.



the frequency the reactance and consequently also the dynamic resistance will also be double. As the ratio of primary-to-secondary turns remains the same, the secondary impedance on 14MHz will become 100Ω. So when connected to a 50Ω load it will halve the *Q* and double the bandwidth.

The input and output coils in the pre-amplifier are effectively over-coupled. This means that in effect the coils are in parallel, with half the resultant inductance, and the tuning capacitors are also in parallel, doubling the capacitance. The resonant frequency remains the same but the overall *Q* is again half that of a single coil.

Calculated Bandwidths

With each coil with a *Q* of, let's say 60, the loading on 14MHz halves this to 30, and the over-coupling effect halves it again to 15. A *Q* of 15 on 14.2MHz results in a bandwidth of 946kHz, which is about what I observed.

On 7MHz the primary to secondary ratio provides a perfect match to the load so there is no halving of the *Q*. The over-coupling will reduce the overall *Q* to 30, which results in a bandwidth of 233kHz.

Now with the 3.5-3.8MHz band, the reactance is half that at 7MHz, so the dynamic resistance will also be halved, and the secondary winding will present 25Ω to the load. Though the output is under-loaded, the reduced dynamic resistance results in half the gain.

As the circuit is under-loaded, the *Q* might be even higher than the nominal loaded value of 60, say maybe 70. This will give a bandwidth of 50kHz at 3.5MHz and 76kHz at 3.8MHz.

Final Component Values

Capacitors C1 and 6 need to be 18pf for the high gain version, or 22pF for the low gain version. Capacitor, C4 22nF, used for high gain version, is not used for the low gain version. Capacitors C7 & C11 are 150pF, C8 & C12 are 270pF, C9 & C13 are 220pF and C10 & C14 68pF.

Works Well!

The amplified pre-selector works well and achieves its goal of amplification with some selectivity. The high gain version is 15dB on 3.5MHz and 23dB on 7 and 14MHz. The low gain version is 10dB on 3.5MHz, 11dB on 3.8MHz, 17dB on 7.1, and 18dB on 14.2MHz.

The 5u3L coil has a 20:1 primary-to-secondary turns ratio, and no other 10mm coil of lower primary turns can achieve a better match to a 50Ω load on 14MHz. Dare I say it, a coil wound on a low-μ dust iron toroid would probably start with a much higher *Q* and result in a narrower pass-band.

Parts Availability

There are p.c.b.s available at £7 the pair. A kits of p.c.b.s and parts, including switch and polyvaricon and gain potentiometer costs £20.50. Prices include P&P.

If you wish to communicate in regard to this article, please contact me on **tony@pwpublishing.ltd.uk** ●

Tony Nailer G4CFY

To subscribe to my readers' list, send a blank e-mail to: **pw-g4cfy-on@pwpublishing.ltd.uk** with the word subscribe in the subject box. When you receive confirmation from the server you can then send e-mails to **pw-g4cfy@pwpublishing.ltd.uk** and your comments will be answered by myself or the *PW* team.

Check Our website for latest, keener Prices!

LAM COMMUNICATIONS

The North's Leading Radio Emporium

52 Sheffield Road, Hoyland Common, Barnsley, S74 0DQ, South Yorkshire

www.lamcommunications.net

sales@lamcommunications.net

Tel: 01226 361700

Specialist Dealers in New and Used Equipment Located within 1/2 mile of junction 36, M1 Motorway

THE ONE STOP SHOP for the North!

WE ARE MAIL-ORDER SPECIALISTS for all of the UK Tracked FedEx

Check Our website for more up-to-date and keener Prices!

Check Our website for more up-to-date and keener Prices!

ICOM IC-7600

PRICE £3294.95

A LITTLE WINTER WARMER!

THE NEW IC-9100

ICOM Authorised Dealer

HF / VHF / UHF 160m-23cms Base Station

Arriving Soon - be the first to own this new Rig ORDER YOURS NOW!

HF- VHF- UHF- D Star LAMCO's have all ICOM Rigs in Stock CALL NOW

IC-7800 Flagship HF 160-6M Dual Receiver base station @ **£7995.95**

IC-7700 Single receiver version of the 7800 HF160-6M @ **£5499.95**

IC-7400 HF160-6M + 2M @ **£1359.95**

Package with the SM 20 desk mic and SP 21 speaker @ **£1539.95**

IC-7200 HF160-6M 100w base or portable @ **£769.95**

IC-718 HF160-10M @ **£459.95**

IC-910H 2m/70cm Base @ **£1269.95**

IC-910HX 2m/70cm Base including 23cm module @ **£1469.95**

IC-7000 HF160-6M+2m/70cm @ **£944.95**

IC-706 MKIIG HF160-6M+145/430Mhz, Mobile @ **£734.95**

IC-2820 50W VHF-UHF, D-Star complete @ **£544.95**

IC-E880D 50W dual band Mobile, detactable head unit, Small but powerfull, @ **£CALL**

IC-E80D 5W Dual band handheld wideband RX, Rugged, Water Resistant @ **£CALL**

IC-E92D waterproof dual band VHF-UHF handheld @ **£369.95**

HK-175GPS speaker-mic @ **£229.95**

Icom PS-125 25 Amp PSU @ **£319.95**

DIAMOND ANTENNA Diamond Antennas Famous for Quality

LAM stock a Comprehensive Range

Call for Our Best Price £££E

FlexRadio Systems

FlexRadio 3000 SDR HF & 6m, Just add your own PC, **available now @ £1394.95**

YAESU

Choice of the World's top DX'ers

FT-2000D HF 160-10 + 6M All modes, 200 Watts, DSP @ **£2329.95**

FT-2000 HF 160-10 + 6M All modes, 100 Watts, DSP @ **£1909.95**

FT-950 HF 160-10 + 6M All modes, 100 Watts, DSP @ **£1089.95**

FT-450AT HF 160-10 + 6M All modes,100W, DSP including internal ATU @ **£649.95**

FT-897D HF 160-10 + 6M All modes, 100 Watts @ **£649.95**

FT-857D HF/50/145/430Mhz @ **£554.95**

FT-817ND the ultimate portable rig HF/50 145/430MHZ all mode QRP @ **£449.95**

FT-8900R 10/6/2/70 dual receive + DTMF 50watts @ **£339.95**

FT-8800E 145/430 mobile @ **£294.95**

FT-7800E 145/430 mobile @ **£204.95**

FT-1802 145 Mobile 50w @ **£119.95**

VX-3R 5w 145/430 handheld @ **£139.95**

VX-7R 5w 145/430 handheld @ **£264.95**

VX-8R 5w 145/430 handheld @ **£379.95**

FT-60 5w 145/430 handheld @ **£149.95**

ALINCO

NEW RADIO's FROM ALINCO

DX-SR8 New HF Transciever 1-34MHz 100w All mode @ **£499.95**

DJ-G7E New Tri-Band handheld 144MHz, 430MHz & 1200MHz with Full duplex operation. 5W 2/70, 1W on 23cms, Water Resistant @ **£299.95**

bhi Products

NES 10-2 MKII Noise eliminating speaker @ **£99.99**

NEIM 1031 DSP Inline Module @ **£139.99**

ANEM 10-2 MKII Amplified Noise cancelling module @ **£99.99**

RADIO MATE Compact Keyboard for the FT817, FT857, FT897 @ **£99.99**

Superfast "Next Day Delivery"
On all orders placed before 2pm

www.junksale.co.uk
-Buy-Sell-Exchange-Wanted-

VISA MasterCard Maestro PayPal

KENWOOD

Listen to the Future

STOP PRESS:

New HF Rig coming soon Order Yours from LAMCO NOW!

TS-2000 HF/50/145/430Mhz @ **£1499.95**

TS-2000X HF/50/145/430Mhz with the 23cm module fitted @ **£1739.95**

TS-480 SAT HF/6 100 watts, includes ATU @ **£739.95**

TS-480 HX HF/6 200Watt High power version, No ATU @ **£839.95**

TM-D710E 145/430Mhz, 50 watts, APRS ready with built in TNC, EchoLink ready @ **£439.95**

TM-V71E 145/430Mhz Dual bander, 50watts, wide band receive @ **£294.95**

THF-7E 145/430Mhz Handheld Wide band receive inc SSB @ **£234.95**

ANTENNA TUNERS

MyDEL

MyDEL CG3000 ATU @ **£285.95**

1.8 - 30 Mhz minimum wire length 8 meters, 10 - 200W PEP, SWR: <2:1, 12V Auto tuning 2 sec (1st tune).>1 sec to memory 200 Memorys Remote switch optional @ **£ 39.99**

CG5000MKII 500W as above @ **£559.95**

LDG ELECTRONICS

Z100 Plus 100W auto ATU160-6m @ **£143.95**

AT100PRO 100 W 160-6m @ **£194.95**

AT200PRO 200 W 160-6m @ **£214.95**

Z-11PRO portable QRP100 watts ATU @ **£158.95**

IT100 (AT7000) for the Icom IC7000 rig @ **£153.95**

AT897 100 watts 160-6m @ **£183.95**

MFJ A range of MFJ products catered for!..... Call LAMCO for availability

USED EQUIPMENT now with 12 months warranty unless otherwise stated

All prices quoted @ 17.5% VAT E&OE

Please check with the organisers that the rally is 'on' before leaving home.

rallies

Radio rallies are held throughout the UK. They're hard work to organise so visit one soon and support your clubs and organisations. PW Publishing Ltd. is attending at rallies marked *.

Send all your rally info to

PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: newsdesk@pwpublishing.ltd.uk

April

April 11th
The Cambridgeshire Rally
The Cambridgeshire Repeater Group Annual Rally will be held at Foxton Village Hall, Hardman Road, Foxton, Cambridge CB22 6RN. The doors will open at 10.00am (7.00am for traders) and admission will be £2.00. There will be talk-in on S22, trade stands, lectures, a Bring & Buy, catering and facilities for the disabled.
Laurence M0LCM
Tel: 01223 654880
E-mail: rally2010@cambridgerepeaters.net
www.cambridgerepeaters.net

April 11th
The Lough Erne Rally
The Lough Erne Amateur Radio Club Annual Rally will be held at The Share Holiday Village, Lisnaskea, Co. Fermanagh BT92 0EQ N. Ireland – there is access from the Erne/Shannon Waterway. The doors will open at 12 noon and there will be car parking, trade stands, a Bring & Buy, catering with a licensed bar, Morse tests and facilities for the disabled.
Iain
Tel: 02866 326693
E-mail: gibbjgbb@aol.com
www.loughernerradioclub.co.uk

April 11th
The NARSA Exhibition*
The Northern Amateur Radio Societies Association Exhibition will be held at the Norbreck Castle Exhibition Centre, Queen's Promenade, Blackpool FY2 9AA. The doors will open at 11.00am (10.45am for the disabled) and there will be talk-in, car parking, trade stands, a Bring & Buy, special interest groups, catering with a licensed bar, Morse tests and facilities for the disabled.
Dave M0OBW
Tel: 01270 761608
E-mail: dwilson@btinternet.com
www.g1gyc.demon.co.uk/narsa

April 18th
The West London Radio & Electronics Show*
The West London Radio & Electronics Show will take place at Kempton Park Racecourse, Sunbury-on-Thames, Surrey. The will be free car parking, the doors will open at 10.00am and there will be talk-in on S22 & V44, trade stands, a Bring & Buy, a flea market, catering, special interest groups and facilities for the disabled.
Paul M0CJX
Tel: 0845 1650351
E-mail: info@radiofairs.co.uk
www.radiofairs.co.uk

April 23rd
The Church Island Rally
The Church Island Amateur Radio Group Rally will take place in the Bellaghy Community Hall (beside St Marys Church), Ballynease Road, Bellaghy BT45 8JS. The doors will open at 8.00pm.
John MI0MIO
Tel: 0771 910 0595

April 25th
The Andover Boot Sale
The Andover Radio Club's Spring Boot sale will be held in the Village Hall at Wildhern, which is just north of Andover (postcode SP11 0JE). The doors will open at 10.00am for buyers (9.00am for sellers) and admission will be £1.50. There will be talk-in on S22, catering and facilities for the disabled.
Martin
Tel: 01980 612070
E-mail: martinsmith@kukltd.co.uk
www.arac.org.uk

April 25th
The Yeovil QRP Convention
The 26th Yeovil QRP Convention will be held in the Digby Hall, Hound St, Sherborne, Dorset, DT9 3AA (adjoining the central shopping car park). The doors will open at 9.30am and there will be talk-in on S22 and V44, car parking, trade stands, lectures, a Bring & Buy, catering and facilities for the disabled.
Robert
Tel: 01935 706715
E-mail: robert.farey@btinternet.com
www.yeovil-arc.com

May

May 2nd
The Dambusters Hamfest
The Dambusters Hamfest will take place at the Thorpe Camp Visitor Centre, Coningsby, Lincolnshire LN4 4PE. This is a car boot style rally. Doors will open at 10.30am and admission will be £3.50, which includes entry to the museum. There will be a free car park and catering.
Tony G3ZPU
Tel: 01507 527835

May 3rd
The Dartmoor Radio Rally*
The Dartmoor Radio Rally will take place in Tavistock College, Crowndale Rd, Tavistock, Devon PL19 8DD. The doors will open at 10.30am (10.15am for the disabled) and there will be talk-in on S22 and V44, parking, trade stands, a Bring & Buy, catering, family attractions and facilities for the disabled.
Peter M1AYI
Tel: 01822 860277

May 9th
The Magnum Radio Rally
The Magnum Radio Rally will be held in the Magnum Leisure Centre, Harbourside, Irvine, Ayrshire KA12 8PP. The doors will open at 10.30am and admission will be £4.00. There will be a free car park, trade stands, a Bring & Buy, special interest groups and catering.
Helen MM0HLN
Tel: 0787 332 7597
E-mail: Helen@magnumrally.co.uk
www.magnumrally.co.uk

May 14-16th
The Dayton Hamvention
The world's largest radio show, the Dayton Hamvention, will be held in the Hara Arena, Shiloh Springs Road, Dayton Ohio, USA. It will be open from 9.00am to 6.00pm (8.00am to 6.00pm for the flea market) on the Friday, 9.00am to 5.00pm (8.00am to 5.00pm flea market) on the Saturday and 9.00am to 1.00pm (8.00am to 1.00pm flea market) on the Sunday. Admission will cost $25 for a three-day pass ($20 if bought in advance).

There will be talk-in on the local repeater on 146.94 and 146.64MHz and frequencies 223.94 and 442.10MHz will also be monitored. Talk-in will start on Wednesday at noon and run through to Sunday at 5.00pm and it will only be off the air nightly between 11.00pm and 5.00am. In addition, travel assistance will be available on 7.258MHz.

There is no car parking at the arena but there are various free car parks in surrounding areas and buses to the show will be available (tickets $3 per day or $8 for the weekend). There will be hundreds of exhibitors, more than 2,500 spaces in the flea market, special interest groups, lectures, a prize draw, catering and facilities for the disabled.
www.hamvention.org

May 23rd
The Dunstable Downs Car Boot Sale
The Dunstable Downs Radio Club will be holding the National Amateur Radio Car Boot Sale at Stockwood Park, Luton LU1 5NR (M1 J10 then follow the yellow DDRC signs). The doors will open at 9.00am, admission will be £2.00 and there will be talk-in on S22 and V44, car parking and catering.
www.ddrcbootsale.org

May 29th
The Mid Ulster Rally
The Mid Ulster Amateur Radio Club Rally and Boot Sale will be held in the Drumgor Youth Centre, Drumgor Heights, Craigavon BT65 4AP. The doors will open at 11.00am and there will be talk-in, car parking and a Bring & Buy.
Bobby 2I0ULL
Tel: 02838 348451
www.muarc.com

June

June 6th
The Newhaven Fort Rally
The Newhaven Fort Amateur Radio Group Rally and Fort Open Day will take place in Newhaven Fort, East Sussex. The doors will open at 10.30am, admission will be £2.00 and there will be car parking, special interest groups, catering, a car boot sale, attractions for the family and facilities for the disabled.
Eddie G0ECW
Tel: 01273 300772
E-mail: eddiezamboodle.demon.co.uk

June 6th
The Red Rose QRP Festival
The Red Rose QRP Festival will take place in the Formby Hall, Alder Street (off the High Street), Atherton, Manchester M46 9EY. The doors will be open from 11.00am to 3.00pm

and admission will be £2.00 (children under 14 free). There will be a free car park, trade stands, a Bring & Buy, club stands, catering with a licensed bar and facilities for the disabled.
Les Jackson G4HZJ
Tel: 01942 870634
E-mail: g4hzj@ntlworld.com

June 6th
The Spalding Rally
The Spalding and District Amateur Radio Society Rally will take place in the Sir John Gleed Technology School, Halmer Gardens, Spalding, Lincolnshire PE11 2EF. The doors will open at 10.00am and there will be talk-in on S22 and V44, free car parking, a car boot sale, trade stands and catering.
John G4NBR
Tel: 0794 630 2815
Graham G8NWC
Tel: 0794 776 4481
E-mail: rally-secretary@sdars.org.uk
www.sdars.org.uk

June 13th
The Ipswich Rally
The Ipswich Radio Rally (The East Suffolk Wireless Revival) will be held at the Orwell Crossing Lorry Park, A14 Eastbound, Nacton, Ipswich IP10 0DD. The doors will open at 9.30am and admission will be £1.00. There will be car parking, talk-in on S22, trade stands, a Bring & Buy, a car boot sale, special interest groups, catering and the GB4SWR HF station will be operating.
John G3XDY
Tel: 07710 044858
Steve M1ACB
Tel: 07711 329624
www.eswr.org.uk

June 13th
The Junction 28 QRP Rally
The South Normanton Alfreton and District Amateur Radio Club in association with the G-QRP Club will be holding the 9th Junction 28 QRP Rally at the Alfreton Leisure Centre, Church Street, Alfreton, Derbyshire DE55 7AH (this is just 10 minutes from Junction 28 on the M1). The doors will open at 10.00am and there will be a Bring & Buy, special interest groups, catering with a licensed bar and facilities for the disabled.
Russell Bradley G0OKD
Tel: 01773 783658
E-mail: russell.bradleyG0OKD@ntlworld.com
www.snadarc.com

June 20th
The Newbury Radio Rally
The Newbury Radio Rally and Boot Sale will take place at the Newbury Showground, which is next to J13 on the M4. The doors will open at 9.00am (sellers will have access from 8.00am), admission will be £2.00 and there will be talk-in on S22 and V44, free car parking, trade stands, a display area of amateur radio stations, special interest groups, a flea market, catering and facilities for the disabled.
E-mail: rally@nadars.org.uk
www.nadars.org.uk

June 25-27th
The Ham Radio Show
Europe's largest radio event, the HAMtronic Ham Radio Show, will take place at Messe Friedrichshafen, the new exhibition centre on the edge of Friedrichshafen airport in Germany. The show will be open on Friday and Saturday from 9.00am to 6.00pm and on Sunday from 9.00am to 3.00pm. Tickets will cost €8 per day or €15 for three-days (children up to 12 free). Hall A1 will house the trade stands and clubs from around the world and there will be an enormous flea market in halls B1, B2 and B3. There will also be car paring, lectures, catering with a licensed bar, special interest groups, a camp site and facilities for the disabled.
www.hamradio-friedrichshafen.de/ham-en

June 27th
The West of England Radio Rally*
The West of England Radio Rally will take place in the Cheese & Grain, Bridge Street, Frome, Somerset BA11 1BE. There will be trade stands, an RSGB bookstall, catering, car parking and facilities for the disabled.
Shaun G8VPG
Tel: 01225 873 098
E-mail: rallymanager@westrally.org.uk
www.westrally.org.uk

July

July 3rd
The Stockport Rally
The first Stockport Rally will be held at Walthew House, Shaw Heath, Stockport SK2 6QS. The doors will open at 10.00am, admission will be £1.00 and there will be car parking, trade stands, catering and facilities for the disabled.
Bernard G3SHF
Tel; 01625 850088 (daytime)
Nigel G0RXA
Tel: 0161 428 8413 (evenings)
E-mail: info@reddishrally.co.uk
www.reddishrally.co.uk

July 3rd
The Bangor Rally
The Bangor and District Amateur Radio Society Rally will take place in the Donaghadee Community Centre, County Down BT21 0HB. The doors will open at noon and there will be trade stands, a Bring & Buy and special interest groups.
Bill GI4AAM
Tel: 028 9181 6707
E-mail: bill.langtry@btinternet.com
www.bdars.com

July 4th
The Barford Norfolk Radio Rally
The Norfolk Amateur Radio Club will be holding their Barford Radio Rally – Barford is 9 miles SW of Norwich, close to the A11 and the A47. The doors will open at 9.00am (8.00am for traders) and admission will cost just £1. There will be talk-in, car parking, trade stands, a Bring & Buy and catering.
David G7URP
Tel: 01953 457322
E-mail: radio@dcpmicro.com
www.norfolkamateurradio.org

July 11th
The Cornish Mobile Rally
The Cornish Radio Amateur Club 47th Mobile Rally will be held in Penair School, Truro, Cornwall TR1 1TN. The doors will open at 10.30, admission will be £2.00 and there will be talk-in, car parking, trade stands, a Bring & Buy and catering.
Ken G0FIC
Tel: 01209 821073,
E-mail: **ken@jtarry.freeserve.co.uk**
www.cornishamateurradioclub.org.uk

July 18th
The Macmillan (Northampton) Rally
The Macmillan (Northampton) Rally will be held in Roade Village, Northants. This is one mile West of J15 on the M1. There is no entry fee for visitors or traders but all donations offered will go to Macmillan Cancer Support, as will all refreshment monies.
Gary G6NYH
Tel: 01604 243333
www.tetra2000.com

July 18th
The McMichael Rally
The McMichael Rally & Boot Sale will be held in Reading Rugby Club, which is just off the A4 east of Reading. The doors will open at 9.30am an admission will be £2.00. There will be talk-in, car parking, trade stands, special interest groups, a car boot sale, a raffle and catering with a licensed bar.
Pete G8FRC
Tel: 01189 695697
E-mail: g8frc@radarc.org
www.McMichaelRally.org.uk

July 25th
The Horncastle Rally
The Horncastle Summer Rally will be held in the Horncastle Youth Centre, Willow Road, Horncastle, Lincolnshire LN9 6DZ. Admission will be £1.50 and there will be catering and facilities for the disabled.
Tony G3ZPU
Tel: 01507 527835

July 31st/August 1st
The AMSAT-UK Colloquium
The AMSAT-UK International Space Colloquium will be held at the Holiday Inn Hotel, Egerton Road, Guildford, GU2 7XZ. You can meet Amateur Radio satellite builders; there will be presentations on Amateur space communications and GB4FUN will be in attendance.
www.uk.amsat.org/content/view/704/283/

August

August 1st
The King's Lynn Rally
The King's Lynn Amateur Radio Club Rally & Car Boot Sale will be held at The Gaywood Community Centre, off Gayton Road, King's Lynn PE30 4EE. The doors will open at 10.00am and admission will be £1.50. There will be talk-in, free car parking, trade stands, catering and a camp site by prior arrangement.
Ray G3RSV
Tel: 01553 671307 or 849700
E-mail: ray-g3rsv@supanet.com
www.klarc.org.uk

August 1st
The Lorn Rally
The Lorn Radio Amateur Rally will be held in the Crianlarich Village Hall, Crianlarich, near Oban FK208QN. The doors will open at 10.30am and there will be trade stands, catering and a raffle.
GM0ERV,
E-mail: gm0erv@sky.com
MM1AVR
E-mail: stewart.mciver@btinternet.com

August 8th
The Flight Refuelling Hamfest*
The Flight Refuelling Amateur Radio Society Hamfest will be held in the Cobham Sports and Social Club Ground, Merley, Nr. Wimborne, Dorset BH21 3AA.
Mike M0MJS
Tel: 01202 883479
E-mail: Hamfest@frars.org.uk
www.frars.org.uk

The Rev. George Dobbs'

carrying on the practical way

The Rev. George Dobbs G3RJV discusses 'some very useful coils' that could prove extremely versatile for his readers!

"We can't direct the wind but we can adjust the sails."
Attributed to **Dolly Parton**.

Welcome to *Carrying on the Practical Way!* (*COTPW*) where I'm starting by thinking of commercial electronics, where Surface Mount Technology (s.m.t.) is now the standard way to build electronic equipment. However, we Amateurs may look in awe at all those tiny electronic parts crammed together on the surface of a circuit board – but the technique highlights a problem for the home constructor. As printed circuit boards (p.c.b.s) using through-hole construction techniques cease to be the norm, fewer component parts of manageable size with wire leads are available.

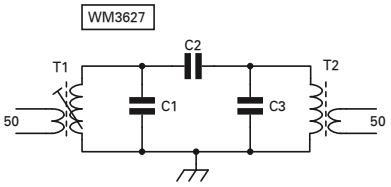
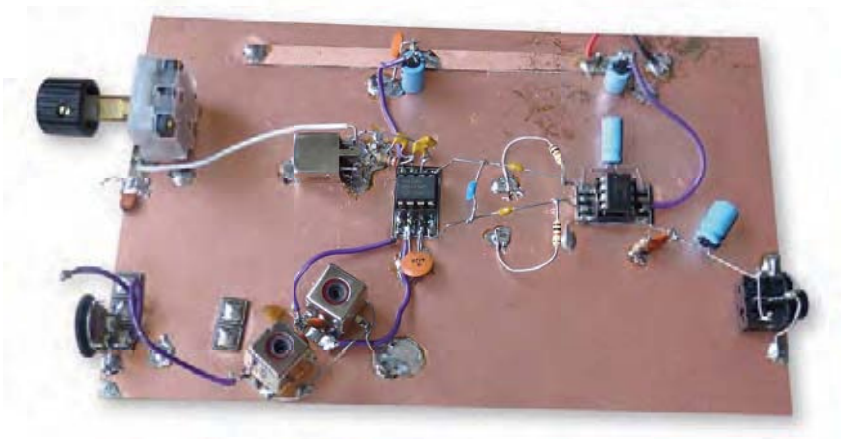


Fig. 1: a simple double-tuned band-pass filter using Spectrum coils, see Table 3 for more information on coil types and capacitor values.



Thankfully there are devoted traders who still offer a good range of non-s.m.t. parts. Over the years I have gathered and stored a considerable range of electronic parts and together with my (secret) stock of lead-tin solder they may fulfill most of my lifetime radio construction needs.

Classic Components

Just as some circuits become classics for the radio home constructor – so do some component parts. It may seem odd to talk about 'iconic' radio parts but over the years certain components have achieved almost mythical status. A good test of the status of a component is what happens when it ceases to be made; does it leave a hole in the home constructor's armory?

One group of components that did leave such a hole was the Toko 10K range of tunable coils for the short wave bands. Many circuits, including some of mine in *PW*, used this very useful range of inductors. Unfortunately, although some are still available they're no longer manufactured.

Having a range of coils with variable inductance via a screw-driver adjustable core (often called a 'slug') is a very useful asset for the radio constructor. (*Although many small screwdrivers will fit in the slot, you should* ***only use a plastic trimming tool to adjust the slug*** *– otherwise you may break it, damaging the coil!* **Editor**.)

Off the shelf coils are more convenient than having to wind your

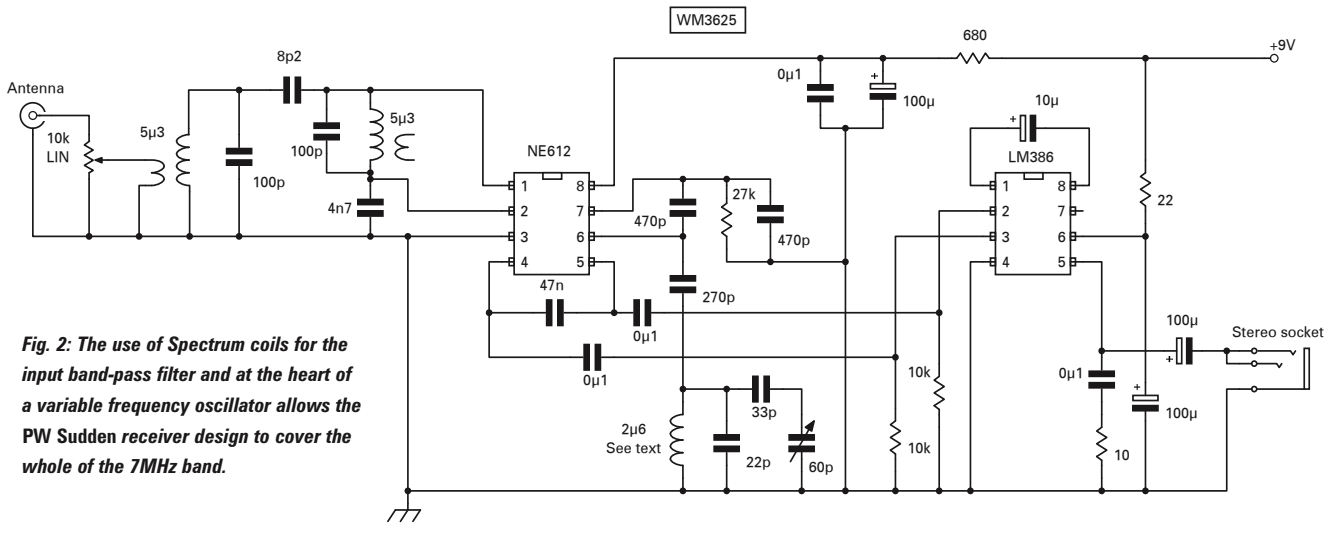


Fig. 2: The use of Spectrum coils for the input band-pass filter and at the heart of a variable frequency oscillator allows the* PW Sudden *receiver design to cover the whole of the 7MHz band.

Value	TOKO	Spectrum
1.2µH	3335R	1u2H
1.7µH	4612	-
2.6µH	586	2u6D
2.6µH	1509	2u6LC
2.6µH	3892	2u6F
2.6µH	3893	2u6H
5.3µH	~3334/7	5u3L
5.3µH	~3334/7	5u3H
9µH	2027	-
11µH	-	11u0L
23µH	~2926	23u0L
45µH	3333R	45u0L

Table 1: Comparison of the original TOKO original coils and pin compatible Spectrum types. The '~' symbol in the TOKO column signifies that it's a more approximate match.

Rev. George Dobbs G3RJV
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: pracway@pwpublishing.ltd.uk

own coils. However, I've never found coil winding a problem – in fact I find it rather therapeutic!

Despite my own preferences, there can be a problem in reproducing the desired inductance in individually wound coils. In tuned circuits this can be overcome by using an adjustable capacitor (or trimmer) to hit the required tuned frequency. Adding trimmers to each tuned circuit is not only inconvenient but more expensive. The ability to set the frequency by adjusting the slug of the coil makes life much easier. The 10K coils also came in a useful 10mm screening can.

I have missed the Toko 10K range of coils, but then into the gap stepped a regular *PW* contributor – **Tony Nailer G4CFY**. Tony, well known to *PW* readers through his *Doing it by Design* and *Technical For The Terrified* columns, has been a frequent user of Toko coils in his designs. And his company – **Spectrum Communications** – now sell a complete range of 10mm slug tunable coils.

The Spectrum coils cover the whole short wave range and, at 10mm, the coils have exactly the same dimensions and pin-outs as the Toko coils. The new coils are designated by their inductance value in microHenries (µH) followed by a suffix that explains the nature of the windings. **Table 1** shows the usefulness of the Spectrum coil range.

The first column is the inductance value of the main winding. Column 2 shows the nearest equivalent Toko 10K coil and column 3 shows the Spectrum designation for each coil. The range of inductance is suitable for tuned circuits right across the h.f. amateur bands.

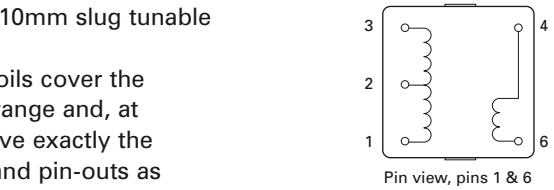
Complete Data

Table 2 shows more complete data for the coils and will be helpful for those who want to use the Spectrum coils for their own designs. The first column is the value of the coil in micro-Henries alongside the Spectrum designation and equivalent Toko coil.

Readers will no doubt notice that there is, in some cases, more than one coil for some inductance values. These are coils for different applications; the differences being explained by the suffix in the Spectrum coil designation. The coil designation begins with the value in micro-Henries: '1µ2' being 1.2µH, '1u7' being 1.7uH, etc.

The suffix following the value gives further details about each coil. Suffix L indicates a low impedance link winding between pins 4 and 6 (note that there is no pin 5). Suffix H indicates a high impedance secondary winding between pins 4 and 6. Suffix D is a discriminator and F is 300Ω filter matching.

Note that the '2u6' coils also have a C suffix. This is an internal capacitor as the '2u6C' coils are designed for use in 10.7MHz intermediate frequency (i.f.) applications. The internal capacitor provides a tuned circuit at 10.7MHz between pins 1 and 2. This capacitor is mounted in a trough in the base of the coil and is easily removed by breaking it with the



Pin view, pins 1 & 6 are the start points.

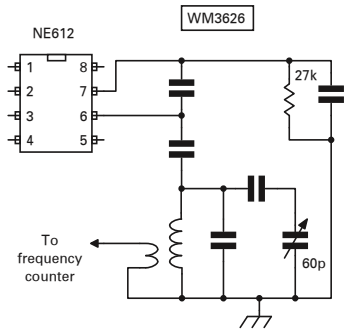


Fig. 3: If a digital counter/display is used, it may be connected to the unused link winding of the coil.

L uH	TYPE	TOKO	C pF	F MHz	T 1-2	T 2-3	T 1-3	T 4-6	Q	Z pri	Z (1-2)	Z (2-3)	Z sec
1.2	1u2H	3335	0	28	4	4	8	2	85	17944	4486	4486	1121
1.7	1u7H	4612	0	14	0	0	11	3	45	6729	0	0	500
2.6	2u6DC	586	82	10.7	0	0	12	0	100	17479	0	0	0
2.6	2u6LC	1509	82	10.7	7	7	14	1	85	14857	3714	3714	75
2.6	2u6FC	3892	82	10.7	7	7	14	2	80	13983	3495	3495	285
2.6	2u6HC	3893	82	10.7	7	7	14	3	80	13983	3495	3495	642
5.3	5u3L		0	7	5	15	20	1	85	19814	1238	11145	49
5.3	5u3H	~3334/7	0	7	10	10	20	4	85	19814	4953	4953	792
9	9u0H	2027	0	5	3	0	28	5	70	19792	227	0	631
11	11u0L		0	3.6	7	23	30	2	80	19905	1083	11699	88
23	23u0L	~2926	0	1.9	11	37	48	3	50	13728	720	8156	53
45	45u0L	3333	0	1.9	14	42	56	3	60	32232	2014	18130	92

Table 2: A more complete list of Spectrum coils, those with suffix L have a low impedance secondary and aresuitable for low-impedance antenna connections. The 'H' type has high impedance secondary windings suitable for interstage use and Hartley oscillators. Suffix D is discriminator, F is 300Ω filter matching, C includes a capacitor in parallel with the main winding. The 2.6µH coils can have the capacitor removed and then be used up to 21MHz

blade of a small screw driver to leave a 2.6μH coil.

The rest of the Table 2 gives details of the coils: 'C pf' is the value of the internal capacitor; 'F MHz' is frequency range for the coil; T 1-2 etc. is the number turn between the stated pins; Q indicates the *Q* of the coil and the final columns give the impedance of each section of the coils. (This and other information can be found on the Spectrum Communications website).

Band	T1 / T2	Core colour	C1 / C3	C2
1.8	45u0L	Red	160p	12p
3.5	45u0L	Red	39p	3p3
7.0	5u3L	Yellow	100p	8p2
10.1	5u3L	Yellow	47p	6p8
14.0	5u3L	Yellow	27p	3p3
18.07	2u6LC*	Blue	33p	3p3
21.0	2u6LC*	Blue	22p	3p3
24.89	1u2H	Pink	39p	3p3
28.0	1u2H	Pink	27p	3p3

Table 3: Component values for Amateur bands using Spectrum 10mm Coils *Note:Remove internal capacitor from 2u6LC coil. The 1u2H type has high impedance link winding, perhaps matching could be better with capacitive tapping combination replacing C1 & C3 single components.

The G QRP Club Orders

As soon as I knew the coils were available I ordered some via the G QRP Club. Some years ago I produced a chart showing band-pass filters suitable for receiver input filtering for all the h.f. Amateur bands using Toko coils. I set about replicating these filters using the Spectrum coils – fortunately it was simple because the new coils fell in line with my old values.

Table 3 shows band-pass filters for all the h.f. bands. The circuit for the filters is shown and by using the link windings on the Spectrum coils (designated T1 and T2) the filters are low impedance (50Ω) input and output. as shown in the diagram of **Fig. 1**.

The figures are self-explanatory. The first column is the Amateur band followed by the coil required for T1 and T2, the marking on the side of the coil can and the colour of the core.

The final two columns give capacitor values for C1, C2 and C3 for each of the bands. Some filters do require a little more explanation. Filters for the 18 and 21MHz band use the '2u6LC' coils and for these the internal capacitor has to be removed (Crunching them with a screwdriver blade does work very well).

The 24 and 30MHz bands use the '1u2H' coils. The 1.2μH coils cover these bands very well but the link windings between pins 4 and 6 are high impedance and this is a mismatch for a 50Ω input and output.

In practice the link windings do appear to work quite well, even if the impedance is too high. Perhaps a better way to match these coils to 50Ω is to use capacitive divider circuit for the values of C1 and C3 and not use the secondary windings. (I've not tried this, but I'm sure readers could proceed along the suggested path).

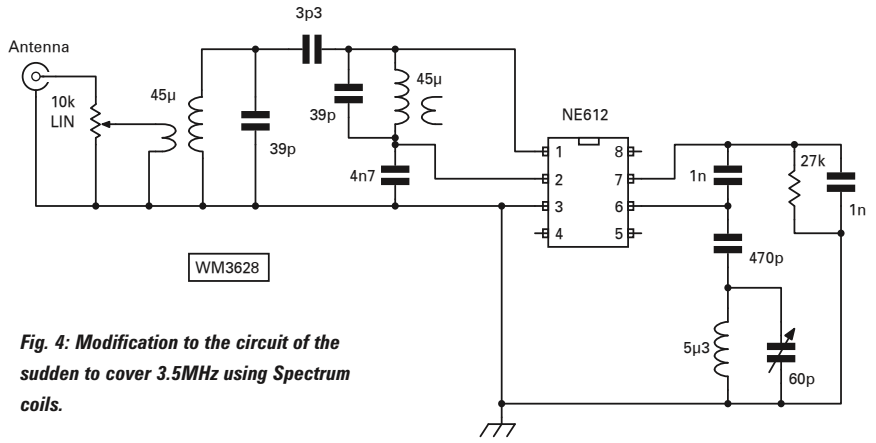


Fig. 4: Modification to the circuit of the sudden to cover 3.5MHz using Spectrum coils.

Practical Application

Next, I'll describe a practical application of the band-pass filters. In the November 2009 edition of this column I described a simple receiver based on the Sudden direct conversion receiver that was featured as a Buildathon' project at the Dayton Hamvention in the USA and later at the G QRP Club's Convention in Rishworth, West Yorkshire.

Ever the economist, and the lazy constructor, I decided to use the Buildathon board receiver with Spectrum coils and attempted some modifications of the circuit from November edition of *COTPW*. The coupling circuit between the NE602 (NE612) offered some audio shaping to the signal but at the loss of overall gain, so I simplified this for maximum gain.

The significant change is the use of Spectrum coils for a real input band-pass filter and another Spectrum coil at the heart of a variable frequency oscillator (v.f.o.) to cover the whole 7MHz (40m) band. The resultant circuit is shown in **Fig. 2**. Notice that I've used the tuned circuit winding to connect the band pass filter to pins 1 and 2 of the NE612 to give a high impedance input.

The values the '2u6LC' coil in the v.f.o. give coverage of the full 7MHz band. The 60pF variable capacitor is a section of a Polyvaricon capacitor. Measuring the frequency of the v.f.o. is simple if the constructor has a frequency counter. The counter may be connected to the unused link winding of the coil, as shown in **Fig. 3**. Adjust the coil slug to obtain 7MHz with the variable capacitor fully meshed.

The v.f.o. proved to be very stable and excellent for single sideband (s.s.b.) stations in spite of my very ugly construction shown in the photographs. I also tried a version for 3.5MHz (80m). The values for the 3.3MHz band are shown in **Fig. 4**.

Sensitive & Stable

Both versions of the receiver are sensitive and stable. In fact, I E-mailed the circuits to **Ken Evans W4DU,** in Georgia in the USA. He built the 7MHz version and has been using it with a simple transmitter.

I applaud Tony G4CFY for providing us a very useful set of coils – thank you Sir! There are further details at: **www.spectrumcomms.co.uk/amateur.htm**

Cheerio until next month! ●

Open six days a week. Mon - Fri: 9.30am - 5.30pm Sat: 9.00am - 5.00pm

ML&S martin lynch & sons

The World's Favourite Ham Store

Officially Yaesu's Largest UK Dealer

Outline House, 73 Guildford Street, Chertsey, Surrey KT16 9AS

Tel: 0845 2300 599

(Local Call Number) Tel: 01932 567 333 (Direct Dial Number)

Web: www.hamradio.co.uk

E-mail: sales@hamradio.co.uk

FT-817ND

YAESU

After almost 9 years you would think there would be competition for the FT-817. Still the ONLY truly hand-portable 160m-70cm all mode transceiver available today.

£449.95 with Free CSC-83 Carry Case worth over £20.

NEW! Yaesu FT-dx5000D

Demonstrator Available in Store!

HF/6M Transceiver with 112dB Dynamic Range & IP3 of +40dBm

Coming soon! See web for further details.

Yaesu FT-857D & ATAS-120A Package

Still our best selling HF Mobile Radio.

By adding the remarkable ATAS-120A Auto Antenna you have 40-10M at the press of a button without getting out of your car! No other manufacturer has been able to offer this unique feature together with their mobile radio. Having used the ATAS on 40m I was amazed how a mobile antenna so small performs so effectively. My single band whips have been consigned to the garage ever since!

FT-857D only £589.95 or with ATAS-120A £819.95

Yaesu FTM-350E

Latest Dual-Band APRS Mobile from Yaesu!

Available soon. Price TBA.

- High Speed Bandscope
- Optional FGPS-1 Internal GPS Unit
- Optional FGPS-2 External GPS Unit
- Optional FPR-1 Monitor Unit
- 500+500 Alpha Memories
- Bluetooth Ready
- Built in Barometric Pressure Sensor
- Large Dot Matrix Display
- Selectable Eight Color Display
- Extended Receive
- AM & FM, FM Stereo Broadcast Bands
- Easy menu system
- WIRES™ Ready
- 1200/9600 Packet Port [DIN]
- Built-in APRS® TNC
- Remotable Control Head
- Suction Type Control Head Mount
- Line Input Jack on rear panel

Yaesu FT-2000 PEP

Performance, Excitement, Perfection!

The DX choice of 3B7C.
Always in stock. Always on demo. Two flavours, 100W or 200W, you choose.

FT-2000: £2099.95 FT-2000D: £2695.95

FT-2000 Accessories

Yaesu CABPC-YAESU-USB At last we have USB Cables for FT-450/950 & FT-2000. These can be used for programming and Control of these radio's (Note to Firmware update the FT-2000 you will also need the FT-2000-PROG-PLUG at £5.00 inc VAT) £25.49

Yaesu Com Port Control and Programming Kit This allows computer control of the Yaesu FT-2000/FT-950/FT-450 and the programming of firmware updates without removing the feet of the radio. £25.54

Yaesu FT-2000 Memory Stick This 1GB memory stick includes Yaesu control software and the latest (ver.133) firmware update £24.95

MyDEL 9-PD to USB The MyDEL 9-PD to USB is a 9-pin to USB cable which allows you to connect your Yaesu FT-2000 to your Windows XP computer for firmware upgrades £29.96

Yaesu MD-100A8X The Yaesu MD-200A8X is a ultra high-fidelity desk top microphone. £204.30

Yaesu MD-100A8X Yaesu MD-100A8X is a desk top microphone £153.21

Yaesu FH-2 The FH-2 is a Remote Control Keypad built for the FT-2000 ..... £43.89

Yaesu FT-2000 & FT-2000D Mini-Manual. Size, 4.5x8 inches. Twenty high-quality laminated pages, loaded with detailed instructions covering all aspects of using these superb HF rigs £19.99

Yaesu MTU-160 The MTU-160 is an external µ-tuning unit for the FT-2000 on the 160 meter band. This MTU unit requires the external µ-tuning base kit. £449.51

Yaesu MTU-80/40 The MTU-80/40 is an external µ-tuning unit for the FT-2000 on the 80 and 40 meter band. This MTU unit requires the external µ-tuning base kit £449.51

Yaesu MTU-30/20 The MTU-30/20 is an external µ-tuning unit for the FT-2000 on the 30/20 meter band. This MTU unit requires the external µ-tuning base kit. £449.51

Yaesu YF-122C 7-pole Collins CW Filter (500Hz/2Khz: -6db/-60db) for FT-817, 857, 897 and 2000 ..... £118.48

Yaesu YF-122CN 7-pole Collins Narrow CW Filter (300Hz/2Khz: -6db/-60db) for FT-857 and 2000 ..... £129.71

Yaesu FT-450 HF Base Transceiver with & without ATU. HF & 6m Full DSP

FT-450 shown with optional Bail Stand.

The Yaesu FT-450 is a major new HF & 6m transceiver offering full a 400MHz IF DSP design at a very low price. Available with or without internal ATU, this new rig offers serious performance for those who are not bothered about the upper V/U bands.

Yaesu FT-450 without ATU: £589.95
Yaesu FT-450AT with ATU: £639.95

Options:

MyDEL MP-8230 23Amp PSU £69.95
Stand-FT450 Bail Stand £19.95
ATU-450 Optional internal ATU £163.43
MMB-90 Mobile Bracket £19.36
MHG-1 Carry Handle £10.17
MH-36E8J DTMF Mic £71.48
MD-100 Desk Mic £149.95
MD-200A8X Super Deluxe Desk Mic £199.95
YH-77STA Headphones £56.14
MLS-200 High Power weatherproof speaker £28.55
ATAS-120A Fully Auto Mobile 7.50MHz Antenna £239.95

Yaesu VX-3E. ML&S £138.95
Micro Handie 2/70 with scanner. Complete with Li-ion battery, charger & antenna.

Yaesu FT-60R. ML&S £145.95
Latest twin band handie complete and ready to go.

Yaesu VX-6R. ML&S £199.95
Yet another 2/70 handie from Yaesu.

Yaesu VX-7R. ML&S £259.95
The UKs best selling Triple Band Handie.

FT-7900 New! Similar to FT-7800. £249.95

FT-1900 Replacement for the FT-1802. Rugged 50W 2m FM. £129.95

FT-7800 FREE CARRIAGE UK MAINLAND if quoting RadCom at time of order.

FT-270E Replacement for the VX-170 2M 5W Handie. £109.95

FT-2900 NEW! Replacement for FT-2800. MiL spec, high performance. £139.95

See Website for details of these new Yaesu mobiles

Yaesu FTM-10R. ML&S £269.95 A small compact dual band 2m/70cm transceiver with high power output of 50W on 2m and 40W on 70cm, (adjustable power levels of 50/40W, 20/20W, 5/5W). Receive range from 0.5–1.8MHz, 76–108MHz, 137–222MHz and 300–999MHz.

Yaesu FT-8800. ML&S £295.95
Similar to the FT-7800 but can receive on 2 & 70 simultaneously.

Yaesu FT-8900. ML&S £329.95
High-power FM on 10m, 6m, 2m & 70cm. When your local repeater is busy, slip onto 10m & work DX!

Yaesu FT-897D
High Power version of the FT-897. Use as a transportable, (20W) or as a base/mobile (100W) Bundle Price: £CALL (Rig only: £669.95)

Yaesu FT-857D The Ultimate HF Mobile Installation! Plus ATAS-120D 40m-70cm Auto Antenna
Bundle Price: £819.95 (Rig only: £589.95)

Yaesu FT-817ND Only £449.95
The world's only all-band portable transceiver.

FT-950 HF Base Transceiver

Yaesu's "Midship Radio" *All FT-950s supplied by ML&S are latest PEP factory versions!*

Only £1129.95 Available from stock

FT-950 Accessories

CABPC-YAESU-USB
USB Cables for FT-450/950 & FT-2000 ..... £25.49

Yaesu FT-950 (Mini-Manual) £16.99

Yaesu Com Port Control and Programming Kit £25.54

DVS-6 Voice Memory Unit £44.90

MD-100A8X Desk top microphone £153.21

MD-200A8X Ultra high-fidelity desk top microphone £204.30

MTU-160 External µ-tuning unit for the FT-2000 on the 160 meter band. This MTU unit requires the external µ-tuning base kit. £449.51

MTU-30/20 External µ-tuning unit for the FT-2000 on the 30/20 meter band. This MTU unit requires the external µ-tuning base kit. £449.51

FP-1030A Microprocessor-controlled antenna impedance matching network designed to provide all-amateur-band transmitting capability with the FT-897/857 series of transceivers, when used with an end-fed random wire or long whip antenna. £314.65

FH-2 Remote Control Keypad built for the FT-2000 ..... £43.89

Quadra - VL-1000 1 kW, HF & 6M Solid State Linear Amplifier and PSU (VL1000 & VP1000) £3,678.21

SP-2000 Base station external speaker built for the FT-2000. ..... £136.87

YA-30 Broadband folded dipole antenna working between 1.5-30 Mhz, which comes with 30 meters of cable. £250.28

Yaesu VX-8E

Limited Offer Only £299.95

or **Package Deal of the Month** VX-8E with FGPS-2 GPS & MH-74 Mic **for only £399.95 and** claim a **FREE** FNB-101Li Li-Ion Battery **worth £46!**

VX-8E Accessories

Nifty HT Desk Stand mkII
Convenient desk top holder £35.76

Maldol MMG-SM Minimag
Quality, stable, Maldol miniature magnetic mount. £20.39

Yaesu BH-1 Stereo Bluetooth Headset £134.82

Yaesu BH-2 Bluetooth Headset £123.58

Yaesu BU-1 Internal Bluetooth Unit £82.71

Yaesu CD-40 Charger Cradle for BH-1/BH-2 ..... £10.17

Yaesu CD-41 Rapid Charger Requires NC-86U £17.32

Yaesu CN-3 SMA to BNC Adaptor £8.12

Yaesu CSC-93 Soft Case £15.28

Yaesu CT-131 Microphone Adaptor Cable £30.60

Yaesu CT-134 Cloning Cable £36.74

Yaesu CT-136 GPS Antenna adapter for FGPS-2 ..... £27.54

Yaesu E-DC-5B DC Cable with Cigarette Plug £29.58

Yaesu E-DC-6 DC Cable for Handhelds £7.10

Yaesu FBA-39 Dry Cell Battery Case £22.44

Yaesu FEP-4 Earpiece for BH-1 Bluetooth Headset £16.30

Yaesu FGPS-2 GPS Unit Requires CT-136 or MH-74A7A £71.48

Yaesu FNB-101LI 7.4V 1100mAh Lithium Ion Battery £45.94

Yaesu FNB-102LI 7.4V 1800mAh Lithium Ion Battery £61.26

Yaesu MH-74A7A Waterproof Speaker Microphone £43.89

Yaesu NC-85U AC Charger for BH-1/BH-2 ..... £22.44

Yaesu NC-86U AC Charger for VX-8 ..... £10.17

Yaesu VX-8E (Mini-Manual)
Sixteen high-quality laminated pages, loaded with detailed instructions. Ideal for setting-up and operating the VX-8R quad-band transceiver £14.99

See www.hamradio.co.uk for more details on all of these items ... and much, much more! E&OE

Open six days a week. Mon - Fri: 9.30am - 5.30pm Sat: 9.00am - 5.00pm

ML&S martin lynch & sons
The World's Favourite Ham Store

Outline House, 73 Guildford Street,
Chertsey, Surrey KT16 9AS
Tel: 0845 2300 599
(Local Call Number) Tel: 01932 567 333 (Direct Dial Number)
Web: www.hamradio.co.uk
E-mail: sales@hamradio.co.uk

Officially Icom's Largest UK Ham Dealer

GB7ML
D-Star repeater is back on air!
See: 439.4625MHz
Default reflector 13.B

ICOM

IC-7000

Icom HF products

IC-718	Basic HF Radio, 12V, 100W output	£459.74
IC-706mk11G	100W HF/6m + 2/70 Multimode Mobile	£735.95
IC-7200	Mr T's choice for tough HF/6M Operation	£775.95
IC-7000	Full DSP, TFT Screen, 100W HF/6m + 2/70	£939.95

IC-7400
100W HF/6M/2M Base, full DSP, Auto ATU £1199.95

IC-7600	100W, Twin RX, Huge Display. No psu	£3149.95
IC-7700	Superb 200W HF/6M Base, PSU/ATU	New RRP £5499.95 1 only at £4995.95
IC-7800	Icom's Flagship radio has gone up again	New RRP £7995.95 2 only at £6995.95
IC-PW1Euro	1kW Fully automatic HF/6m Linear Amp	£Call!!

Icom V/U Products

IC-E92ED	As above c/w D-Star fitted & splash–proof	£379.95
IC-E880	NEW! Latest D-Star Dual-Bander. Now in stock	£Call!!
IC-E2820	Proper dual band, dual display, remote etc	£395.95
IC-E2820+D	Supplied with UT-123 D-Star board	£549.95
IC-910H	Multimode 2/70 Base Station	£1269.95
IC-910X	As above but with optional 23cm UX-910	£1469.95

Icom Receivers

IC-R9500	Flagship Base Receiver, 50kHz-3335MHz	£Call!!

ICOM PC Controlled Receivers

Icom IC-R1500 & IC-PCR2500
All Windows XP, Vista or Windows 7 Controlled via USB

IC-R1500	10kHz-3300MHz All Mode with remote head	£449.95
IC-PCR2500	Twin Receiver version of PCR-1500	£499.95
IC-R2500	As above but with remote head	£559.95

NEW Icom IC-9100 All-Rounder
HF through to 23cms Base Transceiver

Click on our website to see a video from Tokyo Hamfair August 2009!

V/UHF Satellite + HF/50MHz bands + D-STAR DV mode

- HF/50MHz 144/430(440)MHz & 1200MHz coverage
- SSB, CW, RTTY, AM, FM & DV modes
- 100W on HF/50/144MHz, 75W on 430(440)MHz. 10W on 1200MHz
- 32-bit floating point DSP & 24-bit AD/DA converter
- Double superheterodyne with image rejection mixer
- Optional 3kHz/6kHz 1st IF (roofing) filters (for HF/50MHz bands)
- Satellite mode operation
- Optional D-STAR DV mode operation

Price: TBA

Icom IC-7600

See our website for first full detailed review by Adam Farson VA70J

The successor to the IC-7565Pro111, the eagerly awaited new mid-range HF/6M Transceiver will try and set another bench mark like that of its predecessor.

KENWOOD

TS-2000E

Officially Kenwood's Largest UK Ham Dealer

Kenwood HF Products

TS-480SAT	Remote head HF/6m 100W inc ATU Transceiver	£749.95
TS-480HX	200Watt version of above, no auto-ATU	£849.95
TS-2000E	100Watt all mode HF/2/6M with auto-ATU etc	£1499.95
TS-2000X	As above but fitted with 10Watts on 23cm (all mode)	£1799.95

Kenwood V/U Products

TH-F7E	The only 2/70 FM Handie with SSB/CW WB Receiver	£229.95
TM-V71E	First Class 2/70 FM Mobile with remote head	£289.95
TM-D710E	The only 2/70 FM Mobile/Base with APRS/TNC etc	£429.95
TM-D710E+AvMap	Bundle. Personal Navigator for GPS located APRS	£Call!!

New! Alinco DJ-G7E
"As used by Howard, G6LVB". Unique 2/70/23cm Handie. Ideal for hand-held Satellite operation.

Special Price! ML&S: £299.95

NEW!
MicroBit Remote Rig Interface

As used by top DXers throughout the world!

A complete remote control system for Amateur radio

Using Microbit's advanced technology, full remote control of your rig is available today.

Imagine going on holiday but missing your HF system back home. Well no more! Using the RRC-1258 system all that is required is for you to take the head unit of say your IC-706 or TS-480 together with one half of the RRC-1258, plug into a LAN connection connected to the web and within seconds you are "ON AIR" as if you were sitting in your shack at home. (Minus the cat, TV and any other external interference!)

The previous model is still available.

Microbit-1258 mkI £299.95. Including Lead Set
Microbit-1258 mkII £399.95. Leads included

For more info see **www.hamradio.co.uk/rrc-1258.shtml**

Latest version of the Remote Rig. One version for ALL radio models.

Like the original RRC-1258, the MkII is sold in pairs, assembled and tested but not configured. Included in the package is one USB cable, Power cables (2 pc), Cat 5 cable for making IC-706 cable and a 2xRJ-45 extender.

MyDEL

Introducing the next level of professional weather stations

VENTUS G730 GPS-LOGGER

This USB memory stick sized unit is a fascinating pocket device with multiple commercial and personal uses for individual movement tracking. It's very light, extremely easy to use and logs your route automatically. It also adds your GPS location to digital pictures. It presents the route you have taken in 3D via Google Earth™ on your PC and it can export in different formats.

ONLY £49.95

MyDEL

Ventus WX-928-Ultimate

The NEW WX-928 really is the ULTIMATE in professional weather stations, offering the usual feature set of the WX-831 but uses a Anemometer with solar cells , Satellite Meteotime forecast over the next 4 days and a massive split screen.

Intro offer of only £199.95 - in stock now!

MyDEL

Ventus WX-831

This new much improved wireless Weather Station is built to a very high standard and even includes O-Ring seals on battery compartments that are mounted externally. The quality of external hardware is built to last for years and really moves the game on when it comes to "Professional Weather Stations"

ML&S Price £119.95.
Options: Additional wireless temperature monitors: £24.95.
PSU to run the WX-831 from 240V: £19.95

ML&S are the sole UK distributor for the Ventus G730 and W-831

See www.hamradio.co.uk for more details on all of these items ... and much, much more! E&OE

ML&S are pleased to announce their appointment as distributor for RF Space Inc SDR-IQ™ Software Defined Radio, Spectrum Analyzer and Panoramic Adapter.

Now in stock together with the IF-2000 IF Interface board for the FT2k & FT-950. £469.95
Both on DEMO at Chertsey.
See http://www.hamradio.co.uk/acatalog/RF_Space.html for more details.

Perseus VLF-LF-HF Receiver

PERSEUS is a VLF-LF-HF receiver based on an outstanding direct sampling digital architecture.

only **£699.95**

as reviewed in Radcom May Issue

Unlike lower class direct sampling receivers, the PERSEUS RF analog front-end has been carefully designed for the most demanding users. PERSEUS can also be operated in a wide band mode as a 10KHz - 40MHz spectrum analyzer with more than 100dB dynamic range in a 10KHz resolution bandwidth. PERSEUS is a Software Defined Radio and relies on PC software applications to carry out the demodulation process.

The World's Biggest Selling Virtual Radar System

Now includes built-in Airband & FM!

SBS-1eR Pocket Radar **£479.99**

MyDEL HB-1A Ultra Compact 3 Band CW Transceiver

Offering up to 4 Watts output on 40/30/20M Bands, this tiny HF portable is powered by 8 x AA cells and is aimed at the serious QRP enthusiast and has performance similar to that of the Elecraft KX-1.

- 20 meters, 30 meters and 40 meter amateur bands.
- CW Transceive, SSB receive.
- Receiving from 5 MHz to 16MHz.
- Maximum transmission power of about 4 watts on external 12V.
- Weight 350Grams (approximate).
- Battery compartment to hold 8 rechargeable AA cells.
- Built-in auto function keys.
- DDS VFO with 20 frequency storage memory.
- Digital dial with LCD technology.
- Automatic keyer with the CQ programmable with your call.
- RIT 10 Hz, 100 Hz.
- Frequency conversion super-heterodyne receiver.
- Unit will operate with voltage supply from 8-14 VDC.
- Built in AGC function.

£249.95. Call or see website for further details.

NOW IN STOCK - very limited quantity.

LDG Auto Tuner Range

AT-100proII	Desktop tuner covering all frequencies from 1.8-54 MHz	£194.95
AT-200pro	Designed for new generation of rigs	£214.95
AT-1000Pro	1kw 160m-6m (1.8-54MHz) High speed Auto ATU, tuning range 6-1000Ohms	£510.95
AT-897Plus	Bolt-on Alternative Auto Tuner for the FT-897. Wider tuning range and cheaper too!	£183.95
IT-100	New version of the AT-7000	£159.95
YT-100	NEW AUTO ATU for FT-897/857 or FT-100 with additional Cat Port Control	£173.95
Z-817	Ultimate autotuner for QRP radios, including the Yaesu FT-817D	£122.95
Z-100Plus	Ultimate autotuner for Yaesu FT-817D	£143.95
Z-11Pro	Portable compact & tunes 100mW to 125W	£158.95
RCA-14	4-way DC Breakout Box	£49.95
KT-100	Dedicated tuner for Kenwood radios	£173.95
RBA-1:1	Probably the best 1:1balun out there	£35.71
RBA 4:1	Probably the best 4:1 balun out there	£35.71
DTS-6 + 6R	Remote Antenna Switchers. 1.5kW 1-54MHz.	£43.95
FT-Meter	Neat Analogue back-lit Meter for FT-897/857. S-meter, TX Pwr, ALC Etc	£45.95
NEW FTL-	Meter Jumbo version of the famous FT-Meter	£79.95

NEW

AS REVIEWED IN PW December Issue 2009

MyDEL CG SB-2000 USB Radio Interface

Only £99.95

- This small self contained beautifully styled box weighing only 400 grams really is a one stop solution to your data and radio control. It employs a CAT/CIV interface as standard and supports CAT with RS232 protocol.
- The MyDEL CG SB-2000 Interface connects to your PC via USB and Sound Card and connects to your radio via Custom leads.
- Once connected and configured you have Computer Control via USB and decoding via your soundcard using HamRadio Deluxe or other packages.
- **Only £99.95** High quality ready-made leads for most rigs available at only £18.95.

Palstar New Product

Palstar Commander HF-2500 1.5kW Amplifier

Palstar are pleased to announce a new range of HF Linear Amplifiers built to the highest standard (As you would expect from the USA Manufacturer). We have started with the "Commander HF-2500" which is available from stock. The 2m & 6m versions will be available during early 2010. ML&S: £3499.95. See web for more details.

AT-500 600W PEP Antenna Tuner	**Special Price £349.95**
AT-Auto Automatic 1500 Watt ATU	**£1099.95**
AT-1500DT 1500W Differential Antenna Tuner	**£449.95**
NEW AT-2KD The AT-1500DT and the AT-1KP have been combined into a new 2Kw Tuner	**£419.95**
AT-2KP (2kW) Antenna Tuner	**£429.95**
AT-4K (2.5kW) Antenna Tuner	**£729.95**
AT-5K (3.5kW) Antenna Tuner	**£999.95**
BT-1500A Balanced Antenna Tuner	**£599.95**
PM-2000AM Power/SWR Meter	**£159.95**
Palstar Dummy Loads	
DL-1500 (1.5KW)	**£119.95**
DL-2K (2kW)	**£229.95**
DL-5K (5kW)	**£349.95**
Palstar R30A Receiver	
Palstar R30A, fitted Collins filters for SSB & AM	**£569.95**
MW550P Active preselector & ATU for AM & 160M reception	**£259.95**
SP30 Matching Desk Speaker	**£69.95**
AA30 Active Antenna Matcher 300kHz-30MHz	**£99.95**

Full range of Palstar now in stock.
See www.hamradio.co.uk for lowest prices!

MyDEL CG-3000

With 200W and 200 memory channels.

ML&S: £289.95

CG-3000 shown with optional remote switch.

See web for full specifications

MyDEL CG-5000MkII

At last! 600W PEP High Speed Remote Tuner from MyDEL

ML&S: £559.95

NEW! Remote control for the CG-3000 and CG-5000. £39.95

DV-Dongle

NEW

Want to dabble in D-Star without the expense of a radio? The new DV-Dongle is ideal.

The DV Dongle connects to your PC or Apple Mac via a USB port and provides encoding and decoding of compressed audio using the DVSI AMBE2000 full duplex vocoder DSP chip. AMBE technology is used in all D-Star radios to provide efficient voice transmissions. It is also used in some HF digital protocols by vendors like AOR. The DVTool application used with the DV Dongle may be installed and run on Microsoft Windows XP/Vista, Mac OS X Leopard, or many flavors of Linux.

In stock, works with MAC or PC. £199.95

MyDEL Power Supplies

New MyDEL PS-30SW11

Latest high performance switch mode PSU. Die-cast Alloy chassis, full over-voltage protection and short circuit design. RRP £119.95. ML&S only £84.95

SPS-8250	25A continuous, fully metered power supply	£79.95
MP-9626	120A, 13.8V DC power supply	£299.95
MP-8230	13.8V DC, 25A power supply	£69.95
MP-925	Linear 25-30A, 13.8V DC power supply	£99.95
MP-9600	60A switch mode power supply	£179.95
MP-6A	13.8V DC, 6A power supply	£29.95

Mini VNA PC Controlled Antenna Analyser

The mRS miniVNA is a compact 100kHz to 180MHz antenna analyser interface that is operated via a PC powered by a single USB connection. You can see at a glance where the antenna is resonant, what the SWR and the return loss is. The best (minimal) SWR frequency is automatically found and displayed. An optional internal RS232 connection is also available.

ML&S: £259.95

See www.hamradio.co.uk for more details on all of these items ... and much, much more! E&OE

Ben Nock's

valve & vintage

The military and marine equipment on show indicates that Ben Nock is representing the 'Kidderminster Kollection' again.

A big 'Hello' to you all once again, as it's my turn to man the V&V 'shop'. Hopefully, the bad weather is behind us and many of you are looking forward to the rallies and other events throughout the year. It's been a good start to the year for the 'Kidderminster Kollection', there have been several new additions already, so I'll waste no more time and press on!

German Man-Pack

When I attended the big German Hamfest in Friedrichshafen back in 2007, I noticed a very nice military man-pack being offered for sale but was taken aback by the price being asked, if I recall it was around €1800. I did attempt to haggle but, fortunately as it turned out, the seller wouldn't budge. However, as **Violet Fane** said in her poem "*Tout vient à point à qui sait attendre* ("Ah, all things come to those who wait,") and indeed they do!

So, first seen in 2007 this interesting man-pack finally arrived in the collection in 2010 at a fraction of the price! The SE-6861 transceiver or, to give it the full title, AEG SE 6861/12 mod, was apparently built in the 1980s by Telefunken Systemtechnik-Deutsche Aerospace for the German military.

The set is a 20W single sideband (s.s.b.) or Morse (c.w.) transceiver covering 1.5 to 29.9999MHz. The frequency selection via six push-button decade switches giving a tuning resolution down to 100Hz.

The transceiver has a double conversion receiving system with a first intermediate frequency (i.f.) stage at 40.09MHz with an 8kHz crystal filter. The second i.f. is at 9.910MHz with a 2.4kHz filter. The radio can be powered from either a 30V 1.8Ah rechargeable NiCad battery or a 39.2V 10Ah non-rechargeable Lithium pack. A multi-pin socket on the side of the set allows charging of the internal batteries (if fitted) and operation from an external supply of between 22.5 and 38V.

The set, **Fig. 1**, came packed in its quite substantial haversack but I understand a more usable bag for carrying the set is available. A handset and three metre long whip antenna completed the station but other accessories include a loudspeaker, Morse key and a vehicle mounting tray. For base station use a 100W amplifier and external tuning unit are also available.

Another interesting feature of this set is that the control head of the transceiver, **Fig. 2**, the whole top section which houses all the switches, can be removed and mounted away from the actual body of the transceiver. A very large cable then connects the two units together.

In use the set is very nice indeed. The received audio is very crisp and clear, the filters doing a very good job in today's crowded Amateur bands. Frequency selection, **Fig. 3**, is certainly easier than with the likes of the Racal Syncal 30 or PRC-320 man-packs whose knobs are that small they are difficult to turn but the reliability of the decade push switches must be in doubt.

A similar choice was used on the FT-70G portable by Yaesu and there have been many reports

Fig. 1: The SE6861 transceiver and handset with 30V battery pack attached.

Fig. 2: A cover protects the tuning selector switches.

Ben Nock G4BXD
62 Cobden Street
Kidderminster
Worcestershire DY11 6RP
E-mail: military1944@aol.com

Fig. 3: Close view of the tuning and function controls.

Fig. 4: The Mk128 transmitter (top) and receiver.

of them needing to be replaced. Maybe though, the Germans have perhaps used better (military) quality switches?

Additional push switches on the front panel select volume level and up to four pre-set channels can be stored and selected via a five-position push switch. A standard rotary switch selects between high (20W) or low (5W) power output fed to either the 50Ω BNC socket or via the built-in antenna tuning unit to the whip mount. A small push button in the centre of this switch illuminates all the push switches for operations in the dark.

The function switch has four positions, upper and lower sideband for voice and upper and lower sideband for Morse code. In the Morse position an additional filter is inserted reducing the bandwidth to 500 Hz. The transceiver with the basic battery pack is just 300mm high by 80mm by 285mm wide and weighs 8.5kg. Hopefully during the summer I'll enjoy trying the set out in the portable role.

The Mk128 Transmitter-Receiver

I mentioned the little Mk128 transmitter-receiver station back in November 2003 – but another example of the transmitter arrived recently, which I married up with a spare receiver that had been on the shelf for some time. This little combination, often referred to incorrectly as a 'Spy Set', covers 2 to 8MHz in two bands and provides around 1W of c.w. on transmit while the receiver, with a switched beat frequency oscillator (b.f.o.), can cope with receiving amplitude modulated (a.m.) stations as well as c.w. transmissions.

The set, **Fig. 4**, is powered from batteries for the heaters and high tension (h.t.), a supply of 1.5V is needed for the directly heated filaments, consuming 150mA on receiver and 250mA on transmit while the h.t. battery of 135V providing just 6mA on receive and 25mA on transmit. You should note that the heater supply is only connected when the headphone jack is inserted, this prevents the batteries running down when the set is put away.

A search on the web reveals various bits of information on the set but there is general lack of real hard facts as to the sets use. It's believed the set has been used by the likes of the Special Air Services (SAS) and maybe the Special Boat Squadron (SBS) but its very low power output rules out any real 'Spy' use in my opinion.

There are two main ways of transporting the set, the original Mk128 was carried in a wooden chest with a drop down door on the front, which also had compartments for the accessories. The Mk128B, a slightly later version has a special canvas rucksack with pockets on the sides for the various accessories and batteries.

Many of the earlier '128 sets were modified to the '128B version by adding the front mounted plugs and sockets that connect the units and the battery together. The two units shown here were '128 sets that have been altered to the '128B version. You can see just to the left of the power lead on the transmitter where an on/off switch has been removed. This would have switched on a small lamp, that would have plugged into a socket (where the lead now exits) for operations in the dark.

The Mk128 is an odd set though. It's hard to see just how and where it would be used. The lack of any whip mounting on the box or canvas carrier means a thrown out wire antenna would be needed which would make it cumbersome, requiring wire, poles, earth wire or dipoles etc. Not what you would expect for a special forces set.

Eddystone Variation

As regular readers will know, I really do like the Eddystone range of receivers and so it's always nice to get another example for the collection. The latest to come my way was an EC-10 variant known as the *Seaguide* or EC-10M. This model, **Fig. 5**, is actually badged by Marconi Marine and has an added feature of a direction finding (d.f.) capability.

Fig. 5: The **Seaguide** *marine receiver.*

The standard EC-10 covered 550kHz to 30MHz with an i.f. of 465kHz. There was then the EC-10A/2 that covered 300-550kHz and 1.5 to 30MHz with an i.f. of 720kHz and had a fixed crystal controlled facility on 2182kHz, the International Distress Frequency. **Note:** I then found some time ago another model, badged as the EY-11, which looked like an EC-10 MkII but with the same frequency coverage as the A/2.

The EY-11 has the b.f.o. tune control replaced with a switch marked **DF/Normal**. This *Seaguide* receiver also has a d.f. facility, **Fig. 6**, but retains the b.f.o. tune control. The d.f. switch is located below the waveband switch and has three positions, normal, d.f. and sense. The d.f. facility seems to be only operational on range 5, 150–350kHz and range 3, 1.5–3.5MHz.

On the rear of the set are three antenna sockets and two potentiometers marked **Sense 3** and **5** along with a headphones and high-impedance output sockets. While I have tested the receiver and found it to be working, I have no information as to what sort of d.f. antenna system could be used. So, if any reader has the handbook for this model, circuit diagram or any other information I would very much like to see it.

Fig. 6: The Direction Finding control.

And Finally!

I'm sure many of the readers of this column will know of the excellent books by **Louis Meulstree** entitled *Wireless for the Warrior*. There are four large sized volumes covering in great detail many of the sets that have been mentioned here over the years.

Louis has a new edition out called *Compendium 1* which covers British Army Military sets from 1910 to 1948 but in a much smaller format, ideal for slipping in the pocket when visiting rallies and acts as an excellent reference book for identifying that particular bit of junk spotted under a table. Further information can be found at **http://wftw.nl/wftw/compendium1uk.html**

Well that's about it for this stint at the *V&V* 'shop'. I hope you have enjoyed the selection I have bought you and there are more pictures at **www.qsl.net/g4bxd** As always I can be contacted at my E-mail address: **military1944@aol.com** Cheerio for now! ●

KITS & MODULES

NEW PRODUCT
UPWEY 160m AM/LSB RECEIVER

Single conversion superhet receiver for Top Band using a 4 pole ceramic IF filter LTW455HT. Stopband –40dB at + - 9KHz, -60dB at + - 100KHz. Ultra stable Colpitts VFO, and resonator-stabilised high-side BFO. Minimum discernable signal 0.1uV. Tuneable preselector and S meter. 500mW audio output. Supply requirement 13.5V at up to 250mA. PCB & parts kit including Main board, VFO with its box and tuning capacitor, preselector with polyvaricon, and BFO £82.50. **PCB and parts kit plus drilled and labelled case and all hardware including meter, speaker, and slow motion drive £161.50. Ready built £227.50.**

NEW TRANSVERTERS for ICOM rigs, supplied with cables. Automatic with no cable switching. IC756Pro & II & III, 775, 781, 7600, 7700, & 7800 use type **TRC4-10L/IC1.** IC735, 761, & 765 use type **TRC4-10L/IC3. Built to order £280.00.**

TRANSVERTERS for 2 or 4 or 6 metres from a 10 metre rig, or 4 or 6 metre from a 2 metre rig. Includes new overtone local oscillator, and integral interface unit. 20dB receive gain, 25W transmit power. Low level drive dual IF versions **TRC2-10dL, TRC4-10dL & TRC6-10dL**, high level drive single IF versions **TRC2-10sL**, **TRC4-10sL**, **TRC6-10sL, TRC4-2sL, TRC6-2sL**, Complete kit **£179.00**. **Built £266.00**

STATION PREAMPS for 2 or 4 or 6metres. RF & DC switched. Adjustable 0-20dB gain. 100W power handling. **RP2S, RP4S, RP6S, PCB & Hardware kit £35.00, Ready Built £57.00**.

MASTHEAD PREAMPS, for 2 or 4 or 6meters. 20dB gain 1dB NF. 100W through handling. RF switched & DC fed via the coax. Heavy duty waterproof masthead box, and a DC to RF station box with SO239 connectors. **RP2SM, RP4SM, RP6SM, PCB & hardware kit £41.00, Ready Built £65.00**. **Masthead fitting kit £6.00**.

MASTHEAD PREAMPS 400W rated, for 2 or 4 or 6metres. RF switched. DC fed via a separate wire. 20dB gain 1dB NF. Heavy duty waterproof masthead box with SO239 connector. **RP2SH, RP4SH, RP6SH. PCB & hardware kit £42.50, Ready Built £65.00**. **Masthead fitting kit £6.00**.

POUNDBURY 20/80m SSB RECEIVER

Classic superhet receiver for 20 and 80m using a 9MHz IF and a 5.0-5.5MHz VFO. Uses a 6 crystal ladder filter with near symmetrical passband, 2dB insertion loss, 1.8:1 shape factor, and 70dB stopband. Minimum discernable signal 0.2uV. Fixed tuned bandpass preselector on 20m, tunable preselector on 80m. Logarithmic AGC and Signal meter response. Maximum signal handling 1mV. 500mW audio output. Supply requirement 13.5V at up to 250mA. **VFO with its drilled box, preselector and main board PCB's and component kits including crystals £92. Complete kit including box and hardware £147.00. Ready built £240.00.**

PSK31 computer to radio interface kit. As described in PW Feb 2009. Suitable for a variety of digital modes. PCB and components **£21.00**. Box kit complete with cables but excluding microphone plug **£35.50**.

LCR BRIDGE with 5 resistance ranges 100, 1K, 10K, 100K & 1M. 3 capacitance ranges, 100pF, 1nF, 10nF and 3 inductance ranges, 1mH, 10mH & 100mH, plus external reference. Scale calibrated 0.01 to 10 times reference value. Optional drilled and labelled plastic or painted diecast box. **PCB & parts with pot and switch £26.00. With plastic box £39.00, with diecast box £44.00.**

OFF-AIR FREQUENCY STANDARD, crystal calibrator unit phase locked to Radio 4 using a two-loop system. Includes a monitor receiver to ensure Radio 4 is being heard loud and clear. Fixed outputs 10MHz at 2V p-p, and 1KHz at 1V p-p as oscilloscope CAL signal. Switched outputs 1MHz, 100KHz, 10KHz, and 1KHz at 6V p-p, into 500 Ohms. Single board design as featured in July & Sept 2008 PW. Background heterodyne whistle at 2KHz confirms lock condition. 12/13.5V DC operation at 65mA. **PCB kit with ferrite rod £50.00, PCB kit + drilled box and hardware complete £86.00. Ready built £131.50.**

TWO TONE OSCILLATOR as featured in *PW* March 2005. A vital piece of test equipment used together with an oscilloscope for setting up AM, DSB, & SSB transmitters. **PCB & hardware kit £28.00. Ready Built £52.50**.

3N201 MOSFET equiv. 40673 £2.25 each, P&P £1.00 any quantity.

SPECTRUM COMMUNICATIONS

12 WEATHERBURY WAY, DORCHESTER, DORSET, DT1 2EF. Tel & Fax 01305 262250.

E-mail: tony@spectrumcomms.co.uk

Web site www.spectrumcomms.co.uk

Prices inclusive of postage unless stated. Payment by Credit/Debit card, Cheque or Postal Order. Cheques or Postal Orders payable to Spectrum Communications.

Radioworld Ltd

34-42 Brook Lane, Great Wyrley, Walsall, WS6 6BQ
Tel:01922 414796 Fax: 01922 417829 skype:radioworld_uk

KENWOOD

**"NEW" TM-D710E
Dual-Band Mobile
VHF/UHF - £439.90

TS-480SAT - HF&6m 100W... £748.00.
TS-480HX - HF & 6m 200W.. £848.00.
TS-2000 - HF/6/2/70cms..... £1448.00.
TS-2000X-HF/6/2/70/23cm... £1633.00.
TM-V7E - 2m/70cm's..... £367.95.
TH-F7E - 2mtrs/70cm's..... £229.00.
TM-271E-2m/FM Mobile TX/RX £169.55.
TM-V71E - VHF/UHF Trx ..... £289.00.

ICOM

2 YEAR WARRANTY

ICOM IC-E92
Built-in
DSTAR
£366.80

IC-7600 HF 6m transceiver....**CALL**.
IC-7700 HF & 6m Base £5499.00
IC-7800-2 HF/50MHz 200W.....£7795.00.
IC-7400 - HF 6m/2m 100W.....£1361.00.
IC-7200 HF+6m 100w.....£775.00.
IC-7000 - HF/6m/2m/70cm's.....£939.00.
IC-718 - HF 100W.....£444.00.
IC-910H - 2M 100W/70cm 75W £1265.00.
IC-E91 - Top Flight Handheld....£254.00.
IC-706M2G - All-Mode TX/RX ....£695.00.
IC-E90 - 2m/6m/70cm Handheld £235.00.
IC-E2820 Dualband VHF/UHF £393.00.
IC-RX7 wideband receiver ...£213.00.
IC-R6 wideband receiver ..... £239.95.

YAESU
Choice of the World's top DX'ers

VX-8 triband handheld... £335.00.
FT-950 HF Transceiver..... £1095.00.
FTM-10E - VHF/UHF tx/rx ... £265.00.
FT-897D - HF/6m/2m/70cm.. £649.00.
FT-817ND - 1.8-430MHz 5W. £439.00.
FT-857D - HF/6m/2m/70cms £554.00.
FT-7800E mobile ..... £209.00.
FT-8800E - 2m/70cm mobile. £286.00.
FT-8900 - 10m/6m/2m/70cm. £329.00.
FT-1802E - 2m 50W mobile.. £124.95.
FT-2800M - 2m 65W mobile.. £127.50.
VX-7R - 6m/2m/70cm handy. £256.00.
VX-6E - 2m/70cm handheld.. £199.00.
VX-3E - 2m/70cm handheld.. £135.00.
FT-60E - 2m/70cm FM 5W .. £135.00.
FT-450 - HF/6m transceiver. £549.00.
FT-450AT transceiver..... £639.00.
VR-500 scanner .....£198.00.

YAESU FT-2000 - £PHONE
FT-2000D 200W - £PHONE

MFJ

MFJ-989D 1500W Auto ATU..£389.95.
MFJ-986C 3Kw HF.....£349.95.
MFJ-991B Auto Intellituner....£209.95.
MFJ-976 1500w ATU .....£469.95.
MFJ-969 300w Rollercoaster £209.95.
MFJ-962D 1.5Kw Inductor.....£289.95.
MFJ-949E 300w W/D-Load....£179.95.
MFJ-948 300w HF.....£162.95.
MFJ-945E Mobile .....£128.95.
MFJ-941E 300w .....£139.95.
MFJ-934 ATU+AG .....£298.95.
MFJ-921 2m ATU.....£96.95.
MFJ-924 70cms .....£96.95.
MFJ-914 Extender .....£89.95.
MFJ-901B 200w Versa tuner..£109.95.

Analysers

MFJ-249B 1.8-170 Dig.....£264.95.
MFJ-259B 1.8-170 .....£279.95.
MFJ-269 HF/VHF/UHF .....£349.95.
MFJ-201 grid dip meter.....£156.95.
MFJ-269PRO 1.8-170&430-520 £399.95.

Dummy Loads

MFJ-250 1kw Oil filled .....£77.95.
MFJ-250X 1KW without oil .....£55.95.
MFJ-260C 300w PL259 .....£44.95.
MFJ-260CN 300w N-Type .....£53.95.
MFJ-264 1.5kw PL259 .....£76.95.
MFJ-264N 1.5kw N-Type .....£85.95.
MFJ-267 Load/VSWR .....£159.95.

RigExpert

RigExpert Standard.....£182.00
RigExpert Plus £279.95
AA-200 Antenna Analyzer.....£464.00
AA-500 Antenna Analyzer £574.00

HEIL SOUND

PR-781-PTT deluse base mic...£136.95.
Pro-Set-Plus Headset .....£189.95.
Pro-Set-Plus-IC Headset .....£199.95.
Pro-Set-HC-4/5 Headset .....£115.49.
Pro-Set-HC-IC Headset .....£132.95.
Goldline GM-4 Stick mic .....£119.95.
Goldline GM-5 Stick mic .....£119.95.
HM-4 Handy mic w/HC-4 insert £79.95.
HM-5 Handy mic w/HC-5 insert £79.95.
HM-IC Handy mic + Icom insert £79.95.
HM-10-4 Hand mic + HC-4 .....£79.95.
HM-10-5 Hand mic + HC-5 .....£79.95.

Tigertronics

SL-USB-13PDI 13pin DIN for Icom..£94.95
SL-USB-13PDK 13pin Kenwood....£94.95
SL-USB-4R 4pin round mic cable..£8995
SL-USB-5PD 5 pin round mic cable £89.95
SL-USB-6PMD 6pin miniDIN(Yaesu)£94.95
SL-USB-8PD 8pin mini DIN.....£89.95

COMET

Comet H422 - High power 1Kw, 4 Band Rotary V Dipole. Frequencies : 7,14,21,28 Mhz
£269.95

CHA250B broadband vertical, covers 80-6m, no gaps £299.95.

Comet V-250 3.5-54MHz Max 200w. Ideal for limited space £299.95.

GP-6 High Gain Dualband CoLinear 2/70cm Max 200w £99.95

GP-15 Tri-Band 2/6/70 Fibreglass Antenna. Max 150w £99.95

WATSON

POWER-MITE NF Watson 22A, £69.95

W-25AM 25A Supply.....£89.95.
W-10AM 10A Supply .....£59.95.
W-5A 5A Supply .....£29.95.
W-3A 3A Supply .....£24.95.
W-10SM 10A Supply .....£61.95.

WATSON

W-30 2/70 Base .....£49.95.
W-50 2/70 Base .....£54.95.
W-300 2/70 Base .....£74.95.
W-2000 6/2/70 Base .....£89.95.

Butternut

BENCHER, INC.

Butternut HF-2V 40/80m .....£289.95.
Butternut HF-6V 80-10m .....£389.95.
Butternut HF-9V 80-6m .....£449.95.
Butternut HF-5B 20-10m .....£449.95.
STR-II radial kit .....£156.49.
A-17-12 17&12 ad for HF6V .....£71.99.
A-6 6m ad for HF6V-X .....£24.95.
TBR-160S 160m HF2/6/9V .....£169.99.

HUSTLER

Hustler 5-BTV .....£219.95.
Hustler 4-BTV .....£179.95.
Hustler 6-BTV .....£259.95.
Hustler RM-10 10m resonator ....£22.49.

PALSTAR

AT-1KP Digital Display .....£419.95.
AT-1500DT 1500w ATU .....£449.00.
AT-2K 2000W ATU .....£499.95.
AT4K 2500 Watt ATU ..... £809.95.
AT5K 3500 Watt ATU ..... £1079.95.

Miracle Antenna

Miracle Whip .....£112.49.
Miracle Ducker IL .....£112.49.
Miracle Ducker PL .....£112.49.
Miracle Whip TL .....£132.79.

AUTO TUNERS

AT-1000 Pro

1KW Auto ATU - 1.8-54MHz - 1-8 secs Tune - Approx SWR Rating of 10:1
£495.95

Z-100 Plus

125w Auto ATU - 1.8-54MHz - 0.1 - 8 secs.
£137.93

DM-7800

Dual meter system made exclusively for the IC-7800. This will give you a true analogue meter
£132.95

Z-817 ATU

ATU specific for FT-817 Uses CAT / ACC port Powered by batteries 0.1 - 20w - 1.8 - 54MHz
£117.50

LDG IT-100

Icom ATU 125w Auto ATU - 1.8-54MHz 0.1-6 seconds Tune
£148.16

LDG baluns

1:1 or 4:1 Balun - Covers 1.8 - 30Mhz Power rating 200w
£32.95

LDG ELECTRONICS

Radioworld - the longest-running LDG dealer in the UK!!

LDG ELECTRONICS

TONNA

Tonna 20505 6m 5el	£109.95
Tonna 20809 2m 9el	£74.95
Tonna 20811 2m 11el	£105.95
Tonna 20817 2m 17el	£135.95
Tonna 20909 70cm 9el	£69.95
Tonna 20919 70cm 19el	£89.95
Tonna 20921 70cm 21el	£109.95
Tonna 20935 23cm 35el	£89.95
Tonna 20955 23cm 55el	£109.05
Tonna 20745 13cm 25el	£94.95

West Mountain Radio

RIGblaster Pro	£295.49
RIGblaster Plus USB	£159.49
Nomic 8P	£69.99
Nomic RJ	£69.99
M4-CBL RG45/4Pin lead	£18.99
RIGRunner 10way 12v distribution board	£149.95

DIAMOND ANTENNA

HF10FX 10m Mobile	£49.95
HF15FX 15m Mobile	£49.95
HF20FX 20m Mobile	£49.95
HF40FX 40m Mobile	£49.95
HF80FX 80m Mobile	£52.95
CR8900 10/6/2/70	£97.95
CP6 Base 6m-80m	£339.95
X50 Base 2/70	£72.99
X200N Base 2/70	£114.95
X300 Base 2/70	£139.95
X7000 Base 2/70/23	£225.95

AMERITRON


AL-811XCE 10-160m 600w	£899.95
AL-811HXCE 10-160m 800w	£999.95
ALS600X Solid State 10-160m 600w	£1549.95
AL-1500XCE 10-160m 1.5KW	£3499.95
AL-1200XCE 10-160m 1.5KW	£3449.95
AL-82XCE 10-160m 1.5KW	£2699.95

RADIO WORKS

CW-160 160-10m (252ft)	£159.95
CWS-160 160-10m (133ft)	£149.95
CW-80 80-10m (133ft)	£129.95
CWS-80 80-10m (66ft)	£149.95
CW-40 40-10m (66ft)	£116.95
CW-40+ 40-10m (66ft)	£139.95
CW-20 20-10m (34ft)	£99.95
G5RV+ 80-10m	£79.95
G5RV-XF Fullsize	£69.95
G5RV-XH Halfsize	£54.95

SGC

SGC-230 200Watts

£490.00

SGC-230 HF	£479.95
SGC-500 HF	£1499.95
SGC-235 HF 500w	£1249.95
SGC-237 HF+6m	£319.95
SGC-237 Porta	£399.95
SGC-237 PCB	£289.95
SGC-239 HF	£209.95
MAC-200	£289.95

Rotators

YAESU

G-2800SDX Rotator	£1021.95
G-450C Rotator	£305.49
G-550C Rotator	£268.95
G-650C Rotator	£346.49
G-1000DXC Rotator	£408.00
G-5500C Rotator	£481.95
AR-35X Hy-Gain rotator	£99.95
G-250 - Rotator	£111.29

Feeders & Wire

RG-213 Military Spec High grade 50 Ohm coaxial Cable

£91.95 per 100m Drum

RG58U	£0.61 per Metre
RG8 Super	£0.71 per Metre
RG213	£1.02 per Metre
W103 Westflex	£2.00 per Metre
RG-8 75 Metre Drum	£62.49
Flexweave 50m Flex	£30.49
Flexweave-PVC-50 50m	£40.49
Enamelled Copper Wire 50m	£18.49
Hard Drawn Copper Wire 50m	£25.49
Rotator Cable: - Color coded Cable	
3 core	£0.82 per Metre
7 core	£1.23 per Metre
8 core	£2.04 per Metre
DC Connecting Cable	
5A DC Cable	£0.51 per Metre
10A DC Cable	£0.75 per Metre
20A DC Cable	£1.00 per Metre
25A DC Cable	£1.10 per Metre

Telecom linear amplifiers

Self-contained, solid state

23CM150 23cms 150W	£1999
2M-HK 2m 500W	£1999
6M-HK 6m&4m dualband 500W	£1999
70CM-HK 70cms 500W	£1999

CUSHCRAFT

X-7 - 20/15/10 7EL Yagi	£979.95
A3S - 20/15/10 3EL Yagi	£579.95
A4S - 20/15/10 Yagi	£699.95
A3WS - 12/17 3EL Yagi	£479.95
ASL-2010 13-32MHz Log	£869.95
MA5B - Mini Beam	£459.95
D-3 - 20/15/10 Dipole	£289.95
R-6000 - 6Band Vertical	£399.95
R-8 - 40-6m Verical	£559.95
MA5V - 10/20m Vertical	£279.95

Second Hand List.

Quality Used Equipment, 3 Month Warranty.
Best prices paid for your used equipment.

Amplifiers
Yaesu FL-2050 amp £99.00
Nietzsche NB-30W - RF Amplifier £59.00
TOKYO HY- POWER AMPLIFIER HL-37V £69.00
Phi Hong 13.8 volt 3 amp Psu £15.00
Kenwood VB-2200GX 2M Amplifier £79.00
Kenwood TL-120 HF Amplifier £129.00
Dentron MLA-2500b 2KW HF Amplifier £999.00
Heatherlite Hunter HF Linear Amplifier £599.00
Ameritron ALS-500 Solid State Amplifier £599.00
Analyzers + SWR meters
Daiwa CN-103L Meter £59.00
YW-3 SWR meter £30.00
Hanson FS-20D SWR Meter £45.00
Diamond SX-400 VHF-UHF SWR Meter £70.00
Antenna Tuners
MFJ-949E ATU £129.00
Yaesu FC-20 Antenna Tuning Unit £175.00
Global AT2000 SWL ATU £79.00
Icom AT-150 Auto antenna tuning unit £169.00
MFJ-902H Manual Travel Tuner 3.5-30MHz 150W £89.00
MFJ-989C MFJ 3kW ATU ANTENNA TUNER. £299.00
Vectronics VC-300D Tuner with LED PEP Meter £199.00
Capco SPC-300 MK2 ATU £179.00
Capco SPC-300 ATU £149.00
Antennae
ATAS-120A Active Tuning Antenna System for FT-897, F £249.00
Sidekick-black Compact Motorised Mobile HF Antenna £299.00
Set top TV antenna £3.00
Hi-Sierra Spurs Unit £35.00
EZ-TUNE-7000IBOX High Sierra Control box for £85.00
Baluns
Receive Long Wire Balun £15.00
Books
Icom IC-R20 manual in Italian £5.00
CB
Ranger RCI 2950DX 10 - 12m Transceiver £179.00
Zetagi BV-131 Amplifier £65.00
Midland 38 UK £45.00
DAB Radio
Roberts RD-21 'Gemini 21' DAB & FM radio black £49.00
Gemini 49 Digital Radio £40.00
Gemini 46 Digital Radio £39.00
Pure Evoke-1s DAB radio - Maple £65.00
Data Comms
Kamtronics KAM Multimode TNC £129.00
DC/Cig adapter/chargers
BC-135 Desktop Rapid Charger for IC-R3 £40.00
NC-386 Ni-Cd Battery Charger £20.00
Duplexer / Triplexer
Revex D24 duplexer 1.6-150 MHz £22.00
Comet CF-416B 144/430Mhz PL/NP Duplexer £25.00
TSA-6001 Duplexer £25.00
Filters (various)
Bremi BRL-10 - TVI Low Pass filter 27MHz £10.00
ABF-125 - Airband Filter £29.00
Comet CF-50MR - Low Pass Filter (HF + 50MHz) £35.00
AEC LP-30 - Low Pass Filter £15.00
Frequency Counter/finder
CUB Optoelectronics MINI Counter £119.95
Handheld Transceivers
Yaesu VX-7R Silver Tri-band Handy £189.00
Yaesu FT-41R £79.00
Icom IC-T8E £159.00
Icom IC-T7E Dual Band Handy £139.00
Yaesu VX-7R black Tri-Band Handy £189.00
IC-E91 Icom 2m/70cm Handheld Transceiver £209.00
Alinco DJ-V17E £105.00
DJ-193 Alinco 2m FM Hand Held £99.00
HF Transceivers
Kenwood TS-830S HF Trx Base £349.00
Yaesu FT-920AF HF / 6M Base £899.00
Yaesu FT-920 £799.00
Yaesu FT-767GX £599.00
Icom IC-735 £299.00
Kenwood TS-570DG/E HF transceiver £599.00
Kenwood TS-850S /AT £699.00
Kenwood TS-870S HF Transceiver £899.00
Kenwood TS-570DG/E £549.00
Icom IC-756Proll HF / 6m Transceiver £999.00
Icom IC-746 HF/6m Transceiver £699.00
IC-756PRO-MKIII Icom HF + 6m Trx £1,699.00
Yaesu FT-2000 IN STOCK 100W with internal power supp £1,599.00
Yaesu FT-757GX Mk! £299.00
IC-7400 HF, 6m & 2m transceiver £950.00
Midland Alan 98 Plus CB Tranceiver £49.00
Yaesu FT-690R II £275.00
Mics and Speakers
Kenwood MC-85 Base Mic £99.00
Kenwood MC-60A £89.00
Icom SP-21 loudspeaker £54.00
Yaesu MD-200 Desktop Microphone £175.00
Yaesu MD-100 Desktop Microphone £99.00
NES-10-2MKII bhi DSP Noise eliminating Speaker £79.00
HM-133 Remote Control Microphone for IC-E208 £44.21
extension speaker £9.99
Alinco EMS-14 £49.00
EMS-47 Remote Control Hand Speaker/mic direct VFO in £15.00
ICOM SP-10 Mobile Speaker 5W 4 Ohms for IC-2725, IC- £30.00
Yaesu FSP-2 Speaker £25.00
Yaesu MH-32 Speaker-Mic £15.00
Morse keys / tutors
Kent Straight Key £59.00
Morse Key £89.00
Bencher Twin Paddle Key £79.00
NATO Morse Key £199.00
Enclosed Kent Twin Paddle Key £55.00
Ex-Army Operators Unit £39.00
Other
M/Mods 144/100 £149.00
Yaesu SP-767 £69.00
Alinco DJ-X3 £89.00
Comet CF-BPF 6 £30.00
EDC-16B adapter £9.99
SGC MAC-200 Antenna Controller Auto-Tuner £220.00
Yaesu FV-901DM VFO £175.00
MFJ-461 Pocket Morse Reader £69.00
Bhi NEIM-1031 Noise Eliminating In-line Module £89.00
Icom ut-102 Voice Synthesizer Unit £25.00
AOR ARD9000 Digital Voice Interface £129.00
FL-100 9MHz Filter CW/RTTY narrow 500Hz for IC-R75 £40.00
MFJ-1817 2m/70cm Telescopic Rubber Duck 36.8cm long £22.00
CSC-83 Soft Carry Case for FT-817ND £15.00
Icom PS-85 Icom 20A 13.8V Switch Mode £159.00
FM-UNIT 100 - for FRG-100 £39.00
FT-290 MK2 Carry Case £10.00
Kenwood YG-455CN-1 - CW Crystal filter £100.00
Kenwood / Trio BPF-2A HF filter £25.00
YF-114CN 2nd IF Filter 8.2/250Hz for FT1000MP/FIELD £45.00
FL-101 9MHz Filter CW narrow 250Hz £60.00
SC-45 Soft Case for TH-G71E £10.00
CASE FOR KENWOOD TH-47 £10.00
ALINCO ESC-28 £10.00
010-10117-02 Garmin GPS New Carry Case £5.00
HS-800/PRO High Sierra Standard Control Box for 180 £75.00
BP-206 Lithium Ion Battery Pack for IC-R-20 & IC-R3 £30.00
HPS-900 934-935mhz POWER-SWR Meter £40.00
universal scanner/handheld desk stand £10.00
Icom IC-E7 cover/carry case £10.00
IC-MB5 mounting bracket £25.00
KT-790 Carry case £15.00
HMC-3 Vox Headset £20.00
Host Master II £20.00
IC-R5 cloning cable £15.00
Eton S-350 Field Radio £65.00
CX-401 £35.00
CSC-88 Soft Case for VX-7R £10.00
Bremi BRL-5 - 3-way switch with 5Watt dummy load (52 £20.00
JD Model 151 - TVI Low Pass Filter £10.00
Archer Antenna Discharge Unit £15.00
Mizuho KX-2 antenna coupler £59.00
Icom BC-156 Desktop Charger for IC-R20 £45.00
CP-163X-II MOBILE LINEAR AMPLIFIER £99.00
Yaesu SC-1 Station Console £89.00
Yaesu YO-100 Monitor Scope £199.00
MB-17A Quick Release Mount £25.00
Dee Comm Dummy Load £69.00
BRV-1 Mirror Mount £10.00
9-BAND W2IHY Audio Processor with Noise Gate £199.00
Universal Scanner Desk Stand £5.00
N-Type 50 Watt Dummy Load £35.00
IC-7200 19 Inch Rack Mount With Speaker £99.00
PMR446
Uniden PMR-825 Hand-Helds (pair) £25.00
Power supplies
Bnos 20AMP PSU £89.00
Microset PT 135 PSU £149.00
Adonis AM-708E £89.00
Kenwood PS-31 Power Supply £129.00
Icom PS-15 20A power Supply £119.00
Icom PS-55 Power Supply £99.00
PT-1012 Microset 12A 13.5 PSU £110.60
Seif PS-134 DC power supply £20.00
Farnell G-12 £59.00
W-5A Watson 5A 13.8V fixed power supply unit £24.00
Sharman PS-5 - 5 Amp psu £20.00
Icom IC-PS15 Power Supply £89.00
Receivers
Icom IC-R72 Receiver £399.00
Yaesu FRV-8800 RX inc Converter £299.00
AOR AR8600MkII £525.00
Yaesu FRG-100 HF Receiver £349.00
Magellan GPS 315 Receiver £129.00
AOR AR-3000A Wideband Receiver £450.00
Kenwood R-5000 Communications Receiver HF £549.00
Alinco DJ-X30 Scanning Receiver 100KHz - 1.3GHz £140.00
Roberts R-809 £45.00
Scanners
Bearcat UBC-278 CLT Scanner £99.00
Bearcat UBC-9000 Scanner £179.00
Yupiteru MVT-7100 £140.00
GRE PSR-214 FM Base Scanner £99.00
Realistic Pro-43 Scanner £89.00
Yaesu VR-500 100kHz-1300MHz Scanner £169.00
Uniden UBC-180XLT scanning receiver £99.00
UBC-72XLT Scanner (No Close Call) £69.00
VHF/UHF Transceivers
Icom IC-490E 70cms Mobile £250.00
Kenwood TS-271E £165.00
Yaesu FT-7800 2/70 mobile £169.00
Yaesu FT-8100R 2m / 70cms Mobile Transceiver £220.00
IC-7400 HF, 6m & 2m transceiver £999.00
Kenwood TM-G707E Dual Band Mobile £189.00
Yaesu FT-690R II 6m transceiver £275.00
Yaesu FT-480R 2m Transceiver £220.00
Yaesu FTV-901R 2m / 6m Transverter £275.00
Kenwood TS-790E Dual-Band Base / Mobile Transceiver £999.00
Yaesu FT-817ND HF 6m VHF UHF 5W Transceiver £359.00
Yaesu FT-897D Multiband Portable Transceiver £529.00
ICOM IC-2200H 144–146 £175.00
The TINY-2 MK-II - With Open Squelch Board £109.00
Kenwood TM-741E - VHF/UHF transceiver 144-146 / 430- £229.00
DR-635E Alinco 2m/70cm FM Dual Band Mobile £230.00

bhi

ANEM amplified module	£124.99
1042 6-way switch box	£20.49
NEDSP-1061-KBD DSP module	£101.95
NEDSP-1062KBD Noise Module	£106.95
NEIM1031 Noise Module	£132.95
NES10-2 MK II speaker	£101.95
1090 Radiomate Keypad	£91.95

bhi

We also accept PayPal

Stock and prices accurate as of 22/03/2010. E&OE.
For accurate, up-to-date prices please check our website before visiting our shop

http://www.radioworld.co.uk

skype at radioworld_UK.

David Butler's

vhf dxer

Share your news, views and reports with fellow readers. Reports to David by the last Saturday of each month please.

This month David Butler G4ASR takes a look at your reports and has news of UK v.h.f. and u.h.f. beacons.

Propagation on the v.h.f. bands was particularly poor during February. No sporadic-E, no tropo and very little meteor scatter activity. The only opening of any significance was an auroral back-scatter event on February 15th that occurred on the 50MHz band. Apart from that there was very little to report during the period but I'm going to try anyway!

Around 1640UTC on February 6th the station of **Jim Rabbits GM8LFB** (Caithness IO88) reported hearing the Faroe Island beacon OY6BEC (50.035MHz) peaking 51A, the 'A' indicating an auroral tone. However, as so often is the case, nothing else of any interest was heard at this time.

A slightly larger auroral back-scatter event was reported on February 15th by 50MHz stations in Scotland. The first phase of the opening was spotted by the station of **Andreas Kristiansen LA8AJA** (Norway JP50) who heard the GB3LER beacon (50.064MHz) at 1745UTC peaking at 53A.

Later in the evening between 1945-2115UTC the station of **David Gillies MM0AMW** (Perthshire IO75) heard the OY6BEC beacon with 54A signals. David uses a 7-element Yagi for the 50MHz band (shown in the photograph, **Fig. 1**) and reports hearing and working the stations of LA5YJ (JO59), LA8HGA (JO59), GM4ILS (IO87) and GM4WMM (IO89) before the event faded out at 2115UTC.

The only other DX reports regarding the 50MHz band were JT6M (digi-mode) QSOs via meteor scatter with the stations of CT1FJC (Portugal), EA2LU, EA3LL, EA5/G3XGS (Spain), HB9QQ (Switzerland), IW5DHN (Italy), OE3FVU (Austria), OH6KTL (Finland), OZ8ZS (Denmark), S59F (Slovenia) and 9A5CW (Croatia).

Very little was reported on the 70MHz band apart from some meteor scatter (m.s.) QSOs and a few cross-channel tropospheric contacts. Contacts using FSK441 and JT6M were reported to have been made with the stations of LA4ANA, LA4LN, LA4YGA (Norway), OZ1DJJ, OZ1JXY, OZ2LD and OZ3ZW (Denmark). All fairly short-haul but at least the use of m.s. keeps the band ticking over until the main summer DX season returns. The station of ON5VW (Belgium JO10) was contacted via tropo by a few UK stations over paths up to 600km distant.

There are only a few Belgian stations, ON4KHG, ON4PS, ON5QRP and ON5VW, active on the 70MHz band at the present time. Their authorisation is quite restrictive being only allowed a spot frequency of 69.950MHz (10kHz bandwidth) and a power of 10W e.i.r.p. It's a pity that the regulator didn't allow access somewhere within the 70.000-70.500MHz band. After all, the adjacent country of Luxembourg has a 100kHz-wide allocation between 70.150-70.250MHz and that doesn't appear to have caused any interference problems. At least the Belgian allocation is permanent and there's always a chance of another allocation higher up in frequency at a later date.

Coincidentally **Hans Fischer DL8PM** (Germany JO30) mentions that he has again received his annual 70MHz permission from the German Bundes-Netz-Agentur. The licence is valid from March 1st to December 31st 2010 for use on 69.950MHz with the experimental callsign DI2PM.

Iceland (TF) is another country to obtain temporary permission to use the 70MHz band. On February 19th the Icelandic Post and Telecom Administration granted a permit valid until December 31st 2010 that allows access to 70.000-70.200MHz with a maximum transmission bandwidth of 16kHz and 100W power limit. This incidentally, is not the first time that Iceland Amateurs have obtained permission to use the 70MHz band.

Way back in 1969 the station of **Einar Palsson TF3EA** (now a Silent Key) managed to get approval both for a 70MHz beacon and a personal operating licence. The beacon TF3VHF (constructed by **Mike Walters G3JVL**) started transmission on 70.275MHz with a 4-element Yagi pointing towards the UK and was heard almost immediately via meteor scatter. The 70MHz station of TF3EA worked many UK operators, the first c.w. contacts being made via m.s. on June 27th 1969 (over 40-years ago!) with the stations of G3JVL and G8LY.

Keep a look out for Czech Republic (OK) Amateurs again this year. Their telecommunications office has agreed that 50 licensees can be authorised to use the 70MHz band during 2010. The frequencies and power are the same as last year; 70.100-70.300MHz with a 10W e.r.p. limit. Although this power level is quite low the received signal strengths can be exceedingly loud during the summer Sporadic-E openings. Successful contacts at this power level can also be made via meteor trails and auroral back-scatter.

Peter Maireder OE5MPL passes on the news that the Austrian experimental beacon **OE5QL** has been authorised to transmit on 70.045MHz throughout the 24-hour period. However, transmissions are limited to two minutes per sequence, each sequence starting at 00-minutes, 15-minutes, 30-minutes and 45-minutes past the hour.

Last year the beacon was only allowed to radiate for a limited time during daylight hours so this latest news is a good progression in helping to get Austrian Amateurs access to the 70MHz band. Although the beacon only runs 1W e.r.p. into a vertical half-wave antenna, it was heard on a number of occasions last year during the summer Sp-E season.

Propagation Beacons

Some newcomers to the hobby may not fully understand what

Fig. 1: The 50MHz antenna at the QTH of David Gillies MM0AMW.

David Butler G4ASR
Yew Tree Cottage
Lower Maescoed
Herefordshire HR2 0HP
Tel: (01873) 860679
E-mail: g4asr@btinternet.com

the purpose of a beacon is for. By definition an Amateur Radio propagation beacon is a transmitter situated at a known location, on a specified radio frequency, that normally transmits a clean carrier followed by a stream of information in a defined format.

Most beacons operate with amplitude (A1A) or frequency shift keying (F1A) and transmit identification such as call sign and locator. Some new beacons use JT65A or other forms of digital modulation. Within the UK unattended Amateur Radio beacons are licensed by OFCOM under the Notice of Variation (NoV) licence system and operate with callsigns in the GB3xxx series, such as GB3VHF or GB3LER for example.

Amateur Radio propagation beacons provide an essential service for the determination of frequency, as a signal source to test and calibrate antennas, as a test source for receiver alignment and for experimental purposes including construction and development. Beacon transmitters operate 24-hours a day and have long been used to indicate the presence of v.h.f. and u.h.f. path openings.

Propagation beacons are ideal for 'weak-signal' operators who commonly use s.s.b. (telephony), Morse (c.w.) and m.g.m. (machine generated modes). Incidentally, it's often assumed by non weak-signal Amateur Radio operators that low-power beacon signals will not possess a large coverage area – but this is far from the truth.

Depending on the specific requirement and on the particular v.h.f. or u.h.f. band being utilised the end-user will often be located far beyond the UK. During periods of tropospheric and ionospheric enhancements the coverage area will often extend to thousands of kilometres and at some frequencies, world-wide during the peak of the Sun Spot cycle.

Beacons within the 50MHz band are particularly important in providing an early warning of long-distance ionospheric openings that are often unpredictable and intermittent in nature. Such modes include Sporadic-E, multi-hop E, Auroral back-scatter, Auroral-E, Field-aligned Irregularities, Trans-Equatorial Propagation, F2-layer and various forms of Ionospheric back-scatter.

Beacons within the 70MHz band are very important as relatively few countries within IARU Region-1 have access to this area of the spectrum. Propagation at 70MHz is reasonably similar to that experienced at 50MHz. Such modes will include Sporadic-E, multi-hop E, Auroral back-scatter, Auroral-E and various forms of Ionospheric back-scatter. Less common, although not unexpected, are trans-equatorial propagation and F2-layer propagation, during years around the peak of the Sun Spot cycle.

Unlike the 50 and 70MHz bands, the 144MHz band is better positioned for the study of tropospheric propagation and its many variants. Forward scatter and other tropo enhancements often produce paths up of 2000km. The Atlantic path to the south west of the UK is of particular interest with regular 3000km contacts being achieved via marine ducting.

One tropo contact at 4048km (Cape Verde Islands) has already been achieved from Cornwall. Auroral back-scatter openings are quite common at this frequency as are Sporadic-E openings during the Summer months.

The main propagation mode at 430MHz is tropospheric enhancement. The 3000km marine path to the Canary Islands and beyond is very worthy of study and a number of dedicated beacons would prove to be an invaluable asset at this frequency.

Interestingly, some UK beacons have been designed in such a way as to assist the understanding of some of these types of wave propagation. The beacon units GB3RMK (50.060MHz), GB3ANG (70.020MHz), GB3CFG (70.027MHz) and GB3NGI (144.482MHz) have antenna lobes that point towards the auroral zones. Collation of information regarding reception reports is often carried out by the **Radio Society of Great Britain** (RSGB) Propagation Studies Committee (PSC) and also contained in *Dubus*, a specialist magazine that contains propagation reports.

The beacon GB3SSS (144.407MHz) in Cornwall is one of a number of European beacons located on the Atlantic coast that have been allocated frequencies within the bottom 10kHz of the 144MHz beacon band. They are all beaming towards North America as part of an IARU

Region-1 transatlantic propagation experiment.

Both GB3BUX beacons (50.000 and 70.000MHz) are locked to the MSF time and frequency standard and transmit data in exact sympathy with MSF. This may be used by corresponding stations to determine propagation path length characteristics, particularly over the north-south t.e.p. route.

The GB3RAL series of beacon units 28.215, 40.050, 50.050, 60.050 and 70.050MHz may be used to study the rise of the maximum usable frequency (m.u.f.) throughout the v.h.f. bands.

Fig. 2: The GB3VHF beacon transmitter.

The beacon GB3VHF (144.430MHz) is technologically advanced and uses a direct digital synthesiser (DDS) locked to a GPS unit that maintains a frequency accuracy to an extremely high standard. Additionally, to enable the beacon to be heard regularly at extreme ranges JT65A modulation is employed. The use of precisely timed intervals makes this beacon an ideal tool for an automatic propagation monitoring system and for tropospheric studies.

End Of An Era

Chris Whitmarsh G0FDZ passes on the news that after a 50 year period of near continuous operation the GB3VHF beacon (144.430MHz) was switched off permanently in February 2010. Funding for the Wrotham beacon site rental had been provided by the RSGB but this came to an end on March 30th by which time the site had to be cleared of all equipment. Access to the site had proved to be very difficult over the last year or so and an opportunity arose to gain access at an early stage to remove the beacon and all of its associated equipment.

However, the 'Phoenix will rise from the ashes' as Chris (GB3VHF beacon keeper) mentions that after nearly a year of negotiations and planning he has reached a site sharing agreement at a new location only 4km away from Wrotham. The beacon will be relocated in Fairseat, Kent (JO01EH) and will employ an antenna system that is identical to that used at Wrotham, with the beam directions exactly the same and antennas at the same height above ground level. The new site at Fairseat is of a similar height as Wrotham and and it's expected that there will be little change in received signal strength around the UK.

The Ofcom licence for the new site has already been obtained so once the antennas and feeder are installed the beacon will appear on the air a few days later. Obviously, this is very much weather dependent and subject to the availability of professional riggers. As you can imagine the relocation of the GB3VHF beacon has come at a price, as rigging and associated equipment costs are very high. Chris has been fortunate in so far that a number of items have been kindly donated or supplied at a greatly reduced price. This includes brand new Jaybeam commercial-grade Yagis and Andrews LDF-550 hardline feeder and fittings.

The relocated beacon (shown in the photograph, **Fig. 2**) will be independently run and maintained and will receive no regular funding from any organisation. If you would like to make a financial donation towards the relocation and ongoing costs then G0FDZ would be extremely grateful. Donations can be made via PayPal to **chris@g0fdz.com** and all donations will be acknowledged. Please mark your PayPal payment as 'GB3VHF donation'.

Deadline Time!

That's it again for another month as it's now deadline time! Thank you for your reports. Please keep sending them in, preferably by E-mail to: **g4asr@btinternet.com** by the last Saturday of each month. Good luck with the DX and see you again next month. **73 David G4ASR.**

Carl Mason's

hf highlights

Share your news, views and reports with fellow readers. Reports to Carl by the 15th of each month please.

Carl Mason GW0VSW presents his round-up of your activities on the h.f. bands. Reports to Carl by the 15th of each month please!

Welcome to the world of h.f. DX-chasing! The **Royal Naval Amateur Radio Society** (RNARS) is celebrating its 50th anniversary this year and to mark this special occasion the callsign **GB50RNARS** has been issued and will be used from various locations around the UK and on all bands using all modes until the end of this year, 2010.

Additionally, there are a number of associated Radio Societies which will also be running special stations. The **Belgian Marine Amateur Radio Society** will be using the call ON50RN while the **Netherlands Marine Amateur Radio Club** will be using PA50RNARS, PA0VLA, PB50RNARS, PC50RNARS, PE50RNARS, PF50RNARS, PG50RNARS and PH50RNARS.

A special 50th anniversary award has been designed and is available to all stations that work or hear members of the RNARS between January 1st and December 31st this year. Each RNARS member station counts as one point while Special Event stations run by the RNARS and those of the Belgian and Netherlands RNARS will count for two points.

A station can only be counted once for the award regardless of the number of times, bands or modes it's worked or heard and all bands and modes are allowed. The award will be issued once you get 50 points and the application form is available for download on the RNARS web site **www.rnars.org.uk** and QSL cards are not required. See further details under GB50RNARS on **www.qrz.com**

The DX News

On to the DX news now and the 7, 14 and 18MHz bands will be used by **Alex Yushko UX4UL**, who will be active as **8Q7IA** from the Maldives (AS-013) in the Indian Ocean until the May 18th. He will be using c.w. and PSK modes with the possibility of some s.s.b. and the QSL is via UY5ZZ.

Bahrain – or officially the Kingdom of Bahrain – is a small island country in the Persian Gulf ruled by the **Al Khalifa Royal Family**. Active here as **A92IO** from a village called Saar, until at least August 2011 is **Dave Court EI3IO** who plans to be on all bands from 3.5 - 28MHz. Dave also intends to be QRV on the 1.8MHz band during the next winter season. The QSL route is direct to PO Box 31183, Budaiya, Bahrain or through the bureau, or direct to EI3IO. Please note that the cards sent to the PO Box will only be cleared once or twice per year.

Marion Island AF-021 is not large – at only 19km long by 12km wide – and politically forms part of South Africa's Cape of Good Hope Province. The island is volcanic in origin and has many hillocks or secondary craters together with various small lakes. **Pierre Tromp ZS1HF** has taken up the position of radio/electronics technician there for a year and has managed to pack some dipole antennas to take to the Island, which will avoid problems with high winds and the local bird population!

Pierre hopes to have a small amplifier with him even though his weight allowance for the entire year on the island is only 100kg. The **ZS8M** callsign is expected to be QRV in his spare time using s.s.b. and some RTTY in late April to early May. You can QSL direct to **Dirk Lotz ZS1X, 23B Dorchester Drive, Parklands, Cape Town, 7441, Republic of South Africa**.

Finally, **Franck F4DTO** and **Patrick Menard F4GFE** (a father and son team) will be active as ZA/homecall from Elbasan, a city in central Albania located on the Shkumbin River in the District of Elbasan from April 15th to 24th. They both plan to operate s.s.b. with some c.w. on the 7-28MHz bands using 100W and simple monoband dipoles. All QSLs should be via the home call and preferably through the bureau.

Calling All CW Operators!

Next, I'm calling all c.w. operators! This is because the **North American QRP CW Club** (NAQCC) welcomes new members and all who want to help support Morse on the bands and have at least some interest in using QRP power levels. There's no need to be a 100% c.w. or QRP operator though all club events are dedicated to QRP/QRP operation.

Some of the available awards, challenges and contests place an emphasis on using simple wire antennas – so there's no really valid excuse for not entering! Encouraging the use of c.w. and helping all Amateurs increase their Morse

Carl Mason GW0VSW
2 Golwg-y-Bryn
Woodland Road
Skewen
Neath
Port Talbot SA10 6SP
Tel: (01792) 380882
E-mail: gw0vsw@btinternet.com

speed and proficiency is a top club priority and lifetime membership is free to any licensed Radio Amateur or s.w.l. worldwide. Further information can be found at **http://home.windstream.net/yoel/**

Beacons On 10MHz

The beacon SK6RUD heard on 10.133MHz and reported in the March column last year prompted an E-mail from *PW* reader **Gary Trudel VE3MPQ** in Windsor, Ontario in Canada, the southernmost City in Canada. Gary said, "I thought readers would be interested in a new beacon I came across last November on 10129.5MHz. The call was **W0ERE/B** and checking the **qrz.com** listing I found it comes out of Highlandville, Missouri and is run by **Allen Gallo W0ERE** who uses an MFJ QRP rig running just 3W into a G5RV antenna radiating East/West at a height of 1340 feet above sea level."

"Operation was intermittent for a while and it was off the air for most of the winter until I copied it again this morning Febuary 18th 2010 at 1336UTC. Now Allen's aim is to promote the 10MHz band using very simple antennas and give others the opportunity to learn about the characteristics of the band and what it is capable of at various times of day or night. This is purely an experimental beacon and it will not necessarily be permanent, although there are few beacons on this band as it's only a very narrow band and automatically controlled USA beacons aren't permitted under current FCC rules. Allen is keen to hear from anyone who copies his beacon and asks for reports to be sent via E-mail to **erecom@hotmail.com**" 73 Gary.

Your Reports

On to your logs now and the first this month is from Edwinstowe, Nottinghamshire where **Bill Ward 2E0BWX** who has has finally got his PSK31 up and running with the help of his friend **Daryl 'Daz' Spence M0TTY**. First contacts on 3.5MHz included DJ6XS (Germany) 1831, ON4DN (Belgium) 1845, F8CHM (France) 1904, 9A3CCB (Croatia) 2225, IZ2MT (Italy) 2320 and OE6JFG (Austria) at 2337UTC using a PC running *MixW* through a ZLP Electronics interface and a Icom IC-7400 at 25W to a SRC X65 end fed wire antenna.

The 7MHz Band

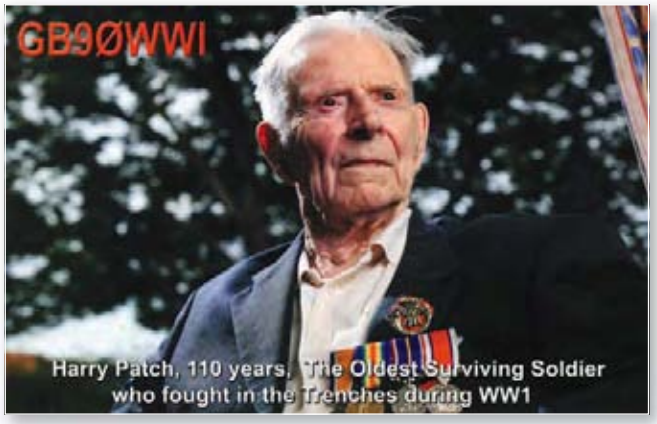
On 7MHz band, **Mike Dwyer 2E0BTK** in Wilmslow, Cheshire used his Yaesu FT-897D and home-brewed Cobweb-style antenna tuned via an LDG AT-100Pro antenna tuner for his PSK activities. Mike logged EW1BF (Belarus) 0106, S59DBC (Slovenia) 2141, HA5KN (Hungary) 2203, SP4TXI (Poland) 2205, IZ8LDQ (Italy) 2225, EA7CK (Spain) 2303, OK2JNB (Czech Republic) at 2334UTC.

Eric Masters G0KRT in Worcester Park, Surrey used a Kenwood TS-570 at 5W and home brew modified W3EDP antenna 84ft long with counterpoises tuned with an SGC SG-211 Mini-Smartuner to find c.w. stations F5OYV (France) 0915, S51DX (Slovenia) 1724, HA6NB (Hungary) 1821, while 10MHz and 100W found 9A5CW (Croatia) 1617 and IZ6BTH (Italy) at 1636UTC.

The 10MHz band was favoured by **Geoffrey Powell M3UXB** who sent in a large log of c.w. stations he worked. They included SP3AMY (Poland) 1005, LY2PE (Lithuania) 1020, 5B4AGQ (Cyprus) AS-004 at 1345, DF4TX (Germany) 1755, HB9DVX (Switzerland) 1820, IT9YPP (Italy) 1900, and PJ5NA (St. Eustatius) NA-145 at 2040 (QSL via K1NA). Then came FG/F6AUS (Guadeloupe) NA-102 at 2120, RN3RD (European Russia) 2131, K1NA (USA) 2135 in Chichester, New Hampshire, TA3AX (Turkey) 2125. Next on the list were OK2BCD (Czech Republic) 2136, E75A (Bosnia & Herzegovina) 2140 and EA1OD (Spain) at 2215UTC.Geoffrey was running a Icom IC-718 with 60-100W into a doublet at 50ft.

The 14MHz Band

On to 14MHz now and the portable log of **Tom Kelly EI2AJ** who operated from the North coast of County Donegal running 2.5W QRP from a Yaesu FT-817. Using an inverted 'V' dipole at 3m above ground, Tom managed c.w. contacts with UX1UA (Ukraine), HB9DAX (Switzerland) also QRP, YO4OE (Romania), YU7KM (Serbia), EA2CK (Spain) and DW1WU (Germany) during a morning session around 1033UTC.



In Biggleswade, Bedfordshire **Owen Williams G0PHY** made one voice QSO with NX7TT (USA) in Rigby, Idaho at 1603UTC using his Yaesu FT-747GX running 100W to a dipole antenna.

The 18 & 21MHz Bands

On 18MHz Eric G0KRT used 100W s.s.b. to work VE3AXW (Canada) 1509, KD4AF (USA) in East Bend, North Carolina 1530 and K8CW (USA) in Mansfield, Ohio at 1605 followed by 5E50SA (Morocco) 1618. This was a special call to mark the 50th anniversary of the earthquake in Agadir, Morocco (QSL via EA7FTR).

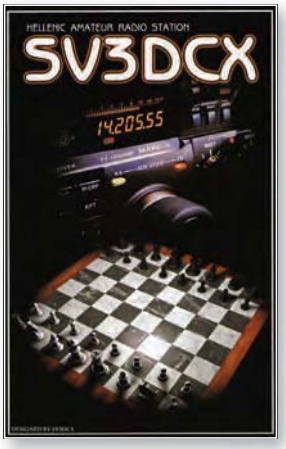
Meanwhile, Geoffrey M3UXB managed JA4FRX (Japan) AS-041 at 0850, UA3KA (European Russia) 0910, CT3FT (Madeira Island) AF-014 at 0930, A61BK (United Arab Emirates) 1350 (QSL via NI5DX). Then came IK0LZR (Italy) 1850 and K8NYG (USA) in Dunbar, West Virginia at 1620 on the key with 100W.

Bill 2E0BWX used PSK again to find RX1CL (European Russia) 1127 and UT1WL (Ukraine) at 1141UTC using a Diamond CP-6 vertical antenna.

I am pleased to say **Robin Trebilcock GW3ZCF** in Bishopston, Swansea is making a good recovery after his operation and has been enjoying the comfort of his shack once again (*Best wishes from the* PW *team too Robin!* ***Editor***).

Using an IC-756PRO and 40W to a 40m horizontal loop Robin worked PSK stations KP4DS (Puerto Rico) 1457, VE3ODZ (Canada) 1529, YV5JBI (Venezuela) 1515.

There was also a long list of Stateside calls including KJ6P in California 1715, K4JNX in North Carolina at 1718 and K4RKQ in Virginia at 1724. Robin's 21MHz band operations produced W2MXL in New York 1741, PY5JO (Brazil) 1731 and CX4ACH (Uruguay) at 1735UTC.



The 21MHz band also provided Owen G0PHY with some DX as he found, "a good deal of activity for a while", which he says was just like old times. Pick of the log included W3UUM (USA) in Liberty, Texas at 1440, WQ7X in Phoenix, Arizona at 1608 and CO6LC (Cuba) NA-015 at 1634UTC all made using s.s.b. at 100W.

Also on 21MHz was new reporter **Steven Scott MM6TMS** in Cowdenbeath, Fife, who uses a Yaesu FT-757GX and with 10W QRP to a long wire antenna and is doing very well with it judging by his log! This included s.s.b. stations EW1OT (Belarus) 1234, EA4FLS (Spain) 1239, 9A6AKO (Croatia) 1243, OM6ADR (Slovakia) 1252, LZ2RS (Bulgaria) 1355, American calls WO4DX in Dawsonville, Georgia at 1413 and N2MEE in New Paltz, New York at 1557. This was followed by VX2DX (Canada) at 1613 which was located on Jesus Island, not an IOTA but a Canadian Island award (CISA) island with the reference number PQ-014 (QSL via VE2STN).

The 24 & 28Mhz Bands

A move to 24MHz provided Steven MM6TMS with his first ever contact on the band as he worked SV9CVY (Crete) EU-015 at 1419.

Meanwhile Eric G0KRT had one QSO on 28MHz s.s.b. with EA2CTQ (Spain) at 1651UTC saying, "It always pays to check around a band even when it appears dead."

Swansea Rally

I managed to get to my first show in a long time when the **Swansea ARS Radio Rally** had a change of venue and opened its doors at a leisure centre, just a short walk down the road from me in Neath. It seemed to be well attended though numbers were down on previous years.

The week had seen h.f. conditions 'lift', so there was much talk about the DX stations being heard particularly on the higher bands, mixed with the usual complaints of deliberate interference to them and poor operating.

The **Radio Society of Great Britain** (RSGB) stand manned by **Jimmy Sneddon MW0EQL** and helpers was very busy for most of the morning. So was the one manned by **Martin Shelley GW3XJQ** and members of the **South Pembrokeshire UHF Repeater Group** who are also all keen h.f. operators!

My aim was to obtain some aluminium tubing in order to extend the height of my SRC X80 vertical and I'm pleased to report that Welsh-based **Sandpiper Aerial Technology** came up trumps and my antenna is now 4m taller! Initial tests show an improvement though it will take a while to assess just what a difference this has made. (I'll keep you posted!)

Time to sign off now. As usual my thanks to all our reporters for their logs and to **Mauro Pregliasco I1JQJ/ KB2TJM**, the Editor of the *425 DX Newsletter* for all the DX information. Until next month I wish you all good DX.

73 Carl GW0VSW.

Colin Redwood's

what next?

Colin Redwood G6MXL looks at what needs to be considered before operating abroad.

With the summer holiday period approaching, this month I'm looking at operating abroad. For those of our readers who hold a full licence and taking their 144MHz (2m) hand-held on a ferry across the Irish Sea or English Channel, this needn't present many hurdles. No matter what scale of operation you plan, there are many things to consider before you can enjoy making contacts and perhaps becoming some rare DX for other Amateurs!

The CEPT Agreement

Many European countries have implemented **The European Conference of Postal and Telecommunications Administrations** (known by its French abbreviation CEPT) Recommendation T/R 61-01. The recommendation isn't limited to European Countries, as countries as far apart as New Zealand, Australia, South Africa, Canada, USA and Peru have also adopted it.

The CEPT recommendation T/R 61-01 allows temporary (usually taken to mean up to three months) portable operation in the foreign country according to the foreign country's licence conditions. You must take a full printed copy of your home-country Amateur Radio licence. Note that for some countries, you are required to have passed a Morse test in order to operate on bands below 30MHz.

Whilst it's written with the best intentions, the CEPT T/R 61-01 recommendation is exactly what it says – a recommendation. When individual countries adopt CEPT T/R 61-01, they can attach whatever caveats they wish.

The most authoritative and up-to-date source of information is, without doubt, the web site of **European Radiocommunications Office** (ERO) at **www.erodocdb.dk** The home page has a link to the T/R 61-01 recommendation. A dig around this section of the ERO web site is a very good starting point.

Applying For A Licence

Whilst over 30 countries have adopted CEPT T/R 61-01 for visiting Amateurs, many haven't – so you may have to apply for a Licence in advance of your visit. If you are staying for an extended period, you may also need to apply for a Licence. Details of how to do this are often to be found on the relevant country's National Amateur Radio Society's web site. Make sure that you apply in plenty of time as the process can take a number of months in some cases. You'll also need to consider how to make payment to the Licensing Authority in the country you are visiting.

As far as I'm aware, holders of UK Foundation and Intermediate Licences **are not** permitted to operate in other countries. Some countries don't permit visiting Amateurs to operate and there are some that don't even permit their own nationals to obtain Amateur Radio licences. In these cases, please respect the situation – flouting laws can only delay the time when this might change, and you could easily end up being detained!

Colin Redwood G6MXL
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: what.next@pwpublishing.ltd.uk

Licence Conditions

Even if you hold a full licence, access to some bands that you use in the UK may not be permitted. The most obvious example is 70MHz (4m), but you should also check other bands including but not limited to: 136kHz, 5MHz, 50MHz, and 3.4GHz. Don't assume anything! Even if a country's own nationals are allowed to use a particular band, it does not always follow that visiting foreigners are also permitted to use the same band in that country.

The IARU & National Societies

The main **International Amateur Radio Union** (IARU) web site at **www.iaru.org**/ is a good place to start

Fig. 1: Map of Estonia showing the various numeric call areas, based on the administrative districts of the country. Tallinn is the small area shown in yellow on the map. Many countries use numeric call areas.

looking for the National Amateur Radio Society for the country you are visiting. Click on to the appropriate IARU region for the country you're planning to visit. Incidentally, IARU **Region 1** covers Europe, the Middle East, Africa and Northern Asia. IARU **Region 2** covers North and South America, whilst IARU **Region 3** covers Asia and the Pacific.

Once on the relevant region's page, select Member Societies and then click on the link to the national society of the country you are planning to visit.

If you don't speak the language of the country you are visiting, many societies have a link on their main home page marked 'English' or with a UK or US flag. Clicking on this will generally open up a page with useful information. From here it will be a case of digging around the web site to find the page you're interested in.

General Information

For general information about operating abroad I find the web site at **www.qsl.net/oh2mcn/license.htm** to be another particularly good additional source of information.

There are a number of things to look for. The most obvious are band allocations and modes together with power limitations which may differ from what you are used to in your native country. These may even be linked with geographic limitations.

Band plans can also be different as can repeater shifts and repeater access arrangements. There may be different rules for portable operating as well. Some countries (for example) only permit operation in the 50MHz band by their own nationals from fixed station addresses.

It may also be useful to know the local broadcast TV and radio frequencies. Whilst the use of Band I for TV broadcasting is generally dying out in Europe, this is certainly not the case in all countries.

You'll also need to work out how you should give your callsign. For example, in many countries you give your call sign as **foreign country prefix**/your UK call sign/**P** (e.g. F/G6MXL/P). In some countries the format is foreign country prefix + regional locator/your UK call sign/P.

If, for example, I were to be operating in Estonia, I would use ES1/G6MXL/P if located in the Tallinn area. If I moved to another administrative district in Estonia, then I would need to change to another digit **(Fig. 1)**. I think it makes sense to learn the numbers of your callsign in the language of the country you are visiting, so that if nothing else you can at least give your callsign correctly in the local language.

Keeping A Log

Whilst there's no longer a requirement to keep a log whilst operating in the UK, in many countries you are still required to keep a log of contacts. Unless you are certain, I think it's safest to keep a log.

Morse Requirement

Many countries still require the passing of a formal Morse test to operate on some bands (usually the bands below 30MHz). So even though you may have a full licence in the UK, unless you have passed a five or 12 word-per-minute test, you may find that you are limited to v.h.f. and u.h.f. bands in the country you are visiting.

Fig. 2: The Arrow 144/430MHz (2m/70cm) satellite antenna dismantles so that it will just fit into a small case that will go into cabin luggage.

Transporting Equipment

If you are travelling by air, your radio gear will be part of your luggage allowance, so a heavy power supply or battery could easily take all your luggage allowance! With the tightening of security over recent years, the best advice I can give is to contact the airline and airport in advance.

Find out whether they prefer your transceiver to be packed as hand-luggage or as stowed luggage. Be prepared to be flexible in case they change their minds when you arrive at the airport!

Lead-acid batteries are considered hazardous goods in the *International Air Transport Association (IATA) dangerous goods regulations,* so I suggest readers consider an alternative source of power. Some airport personnel **do not fully understand** the regulations either! In one instance, I was prevented from taking more than eight AA size NiCad batteries onto a plane as hand-luggage.

Whatever you do, make sure that batteries are completely disconnected from the transceiver so that in no circumstances can your transmitter start transmitting during the flight. Make sure that the battery terminals are well protected so that under no circumstances can they be shorted out during the flight.

Carrying Antennas

Generally speaking, for most situations a wire antenna is about as big as it's practically possible to pack in the average suitcase. However, the Arrow 2m/70cm satellite antenna I mentioned in the Satellite article (*What Next?* September 2009) dismantles to a size that will just fit into cabin luggage **(Fig. 2)**. I would nevertheless pack this as checked-in luggage, as I suspect some security people may view it as a sharp' implement.

Rail Sea & Road

Generally speaking, the regulations on what can be carried by rail, sea and road are less restrictive than by air. Nevertheless, I suggest that you be careful to check the fine print!

Placing a load of antennas on a

car roof rack might take it above a height limit or price bracket on a ferry. A generator with full fuel cans might also raise eye brows on-board ferries and in road tunnels – I think it's better to buy fuel at your destination.

Importing Equipment

Many countries have restrictions on the importation of radio transmitting equipment. Just because you have an Amateur Radio licence allowing you to operate, this does not automatically mean that you can import transceivers, etc., into any country.

Even within the European Union (EU), I would suggest declaring anything greater than a very small hand-held. Information in this respect is often included on the relevant national society's web site and I have found these to be far more concise and relevant than other sources.

Contacting relevant the country's Embassy (or High Commission if it's a British Commonwealth Country) in your home country may also help. Despite this, I have found that sometimes the embassies merely send general information regarding commercial importation of equipment rather than temporary importation of one Amateur transceiver for personal use.

Licence Copies

I recommend taking a few full printed copies of your home licence with you. It provides some documentary proof of your bone fide status to customs and other officials along the way. Indeed, some officials may require a copy or two for their records.

Power Supplies

If you are relying on the mains power supply where you are visiting, it's worth remembering that most countries around the world do not use the standard UK 13A plugs. In addition the mains voltage is generally lower than in the UK, with 220V the norm across most of Europe, with 110V the norm in Canada and USA. The frequency of the mains supply in most of the world is 50Hz, but in some countries (Canada and USA for example) it's 60Hz.

For information on mains voltage, frequency, plugs and sockets I find the site at **www.kropla.com/electric2.htm** absolutely invaluable and accurate.

For frequent travellers, I suggest buying chargers and mains leads terminating in the correct plug. This can save both weight and space. For the less frequent traveller, adaptors are available in many hardware and airport shops. **Note:** Be aware however, that these are generally just pin adaptors and not voltage transformers.

Whatever you decide to do, remember that with just 2-pin plugs, you don't know which is live and which neutral, and that there will not normally be a fuse in the plug. Don't be tempted to bodge the connections. You are a guest in the country you are visiting and causing damage will harm the reputation of Radio Amateurs for future visitors.

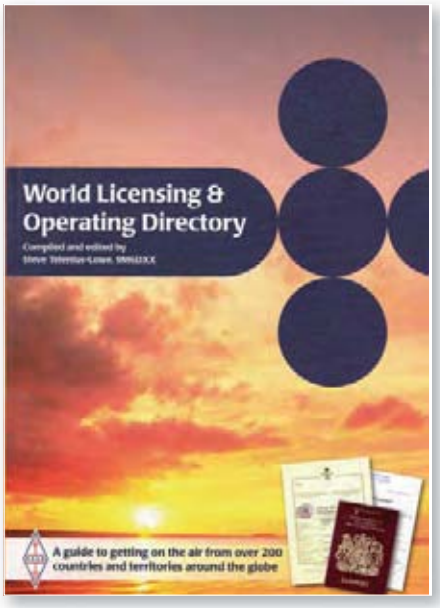


Fig. 3: The RSGB's* World Licensing and Operating Directory *book has lots of helpful information and suggestions.

Setting Up Station

When people are on holiday, they want to relax in a carefree atmosphere. So please consider carefully where to site antennas, feeders, power leads, etc. Any warning notices that you feel necessary should be both visual and multi-lingual and the wording for these can be prepared at home before you leave, using one of the main web sites offering free translations to and from many languages.

Possible EMC Problems

Many holiday destinations are on the coast, often shielded by hills from the nearest TV transmitter. As a result, in these locations TV signals are weak. Particularly, I have noticed that in the Greek islands, marine ducting can seriously affect the reception of TV pictures. Sorting out EMC issues with neighbours at home is one thing, trying to do this in another country without a fluent command of the language is a challenge that few of us can rise to! So, I think it is best to try to anticipate problems and be prepared to be flexible in every aspect of your operations.

Making QSL Arrangements

If you are operating from somewhere exotic (many popular Mediterranean islands qualify as separate location for Islands on the Air - IOTA) so, you may end up with quite a few contacts in your log. You'll need to think about QSL arrangements.

To make things a little easier, it's a good idea to indicate what the QSL arrangements are during each contact. For example I live in England but were I to operate in Greece, I might be operating under the call **SV1/G6MXL/P**. So, to help cards get to you, it would make sense to tell each contact to QSL via G6MXL.

Recommended Book

I can recommend the RSGB book *World Licensing and Operating Directory* by **Steve Telenius Lowe 9M6DXX**, for further reading **(Fig. 3).** It also lists by country a number of stations where visiting Amateurs can make arrangements to operate without having to take equipment with them. This could help you plan for a relatively easy DXpedition for your club!

General Guidance Only

Please remember that in a short article like this, I can only present general guidance. Readers considering operating abroad really do need to do their homework. I strongly suggest doing the research at the earliest opportunity, and double checking everything. The situation can quickly change, so make sure that you have the most up-to-date information available!

However, I hope that you have been inspired to consider operating abroad this summer. Please let me know how you get on. Good luck and I'll see you here next month! ●

nevada®

Ventus WX-928
the ULTIMATE professional Wireless/Solar Weather Station

- PC-Software, Anemometer with solar charger, Meteotime 4 days sat forecast
- Wind Speed, Wind Direction, Wind Chill, Rain Gauge, Barometric forecast
- Pressure Read out, Bar charts, Trend indicators, Dew Point, Heat Index
- Sunset/sunrise display, Moon phase, Critical weather alert, In/Out Temp
- PLUS LOTS MORE!

BEST PRICES! *£199.95*

Ventus WX-831
Weather Station

Fast Delivery! *£119.95*

W-8681
Weather Station

Low cost touch screen Wireless Weather station c/w outside monitoring equipment

SPECIAL OFFER ~~*£79.95*~~ *£69.95*

SBS-1er

Real-time Virtual radar unit with built in AM Airband & FM receiver

Free delivery this month! *£469.95*

MAHA
Professional Range of Battery Chargers

MH-C9000
The ULTIMATE Charger Analyser for AA/AAA batteries

- Match battery capacities
- Four independent slots
- Five modes of operation: Charge, Refresh & Analyse, Battery forming, Discharge, Cycle
- 29 selectable charging and discharging rates for best battery performance

Nevada BEST PRICES! *£49.95*

MH-C808M

- Charge AA/AAA/C/D NiMH batteries
- 8 independent charging circuits
- Ultra fast recharge time
- Built in battery conditioning system
- Worldwide mains adaptor

BEST PRICES! *£79.95*

MH-C800S

- Charge AA/AAA NiMH batteries
- 8 independent charging circuits
- Ultra fast recharge time
- Built in battery conditioning system
- Worldwide mains adaptor

£49.95

MH-204W
Intelligent AA/AAA Battery Charger

£19.95

LDG Tuners
Popular Models
- NOW IN STOCK!

AT-100 Pro	160 - 6m) 125W	£189.95
AT-200 Pro	(160 - 6m) 250W	£209.95
AT-879 Plus	for Yaesu FT897	£179.95
AT-1000 Pro	(160 - 6m) 1kW	£499.95
IT-100	for Icom IC-7000	£209.95
YT100	for Yaesu radios 125W	£199.95
Z-11Pro	(160 - 6m) 125W	~~£154.95~~ £145
Z-817	QRP for FT817 & others	£119.95
FTL	Meter for FT857, FT897	£79.95
NEW	LDG Z11PRO-2 Faster tuner, low consumption	£159.95

Palstar Quality Power Supplies

Palstar SPS-9600 60A — **PRICE** *£179.95*

Palstar PS-50 40A — **PRICE** *£159.95*

PS-04	4A 13.8V supply	£24.95
PS-06	6A 13.8V DC supply	£29.95
PS-15	15A 13.8V supply	£59.95
PS-30M	30A Variable voltage	£99.95
PS-50	40A Linear Bench power supply	£159.95
SPA-8230	23A 13.8V Switch Mode	£59.95
SPS-9600	60A Switch Mode	£179.95

Daiwa Meters
801HP SWR Power Meter

Japanese high quality, huge twin needle display reading Average power, Peak power and SWR

- Freq: 1.8 - 200MHz
- Power: 20/200/2KW
- Connectors: SO239

SPECIAL PRICE ~~*£129.00*~~ *£99.00*

CN801HP	1.8-200MHz 20/200/2kW	~~£129.00~~ £99
CN801VN	140-520MHz (N type Sockets)	£119.95
CN101L	1.8-150 MHz	~~£99.00~~ £89.00
CN103LN	140-525MHz	£99.00
CN801S	900-2.5GHz N types	£119.95
CN801V	140-520MHz (SO239)	£99.95

ALINCO

DX-70TH
Mobile HF plus 6 metre Transceiver

- Modes LSB, USB,CW, AM, FM & digital modes
- All mode squelch scan facilities
- Internal speaker
- Speech processor standard
- Narrow filters fitted as standard
- CTCSS encode and decode (option)
- 100W output on HF & 6mtrs
- Selectable 4 stage RF gain -20dB to +10dB
- Superb TX audio and RX
- Quick offset for DX pile-ups
- Separate HF and 6m antenna sockets

Nevada FAST DELIVERY! *£599.00*

DM-330MW
The very best quality Low noise 30 Amp Switching Power Supply

- Input voltage 230VAC
- Output voltage (5 - 15) VDC variable
- Output voltage variation less than 2%
- Protection: Short-circuit, Auto current, Over-temp
- Output current 30A(max), 25A (continuous)
- Ripple less than 15mVp-p at rated load

Nevada SPECIAL! ~~*£129.00*~~ *£99.00*

ICOM HF Transceivers

IC-7200	100W HF+6m **NEW**	£Online
IC-7000	100W HF+6m Mobile	£Online
IC-7600	100W HF+6m Base **NEW**	£Online

Perseus SDR Radio
VLF-LF-HF Receiver

Covering 10KHz - 40MHz
Has received rave reviews!

In stock for immediate despatch! *£699.95*

Antennas and Accessories

Nevada Wire Antennas

Covered Flexweave wire

G5RV	Half size (40 – 10)	£34.95
G5RV	Full size (80 – 10)	£39.95
Windom	Coax fed size (10/20/40)	£39.95
Windom	Coax fed F/size (10/20/40/80)	£44.95

Hard drawn Copper Wire

G5RV	Half size (40 – 10)	£24.95
G5RV	Full Size (80 – 10)	£29.95

Heavy Duty – PVC flexweave

WDM3	Windom Half size 1kW	£69.95
WDM4	Windom Full size 1kW	£89.95

Moonraker Antennas

GP-2500	Vertical (80-6m)	£199.95
225P	2/70/23cms Colinear	£74.95
1010N	2/70/6metres Colinear	£84.95

Sirio Antennas

SY27-3	Yagi 3 element 26 – 29 MHz	£74.95
SY27-4	Yagi 4 element 26 – 29 MHz	£89.95
827	5/8 Vertical 26 – 29MHz	£79.95
Vector 4000	5/8 26 – 29 MHz	£79.95
Tornado 27	5/8 26 – 29 MHz	£49.95
Balcony	Covers 27 – 200 MHz	£26.95
GPS 27	Half wave 26 – 29 MHz	£29.95
GPE27	5/8 wave 26 – 29MHz	£39.95

Wireless LAN 2.4GHz

Nevada	Corner dipole	£14.95
Comet	CYA2414 14 element	£99.95

Masts – stackable

20ft	4 section 1 inch	£34.95
20ft	4 section 2 inch	£59.95

Masts – telescopic

26ft	Aluminium	£89.95
33ft	Aluminium	£99.95
33ft	Fibreglass heavy duty	£179.95

Visit our web site for a large selection of masts, fittings etc

MFJ Accessories

MFJ 259B	HF/VHF Analyser	£259.95
MFJ 269	HF/VHF/UHF analyser	£349.95
MFJ-941E	300W Tuner	£139.95
MFJ-949E	300W HF tuner	£179.95

COMET

HF/VHF/UHF Base Antennas

GP1	144/430 MHz 3.0 / 6.0dbi 1.25m	59.95
GP3	144/430 MHz 4.5 / 7.2dbi 1.78m	69.95
GP6	144/430 MHz 6.5 / 9.0dbi 3.07m	99.95
GP15N	50/144/430 MHz 3/6.2/8.6dbi 2.42m	99.95
GP98	144/430/1200 MHz 2.94m long	139.00

1.2GHz Beam

CYA-1216E	16 element 1.2GHz yagi	99.00

Muliti Band HF Mobiles

UHV5	7/21/50/144/430MHz 100/200W	79.95
UHV6	7/21/28/50144/430MHz 100/200W 1.9m L	99.95

HF Mobile Whips PL259 Fitting

CHS10	10MHz 1.05m long 250W	29.95
CHS21	21MHz 0.95m long 300W	39.95
CHS50	50MHz 0.95m long 300W	39.95
HA035	3.5MHz 1.13m long 120W	59.95
HFB10	28MHz 0.95m long 120W	39.95
HFB14	14MHz 0.95m long 250W	39.95
HFB40	7MHz 1.6m 250W	39.95
HFB6	50MHz 0.95m 250W	39.95
HR50	50MHz 2.13m long 200W	49.95

Magnetic Mount Antennas

M24M	144/430MHz 1.7 / 4.17dbi 0.48m L	29.95
M72S	144/430MHz 1.7 / 3.5 dbi 0.52m L	29.95

VHF/UHF Mobile Whips PL259 Fitting

CSB7500	Super Beam mob whip 144/430MHz	49.95
CSB7700	Super Beam mob whip 144/430MHz	54.00
CSB7900	Super Beam mob whip 144/430MHz	59.00

Handy Antennas

BNC-750	BNC HF whip 7-50MHz TX/RX	79.95
CH32	BNC 144/433/900MHz 45mm	19.95
CH99	BNC Tel Whip 70-1000MHz 195-1135mm L	19.95
RX5	144/430/900MHz 44cm L 8W SMA	29.95
SH95	144/430/1200MHz 37cm L 10W BNC	29.95

www.nevadaradio.co.uk

For unbeatable deals online
24hr shopping 7 days a week

radio warehouse

ALINCO

NEW!

DX-SR8
Affordable HF Transceiver - with a QRP Setting!

Narrow filters, IF Shift, RF pre-amp, noise blanker and CW keyer with full break in. For the QRP enthusiast a special super low output power setting.

- Covers all SW and HF Amateur bands (inc 5MHz)
- TX: SSB, CW, AM, FM
- Power: 100W SSB/CW, 40W FM
- QRP Mode: (0.1 to 2.0)W
- RX: 30kHz - 35MHz
- 600 ch memories in 3 banks

Nevada BEST PRICES! £499.95

DR-635
Full Featured Dual Band Mobile

- Removable Control Head
- VHF/UHF full duplex
- 144/430MHz plus wideband RX
- 200 Memory Channels
- VHF: 50/20/5W, UHF 35/20/5W
- Int. Duplexer for single antenna use
- Cable Clone feature

Nevada BEST PRICES! £299.00

SAVE £39!

DJ-195
2m VHF handheld transceiver

With battery and charger!

- Frequency: 137 - 174MHz
- Modes: NFM
- Memories: 40 memory channels, plus CALL channel
- Each memory capable of non-standard split operation
- 5 W output
- CTCSS encode and decode
- 40 memory channels
- DCS, Tone burst & DTMF
- S 3 Meter
- Audio dialler
- Call cloning facility
- Computer programmable (with third party software)
- Theft Alarm

Nevada SPECIAL! ~~£139.00~~ £99.95

DJ-G7E Full Duplex Tri-Bander with 1200 MHz!

- Wide band receiver
- Full duplex receive
- 2m/70cm bands
- Rugged water resistant case
- Includes: Drop-in Charger, Battery Pack, Swing Belt Clip, Antenna

Nevada BEST PRICES! £299.95

SAVE £59!

DJ-175
VHF 2m Rugged Handheld

RRP ~~£149~~ **SPECIAL £89.95**

With battery and charger!

- Transmit frequency: 144 - 148 MHz
- Receive: 136.00 - 173.995 MHz
- Freq steps: 5, 10, 12.5, 20, 25 & 30kHz
- New 2-touch repeater function
- 200 memory channels + CALL channel
- CTCSS, DCS and DTMF encoding
- 1000, 1450, 1750 & 2100Hz tone bursts
- 3 levels of output power 5, 2 and 0.5 W

Nevada SPECIAL! ~~£139.00~~ £89.95

Alinco Handhelds

DJ-V17	Dual band handheld £99.95
DJ-596	Dual band 2m 70cm SPECIAL £189
DJ-195	2mtr 40 memories SPECIAL £99.95
DJ-C7E	Dual Band £149

Alinco Mobiles

DR-435	UHF 35W 70cm FM TX £179
DR-135	VHF 50/10/5W, TX 144-146MHz £199
DX70TH	HF + 6 metre TX 100W £599

YAESU

We carry ALL the popular models at the BEST PRICES!

HF Transceivers

FT-950	100W HF + 6 m (DSP & ATU) £Online
FT-450AT	100W HF with ATU £Online
FT-897D	100W HF with 6m/2m/70cm £Online
FT-857D	100W HF with 2m/70cm £Online
FT-817ND	HF Portable + 6m/2m/70cm £Online

VHF/UHF Transceivers

FT-7800E	2m/70cm 50/40W FM Mobile £Online
FT-8800	2m/70cm 50/35W Mobile £Online
FT-8900R	10m/6m/2m/70cms Mobile £Online

Handhelds Transceivers

FT60E	2m/70cms Wideband RX £Online
HANDHELD SPECIAL - SAVE £80!	
VX-8E	6m/2m/70cm NEW ~~£379~~ £299.00
Spare Battery for VX-8E FB101	£34.95

Yaesu Microphones

MD-100A8X	Base microphone £Online
MD-200A8X	Base microphone £Online

Yaesu Rotators & Bearings

G1000DXC	Heavy Duty SPECIAL £399.00

back in stock!

Yaesu YH-77STA
Stereo Communications Headphones

Light weight, dual samarium-cobalt transducers with stereo separation for the dual receive on Yaesu HF radios. Supplied with 3.5mm mini stereo socket and 1/4 inch stereo adaptor

SPECIAL! SAVE £5! ~~£54.95~~ £49.95

COMET Handy Antennas (continued)

SMA3	144/430/900MHz 25cm L 10W SMA	24.95
SMA-501	144/430 MHz SMA	19.95
SMA-701	144/430/1200MHz SMA	19.95

Antenna Mounts

RS6	Roof Rack Mount - adjustable	19.95
RS550	Roof Rack Mount - deluxe adjustable	19.95
RS700	Gutter Mount adjustable	19.95
RS730	Trunk lip Mount adjustable	19.95
RMS	Magnetically mounted Gutter Clamp	29.95
WS1M	Window Mount deluxe SO239 plug	39.95
WS1B	Window Mount deluxe BNC plug	39.95
RS840	Trunk Lip ant mount	24.95
RS-020B	Trunk/Hatch back (Black)	21.50
RS-020S	Trunk/Hatch back (Silver)	21.50

Motor Bike Mounts

BMB-S	Motor bike bracket (Silver)	25.95
BMB-B	Motor Bike Mount (Black)	25.95

Car/Caravan Mounts

CAUBI	Trailer Mount - for HF whip antennas	49.95

Cable Assemblies

3K054M	4 metre cable SO239 to PL259 plug	24.95
3K054N	4 metre cable So239 to N type plug	25.95

Duplexers

CF360A	28/50MHz w/leads SO239 - PL259/PL259	39.95
CF416A	144/430MHz w/leads SO239 PL259/PL259	34.95
CF416B	144/430MHz w/leads SO239 PL259/N male	34.95
CF503C	50/144MHz Sockets SO239 - PL259/PL259	44.95
CF530C	50/144MHz w/leads SO239 - PL259/PL259	44.95
CF530A	50/430MHz w/lead PL259 SO239/SO239	39.95
CF416BI	144/430MHz Sockets SO239 PL259/PL259	32.95
CF706	Duplexer for Icom IC706	39.95

Triplexers

CFX431A	144/430/1200MHz N socket/PL259/N/N	49.95
CFX514N	50/144/430/MHz SO239/PL259/PL259/N	49.95

Current Baluns

TFA-400	(1.3-500MHz) 400W	69.95
TF-1800	(1.3-500MHz) 1.8kW	79.95
TF-5000	(1.3-500MHz) 5 kW	99.95

Low Pass Filters

CF30H	Low Pass Filter 32 MHz 2kW	119.95
CF30MR	Low Pass Filter 32 MHz 1kW	49.95
CF30S	Low Pass Filter 32 MHz 150W	29.95
CF50MR	Low Pass Filter 57 MHz 1kW	49.95
CF50S	Low Pass Filter 57 MHz 150W	39.95

Line Noise Filters

TRF15	AC/DC line filter 15 amp	39.95
TRF20	AC/DC line filter 20 amp	49.95
TRF30	AC/DC line filter 30 amp	59.95

Dummy Loads

D21M	Dummy Load DC- 600 MHz 100W PEP	36.95
DC1500CM	DC- 600 MHz 1.5kW PEP SO239	199.00

Earphones

H20F	Clip over earpiece - Yaesu Icom etc	15.95
H20K	Clip over earpiece - Kenwood	14.95

LOWEST PRICES!!
100m Drums Guy Rope & Cable

Guy Rope 100 metre Drums
Military style, pre-stretched Olive Green

SYC-11	5mm 295kg	£49.00
8 plait	4mm 330kg	£59.00
8 plait	6mm 700kg	£79.00
KT3 Kevlar	2mm 400kg	£59.00
KT-8 Kevlar	4.5mm 570kg Green	£89.00

Cables 100 metre Drums

Westflex 103	Lo loss coax cable	£130.00
WF-165 75 Ohm	(Double Screened)	£129.00
RG-213U	Mil spec low loss	£119.00
RG 213TM	Low loss cable	£99.00
Mini RG8 LAP	(Double Screened)	£69.00
RG-58	Coax cable	£39.95
450 Ohm	Twin Feeder	£85.00
300 Ohm	Twin feeder	£75.00
Flexweave	Antenna wire	£50.00
Flexweave (cooted)	Antenna wire	£75.00
Ribbed Insulators	(pack 2)	£3.40

We are pleased to be appointed UK distributors for
Ecoflex® Cables & Connectors

Ecoflex 10	£2.65 per metre
Ecoflex 15	£5.60 per metre
Aircell 5	£1.20 per metre
Aircell 7	£1.70per metre
Aircom Plus	£2.95 per metre

Also stocked in 100, 200 & 500m drums
Full range of connectors - see our Web

etón Portable Radios

G3 AM/FM/SW Digital Radio

NEW!

Stereo, SSB, VHF Aircraft band, RDS and Synchronous Detector with selectable sideband

- 700 memories
- Clock, sleep timer, alarm
- Power source: 4AA batteries (not inc)
- AC adapter/charger

£99.95

or call **023 9231 3090** showroom hours Monday to Friday 9.00 - 17.30

Unit 1 Fitzherbert Spur Farlington Portsmouth Hampshire PO6 1TT email sales@nevada.co.uk fax 023 9231 3091

ALL GOODS SHIPPED FOR 24 HOUR DELIVERY

P&P: £5.95 (UK MAINLAND) unless otherwise stated

E&OE

Harry Leeming's

in the shop

Harry Leeming G3LLL starts by mentioning his favourite Yaesu transceiver – the FT-990 – the 'sell and forget' rig.

Welcome – the G3LLL 'shop' is open again! And looking back I realise that we all have our favourites – and the Yaesu FT-990 h.f. rig is one of mine! Indeed, when we had the shop, it was a 'sell and forget rig' because I had so few problems with them.

There was however, one 'no fault' that arose a few times and it went something like the following story. It started when either '**Tom'**, '**Dick'** or '**Harry'** (Not me of course!) would decide to fit the optional c.w. filter, doing a neat job before he'd re-assemble the rig, only to find out that the FT-990 was dead on receive.

After this had happened with a few customers, it only needed a panic-style 'phone call or a visit, and I would know immediately what they had done! Next to the power **On**/**Off** button is a smaller button marked **RX ANT**, just exactly at the place where your fingers naturally fall as you turn the rig over, **Fig. 1**! If you press it the rig switches to a separate receive only antenna socket – which is great if you're using two antennas – but kills the receiver if you only have one!

Another 'No Fault'!

There was also another 'no fault' that I've experienced twice and the first occurred about 15 years ago. '**Peter'** was going on holiday, and as he wasn't happy with the idea of leaving his new FT-990 in a house that wasn't particularly secure, he asked '**George'** to look after it for him, and said that if wanted he could operate it while Peter was away.

So, while Peter was away George was really enjoying himself on the air until the mode selector menu suddenly locked up in the FM mode. He appeared on my doorstep in somewhat of a panic, "What have I done Harry – what will it cost to repair?"

I took the rig round the back, popped it on my bench, and confirmed that it was still faulty. I then pulled the mains plug out, switched off the memory back-up battery, **Fig. 2**, and pushed the **On**/**Off** switch a few times with the power disconnected, to reset the microprocessor. I then held my breath, fired the rig up again and three cheers, it worked okay, and continued to do so when I switched the battery on again!

To say that George was happy and relieved would be an understatement, but at least it was nice to know that I could please some of the people some of the time. I was reminded of this story by a telephone call from '**Keith'** , who bought the very last FT-990 from me before I retired from the shop.

Keith recently rang up to say that he was tuning across 3.5MHz (80m) on lower sideband (l.s.b.), when the rig suddenly selected the amplitude modulation (a.m.) mode, and refused to switch back to any other. I advised him to do a microprocessor reset,and he then phoned me back to say that all was well again.

Microprocessors are common in much electronic equipment and like computers they seem to occasionally 'crash' for no apparent reason and at no particular time interval. Even space probes have to be re-booted sometimes! Most electronic equipment, from video recorders and DVD players, to television sets and Sat-Navs, have details (often hidden away on the last page of the instruction books) as to how to do a re-set.

I can't help wondering as to how many million pounds worth of electronic equipment is dumped as not worth repair, when all that is required is for the user to read this, and to then switch off the back-up battery, or push a couple of buttons while reconnecting the power. When I fly overseas for a holiday I have also wondered, "Has the cockpit of a fly-by-wire airliner a red re-set button which the pilot can press?"

Fig. 1:The Sell-and-Forget FT-990, had a peculiar place for the RX ANT switch, just to the right of the main power switch (top left of the front panel). If you turned the rig over, it was easy to inadvertently press this on, switching antennas on receive.

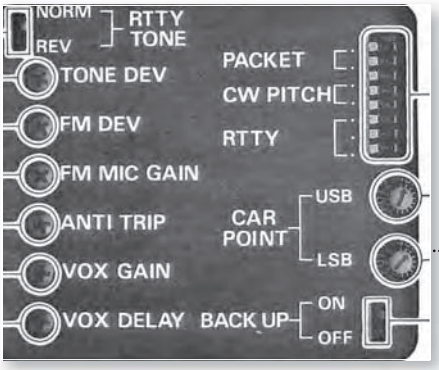


Fig. 2: If the c.p.u. 'locks' up on the FT-990, you'll need to switch off the back-up battery (switch on the lower right) to enable you to restart the c.p.u. 'cleanly'.

Harry Leeming G3LLL
The Cedars
3a Wilson Grove
Heysham
Morecambe LA3 2PQ
Tel: (07901) 932763
E-mail: G3LLL@talktalk.net

"Otherwise, what happens, if the control system's microprocessors decide to lock up in mid air?"

The FRG7 Speaker Switch

A recent E-mail correspondent asked me, "Why is there a switch and a wire wound resistor, hidden in the battery compartment of the Yaesu FRG7 general coverage receiver?"

The switch and resistor are not shown in the instruction booklet, or the service manual, but are there to reduce the power fed to the internal speaker. Straight out of the box the FRG7 is rather low on audio, but you just flick the hidden switch and the volume increases considerably. I was once told that by reducing the audio power this way Yaesu were able to rate them as a communications receiver and obtain a lower level of import duty in some European countries. It all sounds rather strange – but not really surprising!

Recently I just happened to ask at a demonstration of 'licence-free electric' bicycles about their top speed. I was told (confidentially). "They are limited by law but we can show you how to short out the governor!" It all sounds familiar doesn't it? Shades of 28MHz (10m) rigs that just happen to have links that can be cut to extend the range to cover illegal CB frequencies!

The Z-Match & 1.8MHz

I got quite a bit of feedback on the Z-match and 1.8MHz item (*PW* November 2009 issue), and **Eddie Marshall G4PPB**, from Wigan, sent me the photo shown, of the 1.8MHz coil fitted to an SEM Z match a.t.u. **Fig. 3**. Eddie found that with his installation a 16-turn coil wound on a 1.25 inch diameter piece of plastic waste pipe, tunes up both of his antenna systems nicely.

I also had a few responses to my request as to the origins of the Z-match. It seems to have been developed from existing switch-less multi-band tank circuits. In fact, **Allen King W1CJL** produced his Z-match in 1954, and a d.i.y. article by him appeared in *QST* for May 1955. You can read all about this at **www.cqham.ru/zm.htm** – many thanks to all who responded, and particularly to **Mike Allenson** who let me have details of the National MB-40 SL multi-band tank assembly, which pre dates the Z-Match by a few years.

Good Low Loss Insulation?

Not all plastics offer good low loss insulation, and when winding a coil for the 1.8MHz modification, the constructor obviously needs to know that the former is suitable. So, how do you tell?

Here's a suitable test: Place a plate in a microwave oven, at one side of it a glass of water, and at the other a sample of the plastic. Fire up the microwave oven for 30 seconds, and the water should be hot and the plastic cold. If the plastic is warm, (or has melted – hence the plate!) it's not suitable.

The FT-290 Again

Despite its age, the original Yaesu FT-290MK1 is still very popular and is the subject of many of the queries that I receive. The '290 was introduced in June 1981, and certainly as far as I was concerned, it was the best seller of all time.

At that time no other 144MHz (2m) rig offered frequency modulation (f.m.) and single sideband (s.s.b.), with the possibility of home, mobile, or portable operation for under £250 – and so it really took off. Being only a small retailer I used to order rigs such as the FT-101 in ones and twos. However, the '290 needed to be kept in stock and I ordered in 'tens and twenties' as they were so popular – I just couldn't get hold of enough of them!

The rig hit the market at the time when many CB operators were taking the Radio Amateurs Examination (RAE) and changing over to Amateur Radio. Once they had passed the exam they wanted to get on the air and try to work a little DX – without initially having to pass the Morse test. For them the FT-290 really fitted the bill.

Yaesu also made available a 15 watt linear amplifier, but this was not really competitive when compared with the 30 watt one made by Microwave Modules, which incorporated a switchable receive pre-amplifier, and so for many of my customers a '290 plus a 30 watt 'Mickey Mouse', became a standard installation. Because of its popularity, I still get quite a lot of E-mails about the FT-290, and so this is as good a time as any to answer some of them.

The FT-290 FAQs

The FT-290 Mark 1 'most Frequently asked questions (FAQs) include: **"I've just bought an FT-290, and I can't get the tone burst button to work!"**

Answer: One problem with the '290 was that as it was only small, it was difficult, and possibly dangerous, trying to hit the tone-burst button when operating mobile. I re-wired many of them so, that in the f.m. mode the tone burst was fed via the noise blanker's 6.8V supply. A diode, and a 470μF capacitor, making it operate continuously on receive. As soon as the push-to-talk (p.t.t.) was pressed the noise blanker supply voltage disappeared. The tone burst then continued to run for about two seconds on transmit until the voltage across the 470μF discharged – providing an automatic tone-burst.

After this modification has been carried out, the tone burst-button no longer works. So, for f.m. operation with a tone burst, the noise blanker must be switched on. This modification was published and widely copied. It's easy to tell over the air if a '290 has been modified in this way. Just listen to the tone burst, and if the end of the burst sounds like it's being 'strangled' as the capacitor discharges, you'll know that this mod' has been carried out!

FAQ: My Telescopic antenna has broken – does it matter?

Answer: The pull-up telescopic antenna is part of the power amplifier (a.m.) tuned circuit, and when it's pushed down, it forms a capacitor that ensures that the FT-290 is correctly tuned so as to deliver power to the PL259 socket on the rear. If the top of the telescopic antenna is broken, you must still ensure that the first 4 inches are left on, and telescoped down into the rig, before transmitting via the socket at the rear. If you try and operate – without at least the remains of the pull-up whip – you'll get reduced power and you may well also blow the p.a. transistor. If you can't obtain a good or a broken whip, it would probably be possible to fit a small capacitor to duplicate the loading of the whip and to then realign the p.a. stage – but I've never tried this. Unfortunately, I do not know of a source of supply for the whips, any suggestions readers?

FAQ: The Tuning is odd and intermittent, or the size of the steps is wrong.

Answer: The simple cure – in most cases – is to switch off the back-up battery and do a re-set (exactly the same as for its much bigger sibling the FT-990, see earlier suggestions). However, on rare occasions it may be necessary to replace the rotary encoder. Please E-mail me at Leeming Towers (address at the end of the column) if you need one of these.

FAQ: There's a small extra p.c.b. inside and it seems to be wired to the antenna.

Answer: The UK company Mutek, made a special receive pre-amplifier for the FT-290. If you look carefully you'll find that it includes a pre-set potentiometer and by turning this you can adjust the gain. Incidentally, don't be tempted to set the gain too high, or strong signals may cause the rig to overload. This will then also create cross modulation and result in local stations spreading across the band. (More on the '290 next time).

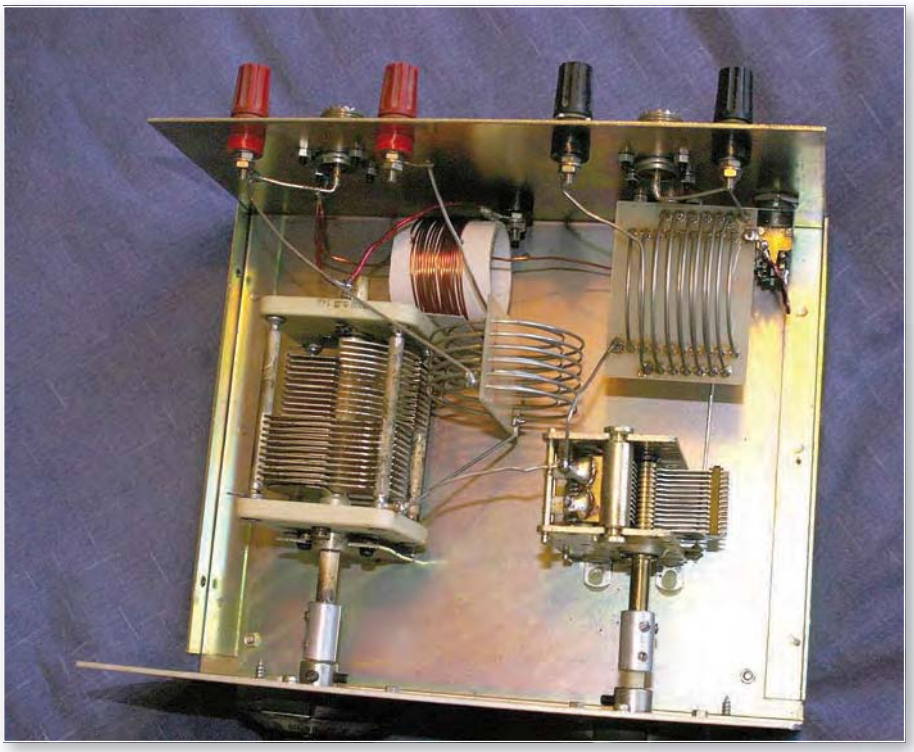


Fig 3: Eddie Marshall G4PPB, from Wigan, sent me the photo showing the 1.8MHz coil fitted to his SEM Z-match a.t.u.

Delivered Personally

Even when I was operating a full time business I much preferred repairs to be brought in personally, rather than sent via carriers. From the bitter experience of deliveries that went wrong – I developed two conclusions.
1: Many customers hadn't a clue as to how goods needed to be packed up if they were to be sent via carriers.
2: Many carriers hadn't a clue regarding how expensive electronic equipment needed to be handled.

I can't advise you any longer about the merits of the current batch of carriers, as it's nearly 12 years since I closed my shop but if you have to send an expensive rig away I would make two suggestions.

First telephone the repairer and ask their advice about transportation, they may well have a contract with someone reliable.

Next pack the goods in the original box and then place this in a larger box, with screwed up newspaper buffering the space between the two boxes.

Finally, hold the package head high over a concrete floor, and ask yourself the question, "Can I safely throw it onto the floor?" You can't! (You say this to yourself). If that's the answer – then start again as you've not packed it adequately.!

However, my suggestions **do not mean** that I approve of throwing delicate electronic equipment around! Instead, I'm just a realist and 100% in agreement with **'Joe'**, the operator of a CB/computer business, to who I was recently speaking.

Joe was walking to his shop when he passed a large lorry, from which he could hear thuds. He poked his head round the back and saw that the driver was busy throwing computers, along its full length. Just as he reached his shop the same lorry drew up, and the driver started to unload the batch of computers to his business. Joe refused delivery, advised the driver to take them back where they came from and made it quite clear that he would be complaining to the supplier! Ah well, it's closing time now – see you next month!

●

Harry & Your Radio Problems

I like to hear about problems with older equipment, particularly pre-1990 Yaesu rigs. Please E-mail me, (add some radio related term in the subject heading, to differentiate against spam), or write and enclose a stamped addressed envelope. Remember that electricity is dangerous, if you are not familiar with safety precautions you must never work on your equipment whilst it is plugged into the mains. (Switching off at the wall socket does not necessarily make equipment safe).

club news

Please remember to include full details of your club, E-mail and telephone contact details and the postcode of your meeting venue - it helps potential visitors to find you!

Send all your club info to

PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: newsdesk@pwpublishing.ltd.uk

AYRSHIRE (Scotland)
Kilmarnock & Loudoun ARC
Graham MM0GHM: (0780) 2954 739
E-mail: mm3gdc@btinternet.com
www.klarc.org
We meet every 2nd and 4th Tuesdays at the clubhouse at E. Ayrshire Internal Transport, 36a Main St., Crookedholm, Kilmarnock KA3 6JS

BEDFORDSHIRE
Shefford & DARS
David Lloyd. Tel: (01234) 742757
www.sadars.org.uk
The Shefford and District Amateur Radio Society meets every Thursday at the Community Hall, Ampthill **Road**, Shefford, SG17 5BD (next to the Chip shop). See web site for our full programme.

BERKSHIRE
Reading & DARC
Pete Milton. Tel: (01189) 695697
www.radarc.org
The Reading & District Amateur Radio Club meets on the second and fourth Thursday of the month at Woodley Pavilion, Woodford Park, Haddon Drive, Woodley, Berkshire RG5 4LY. Mid-september sees commencement of the Advance Licence Course run by Alison Johnson G8ROG, details from g3ngx@radarc.org

BUCKINGHAMSHIRE
Milton Keynes Amateur Radio Society (MKARS)
Roy, G8RCK Tel: (01908) 282585
www.mkars.org.uk
The Milton Keynes Amateur Radio Society meets every Monday evening, starting at 7pm, at its clubroom within the grounds of Bletchley Park which is situated off Sherwood Drive, Bletchley, Milton Keynes. MK3 6EB. When using a SatNav. please put in Sherwood Drive, Bletchley as the post code will take you to the wrong location. Visitors to the club must stop at the gate box on entry to the park. For details of the club's events diary see our web site.

The Burnham Beaches Radio Club
Charles Tel: (01753) 861115
E-mail: bbrcinfo@btconnect.com
http://come.to/bbrc
The club meets every first and third Monday of the month at the Farnham Common Village Hall, Victoria Road, Farnham Common. The club participates in a wide range of amateur radio activities and runs regular courses for those wishing to get on the air. For more information contact, visit our website at or E-mail us.

CAMBRIDGESHIRE
Huntingdonshire ARS
Gerald G8AKL. Tel: (01487) 740794
E-mail: hunts.hams@yahoo.co.uk
www.hunts-hams.co.uk
Huntingdonshire ARS meets at the Medway Centre, Medway Road, Huntingdon PE29 1SF. Meetings are from 7.30pm until 10pm on the 2nd & 4th Thursday of the month.

Peterborough & DARC
G4EHW.
www.radioclubs.net/padarc
Meets on 4th Wednesday of the month at Southfields Community Centre, Stanground, Peterborough. PE2 8RZ. Directions and full details on website.

CHESHIRE
Chester & DRS
Barbara Green.
Tel: (07957) 870770
E-mail: barbara@rutland.go-plus.net
www.chesterdars.org.uk
The Chester & District Radio Society meets on Tuesday evenings at the Burley Memorial Hall, Common Lane, Waverton, Chester CH3 7QN.

Halton RC
Sam. Tel: (01928) 714231
http://g7wfs.sytes.net/hrc/index.htm
The Halton Radio Club meets in The Play Centre, Norton Hill, Windmill Hill, Runcorne WA7 6LJ every Thursday from 7.30 to 9.30pm. There's plenty of parking and full disabled access.

Macclesfield & DRS
Adie Dodd. Tel: 0795 7765511
www.gx4mws.com
The Macclesfield & District Radio Society meets every Monday at the Pack Horse Bowling Club, Westminster Road, Macclesfield SK10 3AT at 8pm. Licence courses are run year round and visitors are always welcome.

Stockport RS
David Simcock. Tel: 0161 456 7832
E-mail: secretary@gx4mws.com
www.stockportradiosociety.co.uk
The Stockport Radio Society meets on the first and third Tuesdays at their new location of: Walthew House, Shaw Heath, Stockport SK2 6QS

Warrington Amateur Radio Club
Paul Carter.
E-mail: g7odj@warc.org.uk
www.warc.org.uk
The Warrington Amateur Radio Club meets every Tuesday at 8pm at the Grappenhall Youth and Community Centre, Bellhouse Lane, Grappenhall, Warrington WA4 2SG.

CORNWALL
Cornish RAC
Steven G7VOH
Tel: (01209)844939
E-mail: g7voh@btinternet.com
www.cornishradioamateurclub.org.uk
The Cornish Radio Amateur Club meets at the Church Hall, Church Road, Perranarworthal, Truro TR3 7QE on the first Wednesday of every month at 7.30pm. There is also a Computer Section that meets at the same venue and time on the second Monday of every month, except December.

Newquay and District ARS
Joe Bell. Tel: (01726) 891557
E-mail: joe_bell@btinternet.com
www.btinternet.com/~kevin.francks/index.html
The Newquay and District ARS meets every other Thursday at Treviglas Community College, Bradley Road, Newquay. TR7 3JA with either arranged talks on the evening or just a general chit chat amongst members. Also the club offers foundation training on club nights.

Poldhu ARC
Keith Matthew.
Tel: (01326) 574441
E-mail: g0wys@yahoo.co.uk
www.gb2gm.org
The Poldhu Amateur Radio Club meets at The Marconi Centre, Poldhu Cove, Nr Mullion, Cornwall TR12 7JB. Tel: 01326 241656.

COUNTY DOWN
Bangor and District ARS
Mike. Tel: 028 4277 2383
http://www.bdars.com
The Bangor and District Amateur Radio Society meets on the first Thursday of every month in 'The Boathouse', Harbour Car Park, Groomsport BT19 6JP at 8pm.

COUNTY DURHAM
Bishop Auckland RAC
Mark Hill. Tel: (01388) 745353
http://barac.m0php.net/
The Bishop Auckland Radio Amateur Club meets every Thursday at 8pm in the Village Community Centre, Stanley Crook, Co. Durham DL15 9SN. Tuition for Foundation, Intermediate and Advanced licences is available. The club is as an RSGB registered exam centre.

Great Lumley AR&ES
David Barclay. Tel: 0191 3888113
E-mail: m0bpm@btinternet.com
The Great Lumley Amateur Radio & Electronics Society meets in the Community Centre, Front Street, Great Lumley, Chester-le-Street, Co. Durham DH3 4JD on Wednesday nights from 7 to 9pm.

DERBYSHIRE
South Normanton Alfreton and District ARC
A J Higton. Tel: (01773) 783658
E-mail: Snadarc@aol.com
www.snadarc.com/
The South Normanton Alfreton and District Amateur Radio Club meets in the Village Hall, Community Centre, Market Street, South Normanton, Derbyshire DE55 2EJ.

DEVON
Exemouth ARS
Mike G1GZG. Tel: (01395) 274172
E-mail: micael.newport1@btinternet.com
The club meets on the 1st and 3rd Wednesdays of each month at 'The Scout Hut', Marpool Hill, Exmouth Devon EX8 1TD.

Exeter ARS
Phil 2E0PCJ
Tel: (01392) 877413
E-mail: philcjays@aol.com
The Exeter Amateur Radio Society meets on the 2nd and the 4th Monday at 7.30pm in the Moose Centre, Spinning Path Lane, Blackboy Road, Exeter EX2 5RP. Tuition for Foundation, Intermediate and Advanced licence is available. The club is an RSGB registered examination centre.

Plymouth, Radio Club
Bob G7NHB
Tel: 01752 343177
E-mail: freebobx@yahoo.com
http://radioclubs.net/g3prc
The club meets on the second Tuesday of every month at 7.00 pm for 7.30 at the Raffles Club, Ermington Terrace, Mutley, Plymouth PL4 6QG.
See web site for details and club location. Foundation and Intermediate Courses and all examinations are provided by the Plymouth Training Team.

Torbay ARS
Dave Helliwell.
E-mail: g6fsp@tars.org.uk
www.tars.org.uk
The Torbay Amateur Radio Society meets Fridays at 7.30pm in the Teignbridge District Scout Headquarters, Wolborough Street, Newton Abbot, Devon TQ12 1JR.

DORSET
Blackmore Vale ARS (BVARS)
Nick Perrin. Tel: (01747) 838936
E-Mail: bnperrin@theiet.org
www.radioclubs.net/bvars/
BVARS meets in The Youth Club, Coppice Street, Shaftesbury Dorset SP7-8PF each Tuesday evening at 7.30pm. The Club call-sign is G4RBV. The main meeting is the second Tuesday of the month and details of events and full details of the Club can be found on the website.

Bournemouth RS
John. Tel: 07719 700 771
www.brswebsite.org.uk
The Bournemouth Radio Society meets on the first and third Friday of each month at the Kinson Community Centre, Pelhams Park, Millhams Road, Kinson, Bournemouth BH10 7LH. Meetings take place in Room 5 at 8pm and members assemble in the bar from 7.30pm. Visitors are always welcome.

Poole Radio Society G4PRS
'Tex' G1TEX. Tel: 07966 460 552
www.g4prs.org.uk
Meetings are every Friday at 19:30 for 20:00 at the The Old Chapel Hall, Cabot Lane, Creekmoor, Poole BH17 7BX, the second meeting of each month is the formal evening, all others are basically shack and Natter nights. After the recent successful Intermediate course, training begins again in September.

DUMFRIES & GALOWAY (Scotland)
The Wigtownshire Amateur Radio Club
Ellis Gaston. Tel: (01776) 820413
Web: www.gm4riv.co.uk
The club meets every Thursday from 19:00 Hrs at the The Aird Unit, Stranraer Academy, Stranraer, DG9 8BQ, South West Scotland.

EAST SUSSEX

Brighton RC
Reg Moores. Tel: (01273) 503869
The Brighton Radio Club meets on the second and fourth Tuesdays of each month at the Vallance Community Centre, Conway Court, Sackville Road, Hove BN2 3WR at 7.30pm. Anyone wishing to know more are welcome to come along to a meeting, entrance is free.

Hastings E&RC
Gordon Sweet.
Tel: (01424) 431909
E-mail: gordon@gsweet.fsnet.co.uk
www.herc.uk.net or
http://g4cus.mysite.wanadoo-members.co.uk/
The Hastings Electronics & Radio Club meets on the third Wednesday at the Taplin Centre, Upper Maze Hill, St Leonards on Sea TN38 OLQ at 7pm.

ESSEX

Braintree & DARC
Keith. Tel: (01376) 329279
www.badars.org.uk
The Braintree & District Amateur Radio Society meets on the first and third Monday of the month in The Clubhouse, Braintree Hockey Club, Church Street, Bocking CM7 5LJ.

Colchester RA
www.g3co.ccom.co.uk
The Colchester Radio Amateurs meets at 7.30pm on alternate Thursdays at St Helena School and The Colchester Institute, Sheepen Road, Colchester, Essex CO3 3LE. Members and non-members welcome.

Chelmsford ARS
Martyn Medcalf. Tel: (01245) 469008
E-mail: info2007@g0mwt.org.uk
www.g0mwt.org.uk
The Chelmsford Amateur Radio Society meets on the first Tuesday of each month in the Marconi Sports & Social Centre, Beehive Lane, Great Baddow, Chelmsford, Essex CM2 9RX at 7.30pm. - All welcome.

Loughton & Epping Forest ARS
Marc Litchman. Tel: 020 8502 1645
E-mail: info@lefars.org.uk
www.lefars.org.uk
The Loughton & Epping Forest ARS meet Friday fortnightly at All Saints House, Romford Road, Chigwell Row, Essex IG7 4QD between 7.45 and 10pm. All visitors will be made most welcome.

South Essex Amateur Radio Society
Norman M0FZW. Tel: 01268 692776
E-mail: secretary@southessex-ars.co.uk
www.southessex-ars.co.uk/
Meets: Meet at 8pm on the second wednesdays of each month at South Benfleet Primary School, High Rd, South Benfleet, Essex SS7 5HA. (Entrance: 51°33'10.45N 0°33'39.65E), (Opp. Smiths Wood Yard). All are welcome to come along or join our net on 145.225MHz weekdays @17.00hrs..

FIFE (Scotland)

Glenrothes & DARS GM4GRC
D Francis MM0DYX.
Tel: 01383 823878
Meet Wednesdays at the Football Pavillion, Station Rd. Thornton Fife KY1 4AX. Club Chairman Ken GM3YBQ runs course at all licence levels.

GLOUSCESTERSHIRE

Cheltenham ARC G5BK (CARA)
Derek G3NKS. Tel: 01242 241 099
E-mail: g3nks@blueyonder.co.uk
www.caranet.co.uk
The club meetings are held on the first Friday of each month, starting at 8p.m. at Prestbury Library, The Burgage, Cheltenham, Gloucestershire, GL52 3DN.

Forest of Dean Amateur Radio Group
Adrian Lane M3TVF
Email: adrian@fodarg.com
www.fodarg.com
We will be meeting every Tuesday night as from now at 19:30 hours at Ruardean Sports & Social Club, Ruardean Hill, Drybrook, Gloucestershire GL17 9AS. Anyone with an interest in any aspect of radio or electronics is welcome.

Gloucester Amateur Radio and Electronics Society
Anne 2E1GKY/M3GKY
Tel: (01452) 548478 (After 10am)
E-mail: hamreed@blueyonder.co.uk
www.g4aym.org.uk
Meet at Churchdown School, Winston Road, Glos. GL3 2RB, every monday evening at 7-30pm until 10pm except for Bank Holidays when we operate from a local escarpment. Monday Oct 5th Talk by Brian G4CIB on LUNDY, 12th Sale of Junk and Books, 19th Operating Club Equipment, 26th Informal Evening.

GWNEDD (Mid-Wales)

Meirion ARS.
John MW0VTK. Tel: 07772 720099
E-mail: tawelfan@talk21.com
http://meirionars.multiply.com/
Meirion ARS, meet in the Royal Ship hotel, Dolgellau LL40 1AR, on the 1st Thursday evening of each month. 8.30 p.m. for 8.45 p.m. start New members and visitors are very welcome. Regular talks are organized and all the details for meeting and special events can be seen on the club website.

HAMPSHIRE

Andover Radio Amateur Club.
Martin M0MWS. Tel: (01980) 612070
E-mail: martinsmith@kukltd.co.uk
www.arac.co.uk
The Andover Radio Amateur Club meets on the first and third Tuesdays in the month at the Club venue in The Village Hall at Wildhern, SP11 0JE. Map Ref SU350510 at 19:30 hours.

Fareham & District ARC
Alastair Sinclair.
Tel: 01329 235397
E-mail: secretary@fareham-darc.co.uk
www.fareham-darc.co.uk/
The Fareham & District Amateur Radio Club meets on Wednesdays evenings from 7.30pm in the Fareham Sailing & Motor Boat Club, The Boathouse, Lower Quay, Fareham. PO16 0RA

Farnborough & District Radio Society (FDRS)
Derek G3OFA
E-mail: mail@fdrs.org.uk
www.fdrs.org.uk
Meets every 2nd and 4th Wednesday in the month at 7:30 for 8:00 pm in the Farnborough Community Centre, Meudon Avenue, Farnborough, Hampshire, GU14 7LE Visitors and new members are always most welcome. July 22nd Construction Contest and Junk Sale.

Horndean & District ARC
Stuart Swain. Tel: (02392) 472846
E-mail: stuart.swain@hotmail.co.uk
www.hdarc.co.uk
The Horndean & District Amateur Radio Club meets on the first and fourth Tuesdays each month in the Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants PO8 9SF at 7.30pm. Visitors are always very welcome. The will be running a Foundation Licence course and exam in October in the Waterlooville area. Pre-registration is essential, and more details can be obtained from Stuart.

Isle of Wight Radio Society
Tony Pegg. Tel: 01983 868 978
E-mail: tony.pegg1@btinternet.com
www.g3sky
The IWRS meets every Friday evening 7.00pm-10.pm at Haylands Farm,Salters Rd. Ryde PO33 3HU. Visitors very welcome.The club runs courses for Foundation, Intermediate and advanced licenses. The club is registered as an RSGB exam centre.

Itchen Valley ARC
Charlie M0WYM
Tel: (02380) 439560
E-mail: secretary@ivarc.org.uk
www.ivarc.org.uk
The Itchen Valley ARC meets on the second and fourth Friday of each month at The Scout Hut, Brickfield Lane, Chandlers Ford, SO53 4DP, doors open 7.30 pm. See website for our programme, visitors welcome. Join our club net on 145.550, Thursday evenings at 8.30 pm. The club is a registered as an RSGB examination centre.

Lymington Community Association Radio Club
Keith G8MZF Tel:(01590) 672337 (*work*) (02380) 849395 (*evenings*)
Email: lymcomass@aol.com
The club meets at Lymington Community Centre, New Street/Cannon Street, Lymington SO41 9BQ, on friday nights. Talk-in on the night on or near 145.550 club call M0LCC. All are welcome. Start time hopefully 7.30pm bar open from 7.00pm. Plenty of free parking nearby.

HERTFORDSHIRE

Verulam Amateur Radio Club (St Albans)
Norman. Tel: (07773) 628912
E-mail: g1bsz@aol.com (sec)
www.radioclubs.net/verulam
The club normally meets every 3rd Tuesday of the month 800pm at Aboyne Lodge School.Etna Road, St Albans, AL3 5NL. New members and visitors are always very welcome. Regular talks, events, Foundation, Intermediate courses exams are held. Club nets also take place every Sunday 12.00noon 40m (7.150MHz), then 14.00pm 2m (145.375) and on Tuesday 19.45pm 160m (1.975) then 20.00pm 2m (145.375). For further information about the club and events please see the website.

Stevanage & District ARS
John. Tel: (01462) 459254
E-mail: jmccutcheon@freeuk.com
www.sadars.org/
The Stevenage and District Amateur Radio Society meet every Tuesday 7.30pm, at the Stevenage Resource Centre, Chells Way, Stevenage, SG2 0LT. Regular talks and demonstrations. Registered centre for Foundation/ Intermediate/Advanced exam courses (40+ passes last year). Club Net last Friday of month 7.30pm on 145.450MHz. All welcome, see website for further details.

HUMBERSIDE

Hull & District ARS
Keith Shaw.
Tel: 01482 217776
E-mail m3shw@yahoo.co.uk
raymond penny Tel: 01482 376835
E-mail penibs@penibs.karoo.co.uk
Hull & DARS meet every friday night at 1930 – 2200 at the walton street leisure centre, goathland close, walton street hull, East Yorks HU3 6NG.

ISLE OF MAN

The Isle of Man ARS GD0MAN
Andy Morgan GD1MIP
Tel: 07624 412711
E-mail: GD1MIP@manx.net
www.iomars.blogspot.com
The club holds a weekly meeting on a Wednesday at its club shack in Foxdale and monthly talks & events in Cronkbourne on the second Tuesday of the month. See the website for more details.

JERSEY

Jersey Amateur Radio Society GJ3DVC
Rob Luscombe (secretary) 2J0RZD.
Tel: 07797 923916
E-mail: gj3dvc@gj3dvc.org.je
http://www.radioclubs.net/gj3dvc/
The Jersey Amateur Radio Society meets every Friday at 7.30pm at The German Signal Station, Rue Baal, La Moye, St. Brelade, Jersey, JE3 8HQ, also on a Wednesday evening from time to time to maintain, alter and improve the shack, antennas etc. and also for club training. Coffee and car parking available, visitors are always welcome, shack rental available. See our website for further information.

KENT

Bredhurst RATS
www.the-brats.co.uk
The Bredhurst Radio Amateur & Transmitting Society meets on Thursdays at the Parkwood Community Centre, Rainham, Gillingham, Kent ME8 9PN at 8.30pm. If you are interested in joining the club, write to: Membership, The BRATS c/o The Club Room, The Parkwood Community Centre, Long Catlis Road, Rainham, Gillingham, Kent, ME8 9PN.

Hilderstone Radio & Electronics Club
Mike Howland
E-mail: g4mix@waitrose.com
www.g0hrs.org.uk
Meetings now at The Science Block, Chatham House School, Chatham Street, Ramsgate, CT11 7PP on 2nd and 4th Friday of the month at 7-30pm.

Bromley & DARS
Graham
E-mail: bdars@grahamc.net
www.bdars.org
The Bromley & District Amateur Radio Society meets in The Victory Social Club, Kechill Gardens, Hayes, Kent BR2 7NH (off B265, Hayes Lane, Bromley) on the third Tuesday of the month at 7.30pm.

LANARKSHIRE (Scotland)

Mid-Lanark ARS
Dennis. Tel: 07505529335
Email: mm0dnx@yahoo.co.uk
www.mlars.org.uk/
The Mid-Lanark ARS meets on Friday evenings at the Newarthill Community Education Centre, 288 High Street, Newarthill, Motherwell ML1 5JU. Visitors and new members are very welcome. The club has HF and VHF shacks for use on club evenings. Courses fro all levels are run

at the club. See web site for details of our upcoming meetings.

LANCASHIRE

Oldham RC
Christopher. Tel: 07749347142
E-mail: secretaryoarc@btinternet.com
www.oarc.org.uk
The Oldham Radio Club meets on Thursdays at Royton Air Training Corps, Hillside Avenue, Royton, Oldham OL2 6RF at 7:30pm.

Ellenroad RC
David. Tel: (01706) 358650
E-mail: info@ellenroadradioclub.org.uk
http://www.ellenroadradioclub.org.uk/info.htm
The Ellenroad Radio Club (ERC) meets every Monday evening from 7 to 9pm at the Ellenroad Steam Museum, Elizabethan Way, Newhey, Rochdale OL16 4LG. The museum houses the UK's only fully-working cotton mill engine, complete with its 220ft high chimney. Newcomers are always welcome.

Morecambe Bay ARS
Martin Hazel. Tel: (01524) 848193
Email: martin@mbars.internationalham.com
www.mbars.internationalham.com
Morecambe Bay Amateur Radio Society meet at the Trimpell Sports and Leisure Club, Out Moss Lane Morecambe, every Tuesday evening from 1930. They also have a new website at all of their events calendar for the next year is to be found there.

Thornton Cleveleys ARS (G4ATH, & G6GMW)
John. Tel: (01253) 399377,
E-mail: m3waz@hotmail.co.uk
www.tcars.org.uk
Meet monday evenings at the Frank Townend Center, Kensington road, Cleveleys, Lancashire FY5 1ER starting from around 7.30pm.

LEICESTERSHIRE

Loughborough & District ARC
Chris Walker. Tel: (01509) 504319
Email g1etz@aol.com
www.radioclubs.net/ladarc
Loughborough & District Amateur Radio Club meets at the Glenmore Community Centre, Thorpe Road, Shepshed, LE12 9LU on a Tuesday evening from 7.30pm. The clubs programme of events can be found on our websites. Visitors and new members most welcome.

LINCOLNSHIRE

Franklin ARC
Brendan. Tel: (01754) 820204
E-mail: bren.sykes@btinternet.com
We meet the last Wednesday of every month at the Victoria Inn Wainfleet Road Skegness Lincolnshire PE25 3RG. @19:30hrs. We also have regular nets, on the 1st and 3rd Tuesday of every month on 145.550± @20:00hrs. Registered as an RSGB examination center for courses run by G0OTH Robert. We are organizing special events, field days and our own rally (See Rallies Section) this year so listen out for us, our call sign is M0FRC.

Friskney & E Lincolnshire Communications Club (M0LFC)
Bren 2E0BDS Tel: 01754 820204
www.felcc.webs.com
A new club, our meetings are held on the first Tuesday of every month at Friskney Village Hall (6m south of Skegness) Church Road Friskney Lincolnshire. The hall is large, modern and warm for those winter months., Our training officer is Ant M0HAZ and we're an affiliated test centre for Foundation and Intermediate Exams. All are welcome to come and join us.

Lincoln Short Wave Club
Pam Rose Tel: 01427 788356
E-mail: pamelagrose@tiscali.co.uk
www.g5fz.co.uk
The Club meets every Wednesday 8 p.m. at the BSA Social Club, Village Hall Lane, Aisthorpe, Lincoln, LN1 3SJ and some Saturday mornings in the shack for Foundation/Intermediate course tuition and to air the club callsigns G5FZ and G6COL.

Spalding & DARS
Graham Boor. Tel: 07947764481
E-mail: secretary@sdars.org.uk
www.sdars.org.uk
The Spalding & District Amateur Radio Society meets at the Castle Sports Swimming Complex, Spalding PE11 1QF on Fridays at 7.30pm.

Stenigot "Chainhome" Amateur Radio Club
Steve Burke M5ZZZ.
Tel: (01507) 600202
E-mail m5zzz@btinternet.com
www.stenigotchainhomearc.co.uk
Meetings are held on the third Friday of the month commencing 19.30 at Gayton le Marsh Village Hall, Gayton le Marsh, Lincolnshire. LN130NW.

LONDON

Cray Valley Radio Society
Bob Treacher.
Tel: 020 8265 7735
www.cvrs.org
The Cray Valley Radio Society meets on the first and third Thursdays of the month at the Progress Hall, Admiral Seymour Road, Eltham, London SE9 1SL at 7.30pm for 8pm.

Edgware & District Radio Society
Michael G4RNW.
Tel: 020 8950 0658
E-mail: michael.stewart5@ntlworld.com
Edgeware & District radio Society meet at the Watling Community Centre, 145 Orange Hill Road, Burnt oak, Edgware HA8 0TR.

Radio Society Harrow
Linda Casey Tel: 020 8386 8586
Email: lcasey@imperial.ac.uk
www.g3efx.org.uk
The Society meets on friday at 20.00 on the 2nd and 4th weeks of every month, at The Elsie Fisher Room, St Lawrence Centre, St. Lawrence Church, 2, Bridle Road, Eastcote, Pinner HA5 2SJ. All welcome! We also run exam courses - see website for details

Southgate ARC
David Sharp. Tel: 01992 422622
E-mail: david.sharp1@tesco.net
The Southgate Amateur Radio Club meets on the second Wednesday of the month at Hazelwood Lawn Tennis and Squash Club, Ridge Avenue, Winchmore Hill, London N21 2AJ at 7.30 for 8 pm.

Wimbledon and District ARS
Jim Bell M0CON
Tel: 020 8874 7456
E-Mail: jamesm0con@o2.co.uk
http://www.gx3wim.org.uk
The Wimbledon & District Amateur Radio Society welcomes new comers to our meetings whether they are licensed or not. We hold our meetings the second and last Friday of each month at Martin Way Methodist Church, Buckleigh Avenue, Merton Park, London SW19 9JZ. The church is on the corner of Martin Way and Buckleigh Avenue.

THE LOTHIANS (Scotland)

Cockenzie & Port Seton ARC
Bob Glasgow.
Tel: (01875) 811723
E-mail: gm4uyz@cpsarc.com
www.cpsarc.com/news.php
The Cockenzie & Port Seton Amateur Radio Club meets in the Thorntree Inn (Lounge Bar), High Street, Cockenzie, East Lothian EH32 0HP from 7pm till late. Organised talks are held in the Port Seton Community Centre, South Seton Park, Port Seton, East Lothian EH32 0EE. Timings 18:30 to 21:30hrs.

Lothians Radio Society
Tony Sigouin.
Tel: 07739742367
E-mail:
enquiries@lothiansradiosociety.com
www.lothiansradiosociety.com
The Lothians Radio Society meets on the second and fourth Mondays of the month in the Royal Ettrick Hotel, 13 Ettrick Road, Edinburgh EH10 5BJ from 7pm. Membership costs £12 per year and includes a free BBQ every June!

MERSEYSIDE

Wirral & District ARC
Tom. Tel: (07050) 291850
E-mail: secretary@wadrac.com
www.wadarc.com
The Wirral & District Amateur Radio Club meets at the Irby Cricket Club, Mill Lane, Irby CH61 4XQ on the second and fourth Wednesdays of each month. Other Wednesdays are informal (D&W) meetings at a local hostelry.

NORFOLK

King's Lynn ARC
Ray Dowsett, MBE.
Tel: (01553) 671307
E-mail: ray-g3rsv@supanet.com
http://www.klarc.org.uk
King's Lynn Amateur Radio Club meets every Thursday at the Scout HQ, Chequers Lane, West Winch, King's Lynn, PE33 0NY off the A10 at West Winch at 7.30pm.

Norfolk ARC
Mark Taylor. Tel: (01362) 691099
E-mail: narc@g0lgj.co.uk
www.norfolkamateurradio.org
The Norfolk Amateur Radio Club meets every Wednesday at the Eaton CNS School, Eaton Road, Norwich, NR4 6PP, where it meets weekly,from 7-10pm, usually in 6th form centre at front of school, every Wednesday from 7-10pm.

North Norfolk ARG
Tony Smith.
Tel: (01263) 821936
E-mail: g4fai@btinternet.com
www.radioclubs.net/nnarg/
The North Norfolk Amateur Radio Group meets in the Radio Hut at the Muckleburgh Collection Military Museum, Weybourne, North Norfolk NR25 7EG on Wednesdays and Thursdays from 10am to 4pm and some Sundays from 1 to 4pm. New members always welcome.

NORTHAMPTONSHIRE

Kettering & District Radio Society
Lorna Froggatt. Tel: 0153 676 2523
E-mail: LornaSteveLorna@aol.com
The Kettering & District Radio Society meets each Tuesday from 7 to 9pm in the winter at The Lilacs Pub, Church Street, Isham, Northants NN14 1HD and in the summer at the Carpetbagger Aviation Museum, Sunnyvale Farm Nursery, Harrington NN6 9PF. Courses at all levels are held regularly.

OXFORDSHIRE

Harwell Amateur Radio Society
Malcolm Tel: 01235 524844
E-mail: info@g3pia.org.uk
www.g3pia.org.uk
The Harwell Amateur Radio Society meets at the Rutherford Appleton Laboratory Social Club, Chilton, OX11 0QX. (Turn left at the Diamond Light source roundabout and continue to the satellite dish). Club meetings are held on the second Tuesday of each month at 1945 and there is a Shack Activity night on the fourth Tuesday.

SHROPSHIRE

Salop ARS
Richard Golding.
Tel: (01743) 356195
The Salop Amateur Radio Society meets in The Telepost Club, Railway Lane, Abbey Foregate, Shrewsbury SY26BT on Thursday between 8 and 10.30pm.

Telford & District ARS
Mike Street.
Tel: (01952) 299677
E-mail: mjstreetg3jkx@blueyonder.co.uk
www.tdars.org
The Telford & District Amateur Radio Society meets on Wednesdays at the Little Wenlock Village Hall, Malthouse Bank, Little Wenlock. Telford TF6 5BG at 8pm.

NOTINGHAMSHIRE

Worksop Amateur Radio Society (W.A.R.S.)
'Daz' Spence.
Tel: (01623) 747314
Email- g3rcw@qsl.net
www.qsl.net/g3rcw/
Meets every Tuesday at 7:00 pm. Our cub-house is located at 59 - 61 west street, Worksop, Nottinghamshire. S80 1JP. Exams and courses run frequently for all licence levels. Licensed bar & hot food available on club meet nights. Membership fee for the year is £10.

SOMERSET

Mid Somerset Amateur Radio Club
Shaun M0RTS/G1IOK
E-mail: m0rts@hotmail.co.uk
Shaun has reformed the Mid Somerset Amateur Radio Club which unfortunately folded in 1997. The new club now meets on the 2nd tuesday of every month at: Peter Street Rooms, Peter Street, Shepton Mallet BA4 5BL at 7:00pm.

North Bristol ARC
Dick Elford
Tel:(01454) 218362
E-mail: g0xay@aol.com
www.nbarc.org.uk
North Bristol ARC meet Fridays at 7.30pm at SHE7, Braemar Crescent, Northville, Filton Bristol BS7 0TD. We carry out training for all the Radio Amateurs examination, and our next training course is to be for Intermediate exams.

South Bristol ARC
Len Baker. Tel: (01275) 834282
E-mail: g4rzy@msn.com
www.sbarc.co.uk
The South Bristol Amateur Radio Club meets every Thursday evening at Novers Park Community Centre, at the rear of 122-124 Novers Park Road, Filwood, Bristol BS4 1RN.

Yeovil ARC
Steve G7AHP
E-mail: steve@g7ahp.co.uk
www.yeovil-arc.com/
The Yeovil Amateur Radio Club meets at the Red Cross Centre, Grove Avenue, Yeovil BA20 2BE (on the corner where Grove Avenue meets Preston Road).

Weston-super-Mare Radio Society (WSMRS)
Kirstie M3UWI (01934) 613094
Email:- Kirstiejones1@msn.com
www.radioclubs.net/wsmrs/
Meets every Monday at the Devonshire Road social club BS23 4LG at 8pm. Main meeting including talks/Guest speakers every 3rd Monday of the month. Training to all levels of Licence available.

SOUTH GLOUCESTERSHIRE

Thornbury and South Gloucestershire ARC
Tony. Tel: (01454) 417048
E-mail: tonytsgarc@sky.com
The Thornbury and South Gloucestershire Amateur Radio Club meets in the United Reformed Church Hall, on the corner of Chapel Street and Rock Street, Thornbury BS35 2BA at 7.30 - 9.30pm.
ight.

SOUTH WALES

Barry ARS
Glyn Jones. Tel: (01446) 774522
E-mail: glyndxis@talktalk.net
www.bars.btik.com
The Barry Amateur Radio Society meets on Tuesdays from 7.30 to 10.30pm in the Sully Sports & Social Club, South Road, Sully CF64 9TG.

SOUTH YORKSHIRE

Axholme Radio Club
John Fennell.
Tel: (01427) 872522
E-mail: g4hoy@tiscali.co.uk
The Axholme Radio Club meets at Hollytree Farm, Westend Road, Sandtoft, Epworth DN9 1LB on Wednesdays at 10amm to 4pm, Thursdays at 7 - 9pm and Saturdays from 10am - 4pm (other times by arrangement).

Sheffield ARC
Trevor Wood. Tel: 0114 2216947
E-mail: trevorwood6@yahoo.co.uk
www.sheffieldarc.org.uk
The Sheffield Amateur Radio Club meets at the SYPTE Social Club, Greenhill Main Road, Sheffield S8 7RH every Monday at 7.15pm. We hold classes for all licence levels .

STAFFORDSHIRE

Tamworth Amateur Radio Society
Colin Marks.
Tel: (01827) 700893
E-mail: colin.marks2@ntlworld.com
The Tamworth Amateur Radio Society meets every Thursday at 7.30pm at St Francis Church, Masefield Road, Leyfields, Tamworth B77 8JB.

SUFFOLK

Bury St Edmund's ARS
George Woods G3LPT.
Tel:01359 259518
Darren Coe G7SDC
Tel: (01284) 701732
storno@yahoo.co.uk
www.radioclubs.net/bsears/
The Club meets on the third Wednesday of the month (except August and December) at the Culford school, Culford, Bury St. Edmunds, Suffolk IP28 6TX at 7.30PM. Visitors are welcome. Please see our web site for further details.

SURREY

Coulsden Amateur Transmitting Society
Steve Conway G7SYO
Tel: (01737) 353517
E-mail: steve.conway@landg.com
www.sthost.co.uk/webspace/cats/
Regular meetings are held on the second Monday in each month at-: St. Swithun's Church Hall, Grovelands Road, Purley, Surrey CR8 4LA at 20:00 to 22:00hrs. On the first Saturday of month at 1715 Crescenta Valley / CATS Net on Echolink Normally via MB7IPL node on 145.2875 MHz.

SRCC - Surrey Radio Contact Club
Ray Howells G4FYY
Tel: 0208 644 7589
www.g3src.org.uk/
The club meet 1st and 3rd monday evenings of each month at Trinity School, Shirley Park, CROYDON, CR9 7AT with meetings starting at 7.45p.m.

Sutton & Cheam RS
John Puttock. Tel: 020 8644 9945
E-mail: info@scrs.org.uk
www.scrs.org.uk
The Sutton & Cheam Radio Society meets on the third Thursday of the month at 7.30pm in Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton, Surrey SM1 2EY. In addition to monthly meetings, licence training courses are held at regular intervals in Banstead Surrey.

TYNE & WEAR

Angel of the North RARC
Nancy Bone. Tel: 0191 477 0036
E-mail: nancybe2001@yahoo.co.uk
www.anarc.net
The Angel of the North Radio Amateur Radio Club meets every Monday 7 to 9pm at Whitehall Road Methodist Church Hall at the corner of Whitehall Road and Coatsworth Road, Bensham, Gateshead NE8 4LH. The entrance to radio club room is through door at the side of building next to the car park. The car park entrance is on Whitehall Road.

Tynemouth ARC
Tony Regnart G8YFA.
Tel: 0191 280 1981
E-mail: mail@g0nwm.com
www.g0nwm.co.uk
The Tynemouth Amateur Radio Club meets each Friday from 7 to 9pm at St. Hilda's Church, Stanton Rd, North Shields, Tyne & Wear NE29 9QB. It's known locally as 'the church near the fire station'.

WARWICKSHIRE

Coventry Amateur Radio Society
John Beech G8SEQ.
Tel: 079 58777 363
www.coventryradio.org.uk
Coventry Amateur Radio Society meets most Fridays at 2030hrs in St Bartholomew's Church Hall, Brinklow Road, Binley, Coventry CV3 2DT. Further details on CARS activities can be obtained from the Secretary – John G8SEQ

WEST MIDLANDS

Aldridge & Barr Beacon ARC
Ted Roberts. Tel:(01922) 614169
E-mail: albertg0kfs@raynet-uk.net
www.radioclubs.net/aldridgearc
The Aldridge & Barr Beacon Amateur Radio Club is a daytime club and meets at the Aldridge Community Centre, Middlemore Lane, Aldridge, Walsall WS9 8AN on the first and third Monday of every month at 2pm to 4pm. They have a long wire and a v.h.f. antenna for radio operation using the club callsign M0GRX.
Midland AX25 Packet Radio Users Group
Miles. Tel: (01384) 254199
www.maxpak.org.uk
The Midland AX25 Packet Radio Users Group, MaxPak, meets on the first Monday of the month at The Sir Robert Peel, 104 Bell Lane, Bloxwich, Walsall WS3 2JS.

South Midlands RS
Don. Tel: 0121 458 1603
South Midlands RS meet in the West Heath Community Centre, Condover Rd., West Heath Birmingham B31 3QY. macrh 13th and 20th are construction evenings. 223rd is a 'ragchewing' evening.

Stourbridge and District ARS
John. Tel: (01562) 700513
www.g6oi.org.uk
The Stourbridge and District Amateur Radio Society meets on Monday evenings, except for Bank Holidays at The Radio Shack, Old Swinford Hospital School, Heath Lane, Stourbridge, West Midlands DY8 1QX at 8pm. We have Open Shack Nights - Tea/ Coffee always available, along with an opportunity to get on the air or just a natter with whoever attends

Sutton Coldfield RS
Rob 2E0ZAP: (01827) 288 483
E-mail: spirit.guide@hotmail.co.uk
www.hamradio.piczo.com
The Sutton Coldfield Radio Society Meets on the second and fourth Monday of the month at 7.30pm (no meeting on bank holiday Mondays) in the Sutton Coldfield Rugby Club, 160 Walmley Road, Sutton Coldfield, West Midlands B762QA.

Wythall Radio Club
Chris Pettitt. Tel: (07710) 412 819
E-mail: g0eyo@wythallradioclub.co.uk
www.wythallradioclub.co.uk
The Wythall Radio Club is based at Wythall House, Silver Street, Wythall, near Birmingham B47 6LZ. They meet every Tuesday at 8pm and meetings are informal and friendly.

WEST SUSSEX

Horsham ARC
Andrew Vine. Tel: (01483) 272456
http://www.harc.org.uk/
The Horsham Amateur Radio Club meets on the first Thursday of the month at The Guide Hall, Denne Road, Horsham, West Sussex.

Mid Sussex ARS
Sue Davis: 01273 845103
E-mail: g6ypy@msars.org.uk
www.msars.org.uk
The Mid Sussex ARS meets at 1945hrs on most Friday evenings at Cyprus Hall. Cyprus Rd.Burgess Hill.W Sussex. RH15 8DX. Tuition is available for all Licence levels and the club is a registered exam centre. Our permanent and well equipped radio room is available for all to use. We offer regular talks, demonstrations quizzes etc. and radio use on all bands. Visitors always warmly welcomed.

Worthing & DARC
Roy or Joyce.
Tel: (01903) 753893
www.wadarc.org.uk
The Worthing & District Amateur Radio Club meets every Wednesday at 8pm in the Lancing Parish Hall, South Street, Lancing, BN15 8AJ. There's a free car park at the rear and full disabled access. Visitors are always welcome.

WEST YORKSHIRE

Denby Dale Amateur Radio Club
Gerald, G3SDY.
Tel: (01484) 602905
www.g4cdd.net/
The Denby Dale club meat at Pie Hall, Denby Dale, Huddersfield HD8 8RX. October 7th Mini-rally, surplus sale and flea market. 21st Annual General Meeting.

Otley ARS G3XNO & M8Y
Paul (2E0PAK) Tel: 07768 996370
E-mail: 2e0pak@otleyradio.org
www.otleyradio.org
Otley Amateur Radio Society meets every Tuesday at Clifton Village Hall, LS21 2ES, (north of Otley just before The Spite public house on Newall Carr Rd). Meetings alternate between a shack night and members' presentations/forums/educational events - refreshments always available. The Club, a registered RSGB examination centre, also maintains the local repeater station call-sign GB3WF. (Input: 434.950MHz Output: 433.350MHz CTCSS 82.5 Hz).

Pontefract & District Radio Club
Colin. Tel: (01977) 677006
E-mail:
info@pontefractradioclub.org
www.pdars.com
The Pontefract & District Radio Club meets every Tuesday from 7pm and Thursday from 8pm at the Carleton Centre, Carleton Grange, Carleton Road, Pontefract, West Yorkshire WF8 3RJ.

WIGTOWNSHIRE (SW Scotland)

Ellis Gaston 01776 820413
www.gm4riv.co.uk
Wigtownshire ARC meet weekly at The Aird Unit, Stranraer Academy, Stranraer DG9 8BQ. Visitors always most welcome

WILTSHIRE

Trowbridge & District AR
Ian Carter. Tel: (01225) 864698
E-mail: ian.l.carter@btinternet.com
www.radioclubs.net/trowbridgedarc/
The Trowbridge & District Amateur Radio Club meets at Southwick Village Hall, Southwick (nearest postcode is BA14 9QN).

WORCESTERSHIRE

Worcester RAA
Martin Carter.
Tel: (07976) 917987
E-mail: secretary@m0zoo.co.uk
www.wraa.co.uk
The Worcester Radio Amateurs Association meets on the second and fourth Tuesday at the Hallow Scout HQ, off Main Road, Hallow, Worcester WR2 6PP. Visitors, as always, will find a warm welcome at the new clubhouse, as will potential new members.

Club Secretaries

Please remember to include full details of your club, E-mail and telephone contact details and the postcode of your meeting venue - it helps potential visitors to find you!

Roger Cooke's

morse mode

This time Roger Cooke G3LDI starts with a request, suggests a starting age for learning Morse and mentions web resources.

Roger Cooke G3LDI
PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW
E-mail: roger@g3ldi.co.uk
Packet: g3ldi@gb7ldi.#35.gbr.eu

Welcome to the world of Morse! **Gerald Smith, ZS6IG** wrote to me in September but space is tight at times! In his letter he wrote about his time in the RAF and his experience with side-swiper keys. Gerald wrote, "As a J/T GW Fitter at Salt Pans Transmitters, in Aden, I monitored, what I thought were operators practicing with their 'home brew side-swipers' on night shifts. Apparently they used crocodile clips to wire into the straight key terminals. Using illegal keys was supposedly out of the question but the Duty Signals Master at the Signals Centre, Steamer Point seemed to turn a blind eye to it!"

Gerald would like to know if there's anyone who served at Salt Pans during their time in Aden. He would really "love to chew the rag" with someone from those days, especially former c.w. operators. Gerald was In Aden from July 1957 to July 1958, not as an operator but he's doing some now with an iambic Bencher and CMOS keyer. If you were in Aden at that time then E-mail Gerald at **zs6ig@worldonline.co.za**

In an E-mail from **Elwood Downey WB0OEW**, in Tucson, Arizona, USA, he says he's been practising Morse for 50 years but can't get beyond 15w.p.m. and is concerned about his lack of progress.

Personally, in replying Elwood, I think to attain speeds in excess of 20-25w.p.m. it's necessary to set this sort of target when we're somewhat younger!

I taught musical keyboard at night school for several years and it was frustrating for both the students and myself to see little real progress over the course. One chap, aged about 80 and with arthritic hands, asked me how he could play like me. Though not really an answer, it made him laugh anyway, when I said "start when you're five years old." The same applies to Morse! The younger you start, the easier it is, brains are like sponges when young, and fingers are nimble. It takes a lot more effort and time the older we get.

On The Air QSOs

I've noticed over the last decade or so, that 'normal' on the QSOs seem to have been relegated to history. When I was first licenced in 1956, a "CQ" that attracted a response usually led to a contact lasting as long as the participants wanted to carry on, 'chewing the rag' as it used to be called. In fact, I have the Rag-Chewers Award! However, nowadays I've noted many contacts are now only '599 (often just '5nn') TU 73' – and that's all there is.

Why is it that everybody seems to want to just try to make as many contacts as possible in as short a time as possible? Is nobody capable of having a conversation any more?

I know that the younger generation is not very articulate. Indeed, I only have to listen to them talking on TV to confirm that fact! Oh for the teaching and discipline of the 1950s.

Just remember that we're not in a perpetual contest and a normal QSO would be appreciated sometimes. Of course, I'm not talking about a rare DX station, a short exchange from them is understandable!

Fig. 1: A page from Mrs. Mills' book about learning Morse Code.

Dave Gemmell, ZS6AAW, E-mailed me a copy of the covers from an early edition of *The Morse Code for Radio Amateurs*, by **Margaret Mills G3ACC**. It's a 5th edition and was priced at two shillings (10 pence) so, I guess it was a while ago! He asks if anybody can remember any details of the Morse Practice Unit from Signalling Equipment Ltd. They were specialists in Morse equipment and were situated in Potters Bar, Hertfordshire in England. If you can help, Dave's E-mail is: **dave@zs6mus.org.za**

I'd have thought that not many people would remember anything from those days! There is no date mentioned anywhere. Looking at that page there is also a Morse Code Training scheme called The Candler System. Can anybody remember what that entailed? I'd be interested to know.

Learning Morse

On the subject of learning Morse, you may find it a chore to download and install a Morse training program. Well, just for you, there's an on-line site you can log onto, that has all the training facilities while not affecting your computer at all.

Have a look at **http://lcwo.net/** It's called **Learn CW On-line**. If you create an account here, you can then take advantage of all that's on offer. Using the Koch method, you can convert text to Morse, downloading them as MP3 files for practice. There's also a forum for discussion with like-minded people.

The speed practice is the most important part of the site however, and it's possible to keep a check on your progress. Once you set up your account, which is free, you can then access it from any PC in the world. It has been set up by **Fabian Kurz DL1YFK**, who has just managed to crack the 200 wpm barrier by reading a callsign at that speed!

Old Morse Keys

I'll leave you with a website of interest if you are interested in old Morse keys. Take a look at this web site. You will find lots of keys, dating back to the early part of the 20th century. There are pictures and description of the keys, some with quite amusing names too!

www.morsemad.com/bugs.htm

73 and May the Morse be with you!

Roger G3LDI

TRADERS TABLE

The equipment for sale on this page is secondhand or ex-demonstration

Disclaimer

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.

SHORTWAVE SHOP LTD

01202 490099

TRANCEIVERS

KENWOOD TS-870 ..... £825
KENWOOD TS-711 ..... £400
KENWOOD TS-440S HF £425
YAESU FT-450AT Demo £595
TRIO TS-120SHF £225
ALINCO DJ-V5 ..... £200
ALINCO DJ-195 ..... £100
ALINCO DJ-S11 ..... £75
ICOM IC-2350 2m/70cms £175
ICOM M11 Marine H/H £70
ICOM PMR 446x2Water Resist/w.charg £200
STANDARD HX260E Marine H/H New £99

RECEIVERS

ICOM IC-R8500 COMMS RX £695
AOR 3000A £395
TRIO R1000 HF RX £175
YUPITERU MVT 7300 ..... £99
UNIDEN UBC-800XLT Ex Demo/software £265
BEARCAT UBC-9000XLT £80
BEARCAT UBC-3000XLT Ex Demo £135
BEARCAT UBC-278 BASE Ex Demo £139
RADIO SHACK PRO 60 ..... £50
AMI DIGI SAT RX ASR WS201 ..... £129
ALINCO DJX3 ..... £70
WORLD RECEIVER WR2100 ..... £80
GOODMANS GCD200 DAB Special Price £50
BPL WORLD SPACE £25

ACCESSORIES

KENT Straight Key £55
HI-MOUND HK-708 Straight Key £35
BHI NEIM 1031 ..... £55
BHI NOISE AWAY ANEM £55
ICOM AH7000 DISCONE £85
CREATE CLP 5130 Log Periodic NEW £250
ICOM HS-51 Special Bulk Price £29
KPC-2 TNC £85
PACCOMM TINY-2 ..... £85
TNC 320 ..... £POA
AKD WA3 ABS Wave Meter £25
AEA PK-88 PACKET CONTROLLER £35
WATSON W20SM PSU £55
WATSON W25AM PSU £75
CG SB-2000 DATA CONTROLLER £75
DAIWA CN620A 1kw POWER/SWR £65
DAIWA PS-304 30A PSU £65
ZETAGI HP1000 SWR METER £65
MFJ 948 TUNER £75
MFJ 1020C ACTIVE ANT £69
MFJ 1278B DATA CONTROLLER £65
KENWOOD MC-80 ..... £70
KENWOOD MB11 MOUNT ..... £POA
MFJ 986 3k TUNER £185
WELZ SP-220 SWR/PWR METER £65
PM-2000 2Kw Pwr Meter £70
SAKA 8" TFT LCD TV Reduced £75

NEVADA

023-9231 3090

TRANSCEIVERS

ICOM IC-7600 ex showroom as new £2995
KENWOOD TS850 HF WITH FILTERS £599
ALINCO DJ-596 DUAL BAND HANDHELD £99.95
ALINCO DJ-G7E TRI-BAND HANDHELD £299.00
ALINCO DJ-S45CQ UHF HANDHELD £39.00
ALINCO DJ-496 70cms HANDHELD £89.00

SCANNING RECEIVERS

ALINCO DJX30 WIDEBAND SCANNER £99
BEARCAT 800XLT BASE SCANNER £239.99
BEARCAT USC230XLT (25 – 1300MHZ) £109.95
ICOM R3 HANDHELD SCANNER £199
ICOM RX7 WIDEBAND SCANNER £165
YAESU VR120 H/H WITH BAT/CRGR £99
YAESU VR120D HANDHELD SCANNER £79
ICOM R5 HANDHELD SCANNER £165
MAYCOM AR108 AIRBAND/MARINE H/H £49
MAYCOM FR100 HANDHELD SCANNER £59

RECEIVERS

ETON E10 SW PORTABLE RADIO £59
ETON E100 SW PORTABLE RADIO £59
ETON E5 SW PORTABLE RADIO £69
ETON G3 SW PORTABLE RADIO £89
HITACHI WS1 WORLDSPACE RADIO £79
PALSTAR R30AA Ex Display AS NEW £499.95
SANYO WS1000 WORLDSPACE RADIO £79
STEEPLETONE SAB2000 RECEIVER £25
TARGET HF3 COMMUNICATIONS RX £149
YAESU VR5000 COMMS RECEIVER £375
YAESU VR5000D WITH DSP £435

DAB DIGITAL RADIOS

NEVADA ND01 PORTABLE DAB/FM £39.95
PANASONIC RFD3 DAB RADIO £29
ROBERTS RD41 DAB RADIO £99
PORSCHE DAB/FM + IPOD DOCK £199
PURE EVOKE 1XT DAB RADIO £75
PURE TEMPUS 1XT DAB RADIO £49

CB RADIO

TEAM ROADCOM CB RADIO £89

ACCESSORIES

HEIL TRAVELLER HEADSET (IC706) £59
HEIL TRAVELLER HEADSET (FT817) £59
ICOM CS-RX7 CLONING SOFTWARE £19
JIM M75 SCANNER PREAMPLIFIER £49.95
TIMEWAVE 59+ DIGITAL NOISE FILTER £159
TIMEWAVE 599ZX DIGITAL NOISE FILTER £249
YAESU MH35A2B SPEAKER MIC £19

POWER SUPPLIES

KENWOOD PS430 20A POWER SUPPLY £59
PALSTAR PS15 12-15A POWER SUPPLY £39

ANTENNAS

COMET H422 4 BAND DIPOLE EX-DISPLAY £199.95

WATERS & STANTON

01702 206835

Make	Model	Description	Price
Uniden	UBC-60XLT	66-512MHz (with gaps) FM Hand Held Receiver 80Ch. 4 x AA cells	£55
Icom	IC-A3E	Airband H/Held + NAV/COM 50ch Alphanumeric	£180
Optoelectronics	Optolinx	TTL to RS-232 Interface (supports 4 devices)	£65
Ameritron	AL-82	10-160m 1.5kW Linear Valve Amplifier with 2x 3-500 Tubes	£1,699
Yaesu	FT-712RH	70cm FM Mobile Transceiver 35W	£125
Microset	PT-110	12V Stabilized 10A PSU with Over V / A protection	£69
Optoelectronics	Model40	"Scout" 10MHz-1.4GHz Frequency Counter + Reactive Tune & 400ch.	£199
Nevada	PSDL	50ohms Dummy load Dc-3000MHz max 15W	£30
MFJ	MFJ-216	Deluxe Amplifier Saver to Adjust Amplifiers without Transmitting	£55
Heil	AD-1-Y4	Cable for pro set and yaesu 4 pin round	£10
Icom	IC-746	HF,6m,2m All Mode Base Transceiver + Auto ATU, Gen.Cov. 12V	£699
Cobra	HG-S100	15W Rugged External Speaker with 4" cone	£19
Alinco	DJ-X3E	100kHz-1300MHz AM, FM, WFM Hand Held Receiver 700Ch, 8.33kHz + Ni-MH & Charger	£109
Eton	E1100	Compact Portable AM, FM stereo & 10 Shortwave Bands Receiver + Clock	£25
Yaesu	MEK-2	Microphone Lead Extension Kit for Yaesu Mobile Trasceivers	£25
Panasonic	GX-3700	Portable Receiver with 32 presets FM LW MW	£29
Alinco	DJ-X3E	100kHz-1300MHz AM, FM, WFM Hand Held Receiver 700Ch + 8.33kHz step	£95
Alinco	DJ-X3E	100kHz-1300MHz AM, FM, WFM Hand Held Receiver 700Ch + 8.33kHz step	£95
Alinco	DJ-X7E	100kHz-1300MHz AM, FM, WFM Hand Held Receiver 1000Ch + 8.33kHz step	£115
Uniden	UBC-60XLT	66-512MHz (with gaps) FM Hand Held Receiver 80Ch. 4 x AA cells	£59
Kenwood	TS-570D	HF All Mode Base Transceiver with Gen. Cov. + ATU & DSP filter 100W 12V	£569
Steepletone	SAB-2005	AM/FM portable receiver with 10 presets	£24
Diamond	SX-200	1.8-200MHZ SWR,PWR meter 200W	£59
Icom	IC-R2	0.495-1309MHz AM,FM & WFM Hand Held Receiver 450Ch.	£79
SGC	SG-211	1.8-60MHz Microprocessor controled QRP ATU 60W (max) on 4 x AA cells	£139
Nissei	RS-402	125-525MHz SWR,PWR meter 5/20/200W	£39
Midland	SWR-25	3.5-150MHz SWR / Power Meter 100W	£29
Daiwa	LA-2035R	2m 1-3W in,30W out + GaAsFET Pre-amp	£39
Trio	AT-250	1.8-30MHz 100W Matching Automatic ATU + 4inputs & SWR/ PWR meter AC or 12V DC	£219
Yaesu	FT-890	HF All Mode Transceiver with Gen.Cov. RX 100W 12V	£499
SGC	SG-230	1.8-30MHz Microprocessor controled ATU 150W	£329
Global	At-1000	500kHz-30MHz SWL ATU	£59
Roberts	R-862	HF/VHF receiver AM/WFM 0.15-0.281 / 0.522-1.62 / 4.6-21.95 / 87.5-108 MHz 3 VDC (2*R6 / AA)	£49
Kenwood	DFK-3C	3m Detachable Front Panel Kit for TM-G707, TM-V7 etc	£25
Alinco	DJ-X3E	100kHz-1300MHz AM, FM, WFM Hand Held Receiver 700Ch + 8.33kHz step	£95
Yaesu	VX-6E	2m,70cm FM Waterproof Micro Hand Held Transceiver 5W + Full CTCSS & Wide RX	£139
Bhi	NEIM-1031	In Line Noise Eliminating Filter Unit (typ. 20dB) + Line Level input 12V	£89
Roberts	R-9914	Portable World Radio with SSB 45Ch. 4x AA or 6V DC	£69
Timewave	DSP-9+	Multi Mode Audio Noise Filter + Gain Control 12V DC	£99
Fairhaven	RDS-500VX	10kHz-1750MHz All Mode Receiver with PC Control, CD ROM, 13000+ Ch. 12V + PSU	£499
Kenwood	TS-2000	HF,6m,2m,70cm All Mode Transceiver + Gen.Cov., Auto ATU & DSP.	£999
Yaesu	FT-950	HF, 6m All Mode Transceiver + Gen Cov, Auto ATU & DSP Audio filters 100W 12V DC	£769

RADIOWORLD

01922 414796

IC-756PRO-MKIII Icom HF + 6m Trx £1,699
Yaesu FT-2000 IN STOCK 100W with internal power supp £1,599
Kenwood TS-790E Dual-Band Base / Mobile Transceiver £999
Icom IC-756ProII HF / 6m Transceiver £999
IC-7400 HF, 6m & 2m transceiver £999
Dentron MLA-2500b 2KW HF Amplifier £999
IC-7400 HF, 6m & 2m transceiver £950
Yaesu FT-920AF HF / 6M Base £899
Kenwood TS-870S HF Transceiver £899
Yaesu FT-920 ..... £799
Kenwood TS-850S /AT £699
Icom IC-746 HF/6m Transceiver £699
Yaesu FT-767GX £599
Kenwood TS-570DG/E HF transceiver £599
Heatherlite Hunter HF Linear Amplifier £599
Ameritron ALS-500 Solid State Amplifier £599
Kenwood TS-570DG/E £549
Kenwood R-5000 Communications Receiver HF £549
Yaesu FT-897D Multiband Portable Transceiver £529
AOR AR8600MkII £525
AOR AR-3000A Wideband Receiver £450
Icom IC-R72 Receiver £399
Yaesu FT-817ND HF 6m VHF UHF 5W Transceiver £359
Yaesu FRG-100 HF Receiver £349
Kenwood TS-830S HF Trx Base £349
Yaesu FT-757GX MkI £299
Yaesu FRV-8800 RX inc Converter £299
Sidekick-black Compact Motorised Mobile HF Antenna £299
MFJ-989C MFJ 3kW ATU, ANTENNA TUNER. £299
Icom IC-735 ..... £299
Yaesu FTV-901R 2m / 6m Transverter £275
Yaesu FT-690R II 6m transceiver £275
Yaesu FT-690R II £275
Icom IC-490E 70cms Mobile £250
ATAS-120A Active Tuning Antenna System for FT-897, F £249
DR-635E Alinco 2m/70cm FM Dual Band Mobile T £230
Kenwood TM-741E - VHF/UHF transceiver 144-146 / 430- £229
Yaesu FT-8100R 2m / 70cms Mobile Transceiver £220
Yaesu FT-480R 2m Transceiver £220
SGC MAC-200 Antenna Controller Auto-Tuner £220
IC-E91 Icom 2m/70cm Handheld Transceiver £209
Yaesu YO-100 Monitor Scope £199
Vectronics VC-300D Tuner with LED PEP Meter £199
NATO Morse Key £199
8-BAND W2IHY Audio Processor with Noise Gate £199
Yaesu VX-7R Silver Tri-band Handy £189
Yaesu VX-7R black Tri-Band Handy £189
Kenwood TM-G707E Dual Band Mobile £189
Ranger RCI 2950DX 10 - 12m Transceiver £179
Capco SPC-300 MK2 ATU £179
Bearcat UBC-9000 Scanner £179
Yaesu MD-200 Desktop Microphone £175
Yaesu FV-901DM VFO £175
Yaesu FC-20 Antenna Tuning Unit £175
ICOM IC-2200H 144–146 ..... £175
Yaesu VR-500 100kHz-1300MHz Scanner £169
Yaesu FT-7800 2/70 mobile £169
Icom AT-150 Auto antenna tuning unit £169
Kenwood TS-271E £165
Icom PS-85 Icom 20A 13.8V Switch Mode £159
Icom IC-T8E £159
Microset PT 135 PSU £149
M/Mods 144/100 ..... £149
Capco SPC-300 ATU £149
Yupiteru MVT-7100 ..... £140
Alinco DJ-X30 Scanning Receiver 100KHz - 1.3GHz £140
Icom IC-T7E Dual Band Handy £139
MFJ-949E ATU £129
Magellan GPS 315 Receiver £129
Kenwood TL-120 HF Amplifier £129
Kenwood PS-31 Power Supply £129
Kamtronics KAM Multimode TNC £129
AOR ARD9000 Digital Voice Interface ..... £ 129
CUB Optoelectronics MINI Counter £119.95
Icom PS-15 20A power Supply £119

Classified Ads

To advertise on this page see the booking form below.

DISCLAIMER Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. ***Practical Wireless*** advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The publishers of ***Practical Wireless*** wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.

For sale

X-tals 100kHz-250MHz. Std 10.106, 10.245, 10.7, 11.155MHz @ £1.50. Callg 3.56, 7.030, 14.060, 28.060MHz @ £1.50. 1.7468MHz X-tal Clansman 321 ex-stock p.o.a. 10.7MHz 10kHz filter @ £5.75, 1.4MHz SSB filter p.o.a. P&P £1.50 + VAT. IQ Electo
Tel: 0208 391 0545.
E-mail: vincentvoy@hotmail.co.uk

Antenna Analyzer WE-030A 0.3-30MHz, graphical, fast, small and hand-held. £195.
www.rfequipment.co.uk

Voice Keyer, as featured in PW March 2010. PCB and all parts available.
For details email:
barryhorning@btconnect.com

All types of old radio valves for sale. All tested. Tel: 0113 2403496.

Valves

VALVES AND ALLIED COMPONENTS IN STOCK Ring for free list. Valves/ books/ magazines wanted.
Geoff Davies (Radio).
Tel: 01788 574774.

TOP PRICES PAID
for all your valves, tubes, semi-conductors and ICs.
Langrex
Unit 4, Daux Road, Billingshurst, W. Sussex RH14 9SJ
TEL: 01403 785600. FAX: 01403 785656.
www.langrex.co.uk

Repairs

REPAIRS TO ALL AMATEUR AND VINTAGE Rx/Tx Cost effective service. Phone or call in for details. Kent Rigs, 52 Salisbury Road, Chatham, Kent ME4 5NN. Tel: 07903 023437.

RELIABLE REPAIRS for all amateur and vintage equipment. Professional service, reasonable rates. Tel: 01807 580376.
E-mail: radiorepairs@btconnect.com

Whilst prices of goods shown in advertisements are correct at the time of going to press, readers are advised to check both prices and availability of goods with the advertiser before ordering from non-current issues of the magazine.

QSL cards

FULL COLOUR QSL CARDS for all your QSL needs. Shirts and caps with callsigns and also ham cartoons by GW3COI. For free samples contact Chris M0DOL.
E-mail: qslers@aol.com
P.O. Box 184 Northampton NN3 9JH.

Aerials

GAREX ELECTRONICS VHF/UHF accessories and aerials, TVI Filters, 4m & 6m Transceivers.
Tel: 07714 198374
www.garex.co.uk
PO Box 52, Exeter EX4 8WX

G-WHIP ANTENNAS Mobile, base, backpacker and commercial models. WWW.gwhip.co.uk or telephone 02380 445212 after 6pm.

GROUNDBREAKING PERFORMANCE! New price, new band coverage, new compact, innovative design. "That'll be the I-PRO!" www.proantennas.co.uk
Tel: 01489 789960

ORDER FORM FOR CLASSIFIED ADS

PLEASE WRITE IN BLOCK CAPITALS

The prepaid rate for classified advertisements is 42 pence per word (minimum 12 words), box number 70p extra. Semi-display setting £13.90 per single column centimetre (minimum 3cm). Please add 17.5% VAT to the total. All cheques, postal orders, etc., to be made payable to PW Publishing Ltd. Advertisements, together with remittance, should be sent to the Classified Advertisement Dept., Practical Wireless, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Tel: 0845 803 1979, Fax: 01202 659950.

Please insert this advertisement in the ..... **issue of *Practical Wireless*** (if you do not specify an issue we will insert it in the next available issue of *PW*) for ..... insertion/s. I enclose Cheque/P.O. for £.....(42p per word, 12 minimum, please add 17.5% VAT to total).

Name: .....

Address:.....

.....

.....

.....

Telephone No.:.....

Box Number @ 70p: Tick if appropriate

Category heading:.....

Please photocopy this form or write on a separate sheet if you prefer

BARGAIN BASEMENT

SEND YOUR ADVERT TO:-

PRACTICAL WIRELESS, BARGAIN BASEMENT, ARROWSMITH COURT, STATION APPROACH, BROADSTONE, DORSET BH18 8PW

For your advert in Bargain Basement please remember to include your dated, coloured corner flash from this page along with your entry.

BARGAIN BASEMENT RULES - £4 per advert

Please write your advert **clearly** in **BLOCK CAPITALS** up to a maximum of **30 words**, plus **12 words f**or your contact details on the form provided and send -it together with the dated corner flash and your **payment of £4 (subscribers** can place their advert **free of charge** as long as they provide their **subs number and corner flash),** cheques should be made payable to **PW Publishing Ltd.**, credit card payments also accepted.

Send your advert to **Bargain Basement, Practical Wireless, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW** or E-mail your advert to **peter@pwpublishing.ltd.uk** (If you don't want to include your credit card details on your E-mail, just 'phone us on **0845 803 1979**.

Please help us to help you by preparing your advert carefully. Any advert which contains **??** marks indicates that the advertiseing dept. could not read/interpret the wording.

Please avoid FAXing your advert - it could delay publication.

Advertisements from traders or for equipment that it is illegal to possess, use or which cannot be licensed in the UK, will not be accepted. **No responsibility will be taken for errors and no correspondence will be entered into on any decision taken by the Editor on any of these conditions.**

You should state clearly in your advert whether equipment is professionally built, home-brewed or modified.

The Publishers of *Practical Wireless* also wish to point out that it is the responsibility of the buyer to ascertain the suitability of goods offered for purchase.

FOR SALE

AVO VALVE CONDITIONER Mk2 with valve data manual. 14th edition, working and in good condition, £450 o.v.n.o. Tel: Frank 01524 423526 (Lancaster).

DRAKE VALVES most unused in original boxes, ring for price and availability. Also, crystals. Tel: Rod 01449 676355 (Suffolk).

HUSTLER 6BTV good results. Forced to sell. Moved to flat and no room to use. Buyer to arrange collection, boxed ready to go, £150 o.n.o. Tel: Ken M3ZKB 0797 6612641 (Clacton-on-Sea).

PIRATE RADIO 1960s 1970s Sound pics of Caroline, London,270,Scotland,City,208,Manx Radio, RNI. Real memories of the offshore stations in jewel case, from 99p. Tel: Dave 01244 316673 (Chester). E-mail g8zre@hotmail.com

RACAL RA-17 receiver with manual. Clean and tidy condition, £60. Tel: 01491 612736 (Oxfordshire).

YAESU FT-847 mint condition complete with manual. MFJ-948 ATU, LGE, SWR meter, 300W. Watson desk mic, new. Carolina Windom 620 antenna, 34', 20-6m, VGC, £750. May split. Tel: David 01904 634112 (York).

YAESU FT-847 very good condition and boxed, £400. Yaesu FT-857 very good condition and boxed, £200. Tel: Shaun 07800 651528. E-mail: spgwoods@hotmail.co.uk

WANTED

ICOM IC-738, IC-765 must be working and in good condition. Will pay P&P or collect Tel: Steve M6SGM 0777 301 9980 (Huddersfield). E-mail: mel.bhotspice@yahoo.com

LOWE HF-225 and HF-235 (not 125) receivers. Tel: Tony 01905 641759 before 21:00hrs, please or 01905 743605 (Worcester).

OLD HALF INCH FERRITE RODS must be half inch, 12.7mm, in diameter and be six inches long or more. Will pay very good money for the rods. Tel: Peter Tankard 0114 2316321 between 9am and 9pm (Sheffield).

PHOTOCOPY (etc) of large label stuck to tuning gang cover on RCA AR-88 with all the 'old' patent numbers, etc. Also, HRO knobs. Tel: 01843 594732 or 0794 4418259 (Kent).

REALISTIC DX-160 5-band SW radio from 1970-1980. Cash waiting. clean condition required. Tel: Keith 0775 795 2703 evenings (Cumbria).

SPEAKERS Trio/Kenwood SP-930 and Drake MS-4. Tel: 01784 252278 daytime (Near Heathrow airport).
E-mali: g4afq@poshost.com

TRIO R-1000 in good working order and good condition please. Your price.
Tel: Chris 01438 871975 after 6pm (Hitchin, Herts).

USER MANUAL for Realistic Hyperscan 400 channel 2006 scanner. Copy will be acceptable. Tel: Tom 01292 532088 (East Ayrshire).

YAESU VX-5R and FT-730. Both complete and in working order with instruction books. Also, MFJ-9420 or similar. Prepared to collect within 50 miles from Oxford.
E-mail: charles.jones125@yahoo,co.uk

EXCHANGE

REALISTIC DX-394 plus Bearcat UBC-72XLT hand-held. Both top condition for Eddystone EC-10 MkII. Must be fully working with manual and in reasonable condition. Tel: Terry 01482 377016 Please leave message
(Hull and local area only).

Bargain Basement order form

Please insert this advertisement in the next available issue of Practical Wireless.

☐ For Sale ☐ Wanted ☐ Exchange

PLEASE NOTE: as a security measure, you must include your house number and postcode.

Name .....

Address .....

.....

..... Post code .....

Telephone Number .....

PLEASE WRITE IN BLOCK CAPITALS

CARD NUMBER

Signature..... Security number

LAST THREE DIGITS ON THE BACK OF THE CARD

Switch issue number (if on card) .....

Start date of card..... Expiry date of card.....

My Subs Number is.....(or mailer label) .....

		(30)	

CONTACT DETAILS FOR ADVERT. Please only write in the contact details you wish to be published with your advert, ie. do you want your name & address, or just your telephone number? Your advert, you decide! **PLEASE - No FAXed Ads!** (12)

B.B. May '10

THE PW PUBLISHING
RADIO BOOKSTORE

mail order...huge range in stock...fast delivery

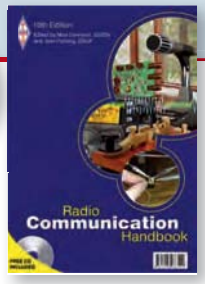
NEW IN STOCK NOW

RADIO LISTENERS GUIDE 2010
£5.95

- Frequencies and transmitter information for all BBC and commercial radio stations, plus DAB digital transmitter details.
- Radio Reviews Independent reviews of analogue and DAB digital radios.
- News from BBC and commercial radio stations.
- Analogue Radio switch-off Information about plans for FM and medium wave switch-off.
- Digital Radio (DAB) The latest news and information.
- Sky, Freeview and Freesat radio information and channel lists.
- Advice How to get the best from your radio.

NEW IN STOCK NOW

RSGB COMMUNICATIONS HANDBOOK



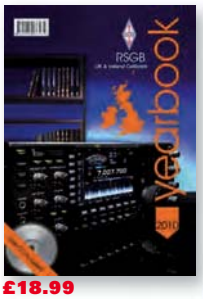
£29.95

10th edition
Following a major revision the RSGB Radio Communication Handbook is now the biggest edition ever and even better than before! 64 pages bigger than the previous edition, the 10th edition of the RSGB Radio Communication Handbook is now packed with even more material than ever before. The contents have also had the biggest revision ever and to make way for all the new material some chapters have even been moved onto the accompanying CD.

The CD-ROM version of the RSGB Yearbook 2010, but with a lot more besides!

£15.99

RSGB YEARBOOK 2010



£18.99

Bigger and better than ever before!
The newly expanded RSGB Yearbook 2010 contains 528 pages and over 1.25 million words. Now with over 200 pages of information it remains the most comprehensive guide to amateur radio in the UK and worldwide.
FREE CD
Packed with bonus material the RSGB Yearbook CD is a great extra benefit of buying this great book.

AIR TRAFFIC CONTROL 10th EDITION

Since the last edition of abc Air Traffic Control in 2005, there have been many changes in the air traffic control industry in the UK and UK-related airways.

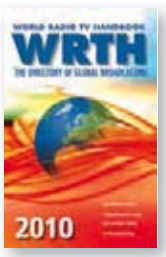
IN STOCK NOW

SCANNERS 6

£9.95

The Scanners books, originally created by Peter Rouse, have been consistent best sellers. They are the UK's leading guides to the short wave radio equipment employed by enthusiasts to monitor the VHF/UHF frequencies used by airfields, the maritime and emergency services and many other users. Scanners 6, the sixth revised and updated edition, includes up-to-date frequency listings and information on the latest digital technologies, mobile radio, using PCs (home, laptop and palm) with radio receivers, shareware/freeware software for monitoring and decoding and radar-style displays on palmtop computers.

NEW IN STOCK NOW



WORLD RADIO TV HANDBOOK 2010 EDITION

The 64th edition of the best selling directory of global broadcasting on LW, MW, SW and FM.
The Features section has a stimulating introduction to the art of FM DXing, reviews of the latest equipment and a fascinating account of visits to five All India Radio stations.

The remaining pages are, as usual, full of information on:
- National and International broadcasts and broadcasters
- Clandestine and other target broadcasters
- MW and SW frequency listings
- Equipment reviews and articles
- Terrestrial TV by country
- Extensive Reference section

and much more!

ONLY £23.00

	Pages	Price
AIRBAND		
● NEW IN NOW **AIRBAND RADIO GUIDE** 7th Edition (abc)	112	£9.99
● NEW IN NOW **AIR TRAFFIC CONTROL** 10th Edition (abc)	112	£9.99
● **THE UK & IRELAND FLIGHT ROUTES SUMMER 2009** (Seldec)	275	£12.95
● **CIVIL AIRCRAFT MARKINGS 2009** Alan S Wright. (abc)	432	£9.99
● **MILITARY AIRCRAFT MARKINGS 2009** Howard Curtis. (abc)	224	£9.99
● NEW IN APRIL **AIRWAVES 2010** (Photavia)	144	£11.50
● NEW IN APRIL **CALLSIGN 2010** (Photavia)	111	£11.50
● **POCKET UK & IRELAND AIRBAND FREQUENCY GUIDE** 14th Edition (Seldec)	128	£5.75
● **DIRECTORY OF AIRCRAFT SELCALS** 8th edition. (Seldec)	205 PLUS CD	£15.95
● **UK & IRELAND AIRBAND FREQUENCY GUIDE** (Seldec)	146	£8.99
● **HF AIRBAND FREQUENCY GUIDE** (Seldec)	225	£14.75
● OUT OF STOCK **NORTH ATLANTIC WAYPOINT ATLAS** (Seldec)	50	£9.50
SCANNING & FREQUENCY GUIDES		
● **SCANNERS 6** B. Robertson & P. Rouse	245	£9.95
● NEW **WORLD RADIO TV HANDBOOK 2010** (WRTH)	672	£23.00
● NEW **RADIO LISTENERS GUIDE 2010**	160	£5.95
● **HF MARINE FREQUENCY LIST**. (Seldec)	225	£14.75
● BACK IN STOCK **LISTENING TO LONGWAVE** Kevin Carey	100	£5.95
● NEW EDITION **THE POCKET UK & IRELAND VHF MARINE FREQUENCY GUIDE**. (Seldec)	108	£5.75
● BACK IN STOCK **BUYING A USED SHORT WAVE RECEIVER** 4th Edition. F. Osterman	78	£4.95
● **KLINGENFUSS GUIDE TO UTILITY STATIONS 2009/10**	604	£37.00
● IN STOCK ORDER NOW! **KLINGENFUSS SHORTWAVE FREQUENCY GUIDE 2010**	478	£30.00
● IN STOCK ORDER NOW! **KLINGENFUSS SHORTWAVE FREQUENCIES CD 2010**		£25.00
● **KLINGENFUSS RADIO DATA CODE MANUAL** 18th Edition	600	£40.00
● **UK SCANNING DIRECTORY** - 9th edition (PW Publishing)	544	£19.75
ANTENNAS/TRANSMISSION LINES/PROPAGATION		
● NEW IN NOW **BASIC ANTENNAS** (ARRL)	216	£24.99
● NEW IN NOW **BUILDING SUCCESSFUL HF ANTENNAS** (RSGB)	224	£14.99
● **EVEN MORE OUT OF THIN AIR** (PW Publishing)	80	£6.75
● OUT OF PRINT **25 SIMPLE INDOOR & WINDOW AERIALS** E.M. Noll (Babani)	50	£1.75
● **25 SIMPLE TROPICAL & MW BAND AERIALS** E.M. Noll (Babani)	54	£1.75
● **AN INTRODUCTION TO RADIO WAVE PROPAGATION** J.G. Lee. (Babani)	116	£3.95
● **ANTENNA FILE** (RSGB)	285	£18.99
● OUT OF STOCK **ANTENNA TOOLKIT 2** Joseph Carr	256	£28.99
● OUT OF STOCK **ANTENNA TOPICS** Pat Hawker G3VA (RSGB)	384	£18.99
● **BACKYARD ANTENNAS** Peter Dodd G3LDO (RSGB)	200	£18.95
● NEW IN STOCK **ARRL ANTENNA BOOK** 21st edition, INC CD (ARRL)	944	£30.99
● **EXPERIMENTAL ANTENNA TOPICS** H.C. Wright	72	£3.50
● **HF ANTENNA COLLECTION** Edited by Erwin David G4LQI. (RSGB)	233	£19.95

You can see full descriptions of all these books & order securely on-line at www.mysubcare.com see the magazine's related products section. Also, see www.pwpublishing.ltd.uk/bookstore/books.html for full descriptions of all these books.

	Pages	Price
● **HF ANTENNAS FOR ALL LOCATIONS** 2nd edition. Les Moxon G6XN. (RSGB)	322	£19.99
● **OUT OF STOCK INTERNATIONAL ANTENNA COLLECTION** G. Brown M5ACN. (RSGB)	250	£12.95
● **INTERNATIONAL ANTENNA COLLECTION 2.** G. Brown M5ACN. (RSGB)	200	£12.95
● **PRACTICAL ANTENNAS FOR NOVICES** John Heys	58	£7.99
● **PRACTICAL WIRE ANTENNAS 2** Ian Poole G3YWX	172	£11.99
● **RADIO PROPAGATION PRINCIPLES & PRACTICE** Ian Poole G3YWX	102	£14.95
● **SIMPLE AND FUN ANTENNAS FOR HAMS** (ARRL)	200	£16.99

BEGINNERS/LICENCE/MANUALS

● **ADVANCE! THE FULL LICENCE MANUAL** Alan Betts G0HIQ & Steve Hartley G0FUW. (RSGB)	104	£11.99
● **AMATEUR RADIO EXAM SECRETS** Alan Betts G0HIQ (RSGB)	104	£12.99
● **AMATEUR RADIO EXPLAINED** Ian Poole G3YWX. (RSGB)	80	£5.79
● **OUT OF PRINT AN INTRODUCTION TO AMATEUR RADIO** I.D. Poole. (Babani)	150	£4.99
● **DISCOVER DXING.** 3rd edition. J. Zondlo	96	£6.95
● **FOUNDATION LICENCE NOW! 5th Edition** Alan Betts G0HIQ. (RSGB)	32	£4.99
● **HF AMATEUR RADIO 2nd Ed.** Ian Poole G3YWX. (RSGB)	144	£12.99
● **INTERMEDIATE LICENCE – BUILDING ON THE FOUNDATION 4th Edition** Steve Hartley G0FUW. (RSGB)	76	£6.99
● **NOVICE RADIO AMATEURS EXAMINATION HANDBOOK** I.D. Poole. (Babani)	150	£4.95
● **SECRET OF LEARNING MORSE CODE** Mark Francis. (Spa)	84	£6.95
● **MORSE CODE FOR RADIO AMATEURS.** (RSGB)	32 inc. CD	£7.99

DESIGN & CONSTRUCTION

● **CIRCUIT OVERLOAD** (RSGB)	504	£18.99
● **PROJECTS FOR RADIO AMATEURS & SWL** R.A. Penfold. (Babani)	92	£3.95
● **THE ART OF SOLDERING** R. Brewster. (Babani)	84	£3.99
● **THE SUPERHET RADIO HANDBOOK** I.D. Poole. (Babani)	104	£4.95

SHACK ESSENTIALS

● **NEW EDITION RSGB YEARBOOK** 2010 edition. (RSGB)	528	£18.99
● **NEW EDITION CALLSEEKER PLUS CD** 2010 edition. (RSGB)		£15.99
● **NEW EDITION RSGB RADIO COMMUNICATIONS HANDBOOK + CD** 10th Edition. (RSGB)	864	£29.99
● **NEW EDITION ARRL HANDBOOK 2010** inc CD. (ARRL)	1250	£35.99
● **ARRL OPERATING MANUAL** 9th Edition. (WSL)	420	£19.99
● **DXPEDITIONING - BEHIND THE SCENES FOR RADIO AMATEURS WORLDWIDE** N Cheadle & S Telenius Lowe	180	£6.95
● **THE RIG GUIDE** S W White. (RSGB)	88	£4.99
● **AMATEUR RADIO ESSENTIALS** G. Brown. (RSGB)	288	£25.99
● **AMATEUR RADIO ASTRONOMY** J. Fielding. (RSGB)	330	£16.99
● **AMATEUR RADIO (VALUE) LOGBOOK** (RSGB)	80	£4.95
● **AMATEUR RADIO ON THE MOVE** (ARRL)	170	£14.99
● **DIGITAL MODES FOR ALL OCCASIONS** Murray Greenman (RSGB)	208	£16.95
● **OUT OF STOCK GREAT CIRCLE MAP** (PWP)	400 x 400mm	£1.50
● **LF TODAY - GUIDE TO SUCCESS 136kHz** M Dennison (RSGB)	128	£11.95

NEW!

£35.99

SPECIAL OFFER - Whilst stocks last! Purchasers of this book will recieve the hardback version of this book at no extra charge.

ARRL HANDBOOK 2010

87th Edition. **The BIGGEST ARRL Handbook EVER!**

At over 1250 pages, the 87th edition of the ARRL handbook is the biggest since it was first published in 1926. More than 60 authors and reviewers contributed over 70% NEW or completely revised content to this edition.

The ARRL Handbook 2010 is both reference book and tutorial, woven together with practical applications and solutions. The Handbook provides both a useful introduction to radio communication and features the most current material on electronics and Amateur Radio.

This edition has been reorganised into five major sections, making it easier than ever to find exactly what you are searching for: Fundamental Theory, Practical Design and Principles, Antenna Systems and Radio Propagation, Equipment Construction and Maintenance and Station Assembly and Management. Each chapter has been designed to be either an encyclopaedia of current practices and technology or focuses on techniques, designs and projects.

CD-ROM

The book's accompanying CD-ROM inside the back cover once again includes a searchable PDF version of the entire book, including graphics. Construction information and PC board templates for all projects are included, as are the original QST articles. There is a powerful filter design and analysis software, Elsie, as well as other useful applications.

£9.99

NEW!

AIRBAND RADIO GUIDE 7TH EDITION

Before entering the subject of airband radio and other monitoring systems, an overview of the processes involved in handling air traffic may help to give a better understanding of how it all works

Contents include; The UK airspace system, The legal position, How the System works, What can I hear?, Choosing a scanner, Antennas, High frequency radio, Virtual radar systems, VHF and UHF receivers, Airline callsigns, Airfield directory, En route frequencies, Worldwide high frequency coverage, Weather broadcasts and Useful addresses.

THE UK & IRELAND AIRBAND FREQUENCY GUIDE 13th Edition

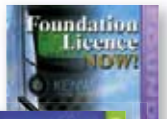
Includes ALL Airports in England, Scotland, Wales, Channel Island, Northern Ireland and the Republic of Ireland, ACARS Frequencies, Alphabetical Airfields & Airport Frequencies with Company Frequencies, Numerical Frequency Listing, ICAO Airfield Designator Decodes, Radio Call signs, 2 & 3 Letter airline Prefixes, Civil Aircraft HF (SSB) Frequencies, OACC HF (SSB) & VHF Frequencies, Abbreviation List, Phonetic Alphabet & Morse Code. VOLMET frequencies.
INCLUDES REPUBLIC OF IRELAND

146 pages A5 spiral bound "Lay Flat"

£8.99

FOUNDATION LICENCE NOW!

A 32-page soft-covered book that takes you through the syllabus, reinforcing what you will learn on the Foundation Course. The course has been designed and introduced for people of all ages and abilities. To take the course you need no formal qualifications. **£4.99.**



INTERMEDIATE LICENCE. BUILDING ON THE FOUNDATION.

The second course book in the RSGB's series is structured to progressively obtaining an Amateur Intermediate Licence. It contains practical exercises, broken down into half-hour worksheets. The ideal companion book for all Amateur Radio Intermediate Licence students. **£6.99.**

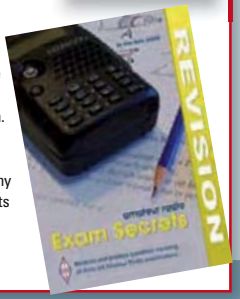
ADVANCE! THE FULL LICENCE MANUAL.

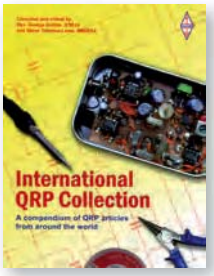
This is the third book in a course structured to obtain an Amateur Radio Licence. Advance is the final stage in gaining the full licence and has been updated to suit the new syllabus structure. Broken down into logical sections, it's presented in an easy-to-understand way, making it perfect for home study. **£11.99.**

NEW AMATEUR RADIO EXAM SECRETS

For those who are studying for the UK amateur radio examinations and want more information, then this is the book. Covering all three levels of amateur radio licence, Amateur Radio Exam Secrets is designed to extend knowledge and test candidates' comprehension.

Amateur Radio Exam Secrets provides the ideal training course companion for both candidates and tutors. If you are studying for any level of the amateur radio examination, Amateur Radio Exam Secrets provides the ideal revision aid and quick reference book.
104 pages, **£12.99**





NEW IN STOCK NOW

INTERNATIONAL QRP COLLECTION

A Compendium of QRP articles from around the world.

Compiled & Edited by Rev. George Dobbs G3RJV and Steve Telenius-Lowe

QRP (or low power) operating is practiced by many radio amateurs across the globe. Much is published by these QRP enthusiasts detailing great designs, best practice and much more. The authors of the International QRP Collection have scoured the world for the best of these and compiled them for you, into this great scrapbook.

£11.00

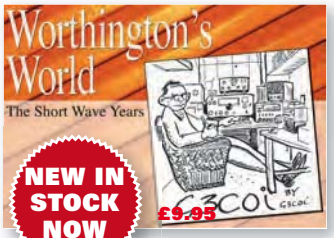
NEW EDITION! POCKET UK & IRELAND AIRBAND FREQUENCY GUIDE 14th Edition

The 14th Edition of this popular "POCKET FREQUENCY GUIDE" is now available, the contents represent the most comprehensive and up to date frequency listing currently available.
128 pages A6 (10.5 x 15 cm) Spiral Bound with Colour Cover. **£5.75**

NEW EDITION! The Pocket UK & Ireland VHF Marine Frequency

This handy, small, ring-bound book lists the frequencies and channel numbers for marinas and ports all around the UK and Ireland. The list runs alphabetically by region, with separate lists for ports, marinas and inland waterways. There are also helpful sections on both the HM and Irish Coastguard, including when to listen to weather forecasts. At the back of the book is the complete list of channel numbers, their equivalent frequency and notes on their use, which means it doesn't matter whether you are using a scanner or a marine receiver you can find the stations you are looking for. 108 pages.

£5.75



NEW IN STOCK NOW

£9.95

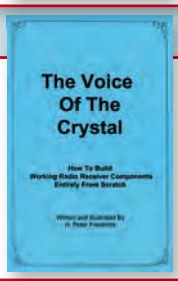
WORTHINGTON'S WORLD The short wave years

An amazingly apposite tribute to a wonderfully zany cartoonist that are presented in categories that blend together like a silky chocolate cake mix (John G3COI loved an old fashioned chocolate cake!). Chuckle away – you'll find old favourites and cartoons you missed!

INSTRUMENTS OF AMPLIFICATION

Rob Mannion G3XFD writes: Peter Friedrichs has written a truly superb book but has chosen a title that really hides its 'light' under the proverbial bushel! Armed with the book an interested constructor can literally build a radio from scratch anywhere! Perhaps a better title could have been Desert Island Radio for the Shipwrecked because everything from simple earphones, detectors and mechanical amplifier to home made valves (tubes) and transistors. If you enjoy Rough Science on BBC2 you'll love this book! **Very highly recommended**.

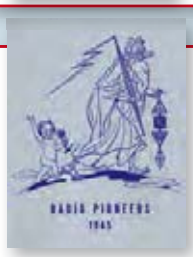
£14.95



VOICE OF THE CRYSTAL

185 pages of practical information on the fabrication of electronic components suitable for use in building crystal radio sets. Basic theory and simple analysis is combined with dozens of examples of historical practice, work by contemporary experimenters, and construction details for many instruments fabricated by the author himself.

£11.95



RADIO PIONEERS 1945

Discover the history of the Veteran Wireless Operators Association and the Amateur Radio Relay League. See some of the early wireless catalogues and amateur stations. Get a brief but to-the-point chronology of radio developments to 1925. You get pictures of early tubes, Poulsen in his lab, Marconi parabolic reflectors, a Fessenden alternator and more. The history is brief, fast reading, but informative. You'll read about the personalities and discover what they did.

£7.95

VINTAGE RADIOS

£19.95

This book tells the collector and the armchair wireless enthusiast everything there is to know about classic radios from the 1920s to the end of the 1960s. All the important makes and models are discussed and the author also covers buying and selling, care and restoration and many other topics, including foreign radios and radio-related ephemera. Illustrated with many colour photographs, this is the perfect collector's companion to the fascinating hobby. 208 pages.

THE PW PUBLISHING LTD RADIO BOOKSTORE

mail order...huge range in stock...fast delivery...

	Pages	Price
● **LOW PROFILE AMATEUR RADIO** 2nd edition. (ARRL)	64	£14.99
● **RADIO AMATEURS WORLD ATLAS** (A4)	23	£12.00
● **RSGB AMATEUR RADIO OPERATING MANUAL** (RSGB)	224	£19.95
● **RSGB PREFIX GUIDE**. 8th edition. (RSGB)	34	£8.95
QRP		
● NEW **INTERNATIONAL QRP COLLECTION**. (RSGB)	176	£11.00
● NEW EDITION **LOW POWER COMMUNICATIONS**. 3rd Edition. (ARRL)	240	£14.99
● **More QRP Power** (ARRL)	176	£16.99
● OUT OF PRINT **LOW POWER SCRAPBOOK** (RSGB)	320	£12.99
● **QRP BASICS**. George Dobbs G3RJV. (RSGB)	204	£14.99
VHF & HIGHER		
● **ALL ABOUT VHF AMATEUR RADIO** W. I. Orr W6SAI. (ARRL)	163	£8.95
● **GUIDE TO VHF/UHF AMATEUR RADIO** Ian Poole G3YWX. (RSGB)	180	£9.99
● **VHF/UHF HANDBOOK** Andy Barter G8ATD. (RSGB)	302	£14.99
HISTORICAL		
● NEW **WORTHINGTON'S WORLD - THE SHORT WAVE YEARS** (PW Publishing)	146	£9.95
● **INSTRUMENTS OF AMPLIFICATION** HP 'Pete' Friedrichs	300	£14.95
● **RADIO PIONEERS 1945** (Lindsay)	64	£7.95
● **FJ CAMM - THE PRACTICAL MAN** (RSGB)	110	£10.99
● **VINTAGE RADIOS** (Crowood)	208	£19.95
● **AMATEUR RADIO - A BEGINNERS GUIDE** (1940 REPRINT) (Lindsay Publications). Douglas Fortune W9UVC	156	£7.70
● **MARCONI'S ATLANTIC LEAP (H/B)** Gordon Bussey. (Marconi)	96	£6.99
● NEW LOW PRICE **RADIO & RADIO OPERATORS FROM SPARKS TO SATELLITES** (Package with Swedish hardback book, English spiral-bound translation and CD with printable PDF files) Birgitta Guftafsson	255	£15.00
● NEW LOW PRICE **THE SAGA OF MARCONI OSRAM VALVE** B. Vyse & G. Jessop	346	£17.50
CRYSTAL SETS		
● **CRYSTAL RECEIVING SETS & HOW TO MAKE THEM** (Lindsay)	124	£8.95
● **VOICE OF THE CRYSTAL** (Pete Friedrichs)	185	£11.95
ELECTRONICS		
● **ELECTRONIC PROJECT BUILDING FOR BEGINNERS** (Babani)	110	£4.99
● **GETTING THE MOST FROM YOUR MULTIMETER** (Babani)	102	£4.99
● **HOW TO USE OSCILLOSCOPES & OTHER TEST EQUIPMENT** (Babani)	110	£4.99

Binders

PRACTICAL WIRELESS OR RADIOUSER £10.00

You can order securely on-line at

www.mysubcare.com

see the magazine's related products section.

HOW TO ORDER

Telephone: 0845 803 1979

Call the Bookstore, Monday to Friday 9am to 4pm.

Callers with an appropriate BT inclusive call package can call this number free!
Your order will usually be delivered to you within a week!

Outside these hours your order will be recorded on an answerphone.

Post: Write to the Bookstore, remembering to include your name, address, daytime telephone number and payment details (Sterling please - cash not accepted. **Cheques made payable to PW Publishing Ltd.**), at: **Bookstore, PW Publishing Ltd., Broadstone, Dorset BH18 8PW.**

Fax: If you wish to FAX your order to us please mark it for the attention of the Bookstore and send it to: 01202 659950

E-mail: bookstore@pwpublishing.ltd.uk

Order Securely on-line: www.mysubcare.com

Photocopies & Back Issues: To order a back Issue, please call the Order Line to check availability. We can photocopy articles from issues that are not available - we have a Review List going back years!

	Current Issue	Back Issues
Practical Wireless	£3.50 (inc UK P&P)	£5.00 (inc UK P&P)
RadioUser	£3.50 (inc UK P&P)	£5.00 (inc UK P&P)

Overseas post: Europe or ROW postal charges to be added to the above.

Photocopies / Reprints (per article): £3.00 (inc P&P).
Overseas: Please add £1.50 to the above prices. E&OE

order form

05/10

Photocopies are acceptable

Please try to order from an up-to-date magazine to ensure correct prices and availability.

.....Price (£).....
.....Price (£).....
.....Price (£).....
.....Price (£).....
.....Price (£).....
.....Price (£).....
.....Price (£).....
.....Price (£).....

Total cost of books ordered:.....Price (£).....

Postage & Packing charges: Please remember to add P&P to your order. (£) .....

UK: £1.95 P&P for one item, £3.50 for two or more

Overseas Europe:
£3.20 P&P for one, £5.80 for two, £2 extra per item for three or more

Overseas Rest of World:
£5.20 P&P for one, £10.00 for two, £2 extra per item for three or more

Total cost of order including postage **£**

Send this completed form to:

Bookstore, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW

Payment Details. Please note: For security purposes, you must include your house number and postcode.

Name .....

Address .....

.....

.....

Postcode.....

Telephone (Daytime) .....

I enclose my Cheque/Postal Order for £.....

Please note: Cheques MUST made payable to PW Publishing Ltd. and please write your cheque guarantee card number on the reverse.

or please debit my MasterCard/Visa/Amex

Expiry Date ..... Security No.

or please debit my Maestro/Solo

Expiry Date ..... Security No.

Start date ..... Issue No (if on card).....

Signature.....

Orders are normally delivered within a week but please allow 28 days for delivery. Prices correct at the time of going to press.
Please note: all payments must be made in Sterling, cash not accepted.

SUBSCRIBE TO PW

NEVER MISS AN ISSUE!

- Have it delivered to your door
- Subscribers get their copies before they reach the shops
- ***PW*** is Britain's best selling Amateur Radio magazine

To order a subscription please contact our subscription agency:

Practical Wireless Subscriptions
PO Box 464
Berkhamsted
Hertfordshire HP4 2UR. UK

Credit Card Orders taken on:
(01442) 879097
between 9am - 5pm. Outside these hours your order will be recorded on an answering machine.
FAX Orders taken on **(01442) 872279**

Internet orders can be placed at:
www.mysubcare.com
or via e-mail to: **pw@webscribe.co.uk**

Please note cheques should be made payable to PW PUBLISHING LTD and CASH is NOT accepted by ourselves or Webscribe.

Subscription Rates

PW 1 Year		
UK	£38	☐
Europe	£47	☐
ROW	£57	☐
PW 2 Year		
UK	£73	☐
Europe	£89	☐
ROW	£108	☐
PW 3 Year		
UK	£104	☐
Europe	£130	☐
ROW	£161	☐
Joint PW & RU 1 Year		
UK	£73	☐
Europe	£89	☐
ROW	£108	☐
2 Year		
UK	£138	☐
Europe	£170	☐
ROW	£207	☐
3 Year		
UK	£197	☐
Europe	£246	☐
ROW	£307	☐

Joint subscriptions now available - Save £££s

On-line facilities are available as well as the usual way to pay by cheque, postal order and credit card.

Order a new subscription online
Simply pay with a credit card on-line using our secure server.

Check the status of a subscription online
Existing subscribers can now log in to their own accounts and see how many issues they have left to run.

Update your details online
If you move or change your personal details, you can now update them on-line without having to write in to let us know.

Renew an existing subscription online
We've made renewing easier too. Everything you need to renew is now available on-line as well as by regular mail. (Subscribers still get a reminder in the post when it's time to renew).

I wish to order a one/two/three year subscription to **practical wireless** *starting with the.....issue.*
I wish to order a joint one/two/three year subscription to **practical wireless** *and* **radiouser** *starting with the.....issue.*

Payment Details

I enclose my Cheque/Postal Order* for £.....
made payable to PW Publishing Ltd.
or please debit my MasterCard/Visa/Amex* card No.

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐

Security Number: ☐☐☐

MasterCard VISA AMERICAN EXPRESS Expiry Date.....

or please debit my Switch card No.

☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐☐ ☐☐☐

Security Number: ☐☐☐

SWITCH

Start Date.....Switch Issue Number (if on card).....

Switch Expiry Date.....

Signature.....

Name.....

Address.....

.....

.....

.....

Postcode.....

Daytime Tel. No.....

Please note: For security purposes, you must include your house number and postcode.

Orders are normally despatched by return of post but please allow 28 days for delivery. Prices correct at time of going to press. E&OE.

Please note: All payments must be made in Sterling.
Cash not accepted.
Cheques made payable to PW Publishing Ltd.

**Delete as necessary. Photocopies of this page are acceptable*

Rob Mannion's

topical talk

Rob Mannion G3XFD discusses the reasons behind the mistaken publication of the LA3KY callsign with an obituary.

The unfortunate problems caused by my mistake in attaching the callsign LA3KY to the obituary of Knut Haugland (March issue of *PW*) could have been avoided if I had been able to contact my friend **Nørlief Bjorneseth LA9FG (Fig. 1)** in the first place! Unfortunately, Norlief had changed his E-mail address. Such is life! However, without the help of Norlief and his friend **Knut Kolstad LA2WRA**, I would not have been able to contact the real LA3KY, Kurt Haugland to apologise.

Unfortunately, the type of mistake is all too easily made and in publishing you can't hide your mistakes! Premature obituaries are legion in the newspaper publishing world and there are many examples to make us laugh, including Mark Twain's, and closer to home, I missed a reference by a reader who quoted that **Jack Hum G5UM** (who was still very much with us at the time) was a Silent Key. Happily, I'm pleased to say, Jack enjoyed the joke and replied in Mark Twain style in *PW Letters* pages!

Fortunately, Nørlief LA9FG (photo above), with his friend Knut LA2WRA, (as explained briefly above and in full in the *Letters* pages) put me into contact with Kurt LA3KY and I received a most friendly, polite and forgiving E-mail from him.

Fig. 2: Kurt Haugland LA3KY – very much alive – enjoying his skiing and Amateur Radio at the same time.

Fig. 1: Nørlief Bjorneseth LA9FG in his shack.

"Thanks for your E-mail Rob. Great that you're taking the trouble to write a correction to the wrong event that mentioned LA3KY. The first time I saw that my callsign was associated with Knut Haugland, I believe it was on the ARRL's website. I sent an E-mail to the ARRL and they have corrected the error, but otherwise there was no comment. I see that the fault now lies on very many web-pages, so I understand very well that the people who search with Google LA3KY will believe that Knut Haugland had the callsign LA3KY. Finally, of course, I accept your apologies and attach several photos to show I'm still active!" Best 73, Kurt LA3KY.

Kurt's Understanding

Kurt's understanding made my mistake easier to bear. However, in my defence I did try to match up a callsign to an extremely well known Norwegian war hero, who I was convinced was a Radio Amateur.

My mistake was accepting the callsign attached to Mr Knut Haugland's obituary on the ARRL website. Knowing the ARRL is cautious about such things, I accepted it at face value.

In future, I'll be extra careful and do as I advise everyone who provides obituary details – make sure all the details are correct!

Rob Mannion G3XFD/EI5IW

SPECIALIST DEALERS

BERKSHIRE

LINEAR AMP LTD
5 Trafford Road, Reading RG1 8JP
Tel: 01252 811370
www.linamp.co.uk
E-mail: linampuk@aol.com
Manufacturers of top quality HF, VHF and UHF high power valve linear amplifiers up to 1500W and antenna matching units.
Repairs of most make of amplifier undertaken

CORNWALL

WORSLEY COMMUNICATIONS
Robin C Worsley G0 MYR
'Onaru', Pennance Road, Lanner, Redruth, Cornwall TR16 5TQ
www.hamradiosales.co.uk
Tel: 01209 820118

ESSEX

WATERS & STANTON PLC
Spa House, 22 Main Road, Hockley Essex SS5 4QS
Tel: (01702) 206835/204965
Fax: (01702) 205843
Web: http//www.waters-and-stanton.co.uk
E-mail: sales@wsplc.demon.co.uk
Open 9am to 5.30pm Monday to Saturday inclusive.
MAIN AGENTS – ALL BRANDS
PHONE/FAX FOR FREE PRICE LIST

MID GLAMORGAN

SANDPIPER AERIAL TECHNOLOGY
Unit 5, Enterprise House, Cwmbach Industrial Estate, Aberdare, Mid Glamorgan CF44 0AE
Tel: (01685) 870425 Fax:(01685) 876104
A full range of transmitting & receiving antennas available for the amateur commercial market.
www.sandpiperaerials.co.uk
e-mail: sales@sandpiperaerials.co.uk

NORFOLK

RADIO SALES & REPAIRS
GMS Electronics
Amateur Radio Equipment & Accessories Supplied.
Repairs to most transceivers old & new
Call: 01362 698754
or email: sales@gms-electronics.co.uk
ICOM www.gms-electronics.co.uk KENWOOD

SOUTHWEST & WALES

QSL COMMUNICATIONS
- For all amateur radio and listener needs.
- New and secondhand equipment.
- Part exchange welcome.

Unit 6, Worle Industrial Centre, Coker Road, Worle, Weston-Super-Mare BS22 6BX
Tel/Fax: (01934) 512757

SCOTLAND

JAYCEE ELECTRONICS LTD
20 Woodside Way, Glenrothes, Fife KY7 5DF
Tel: (01592) 756962 (Day or Night)
Fax No. (01592) 610451
New opening hours: Tuesday-Friday 9am to 5pm. Saturday 9am to 4pm. Closed Sunday & Monday.
KENWOOD, YAESU & ICOM APPROVED DEALERS
A good stock of new and secondhand equipment always in stock

SCOTLAND

TENNAMAST SCOTLAND LTD
Masts from 25ft - 40ft
Adapt-A-Mast
(01505) 503824
81 Mains Road, Beith, Ayrshire KA15 2HT
E-mail: nbrown@tennamast.com
Web site: www.tennamast.com

WEST SUSSEX

Adur Communications
PO Box 2047,
Steyning BN44 3XJ.
Tel: (01903) 879526
E-mail: service@durcomms.com
Repairs and alignment to all amateur and commercial radio equipment.

Telephone
0845 803 1979
to advertise in *Practical Wireless*

DORSET

PW Publishing Ltd
have a wonderful selection of radio based books and magazines.
We can also supply a copy of most individual reviews that you may have read in past editions of *Practical Wireless RadioUser, Radio Active* and *Short Wave Magazine* magazines.
Tel: 0845 803 1979

INDEX TO ADVERTISERS

Adur Communications 65	Martin Lynch & Sons 41, 42, 43	Spectrum Communications 47, 53
bhi 71	Moonraker 14, 15, 16	Sycom 71
Birkett, J 71	Nevada 60, 61, 83	The Shortwave Shop 53
Bowood Electronics 71	*Practical Wireless* 81	Waters & Stanton 2, 3, 4
Haydon Communications 24, 25	*RadioUser* 35	Yaesu UK Ltd 84
Kit Radio Company 71	Radioworld 48, 49	
LAM Communications 34	RSGB 65	

The best way to ensure you receive every issue of Practical Wireless and/or RadioUser is to place an order with your local newsagent. Once set up, your copy of *Practical Wireless* and/or *RadioUser* will be held for you to collect, saving you the time and the frustration of having to search the newstand. Some newsagents may even offer a home delivery service making it even easier to obtain your copy. So don't miss an issue, simply complete the form opposite and take to your local newsagent today.

KEEP A LOOK OUT FOR THE LOGO AND NEXT TIME YOU VISIT YOUR NEWSAGENT REMEMBER TO JUST ASK! ABOUT OBTAINING COPIES OF YOUR CHOSEN MAGAZINES.

Please reserve/deliver* a copy of ..... on a regular basis,

commencing with the ..... issue. *delete as appropriate

Title/Mr/Mrs/Ms .....

First name ..... Surname .....

Address .....

.....

..... Postcode .....

Daytime Telephone No: .....

COMET

Japanese antennas - when only the best will do!

Kenny Mackintosh's CHA-250B is installed on a North Sea oil platform, it has to withstand winds up to gale and hurricane force - all without guys.

Here's what Kenny said about this tough antenna:
'I am the Platform's Radio and Telecomms engineer and work MM0GKB/P when on rota 2 on and 3 off, the locator being IO98UK. The performance is excellent with max VSWR on a few bands approx 1.5 : 1, radio is KW 570DGE @ 100W o/p and I use CW only. You will notice near base of antenna a slight bend this due to a whack from a container on crane some time ago, must say the antenna is one hell of a strong 'beast' taking into consideration the batterings it takes from the weather'.

CHA 250B Wide-Band Vertical

Covers 80m to 6m with no ATU and no gaps

The Comet CHA 250B vertical covers all the way from 80m through to 6m with a VSWR of less than 1.5:1. It's probably the easiest vertical to install, simply mounting on any pole and requiring no radials. If you are restricted for antenna installation space, the CHA-250B could be the perfect answer.

- Mounts at any height - needs no radials
- Transmit 80m through to 6m
- Receive 2 MHz - 90 MHz
- Transmit VSWR better than 1.5:1 throughout
- Rated at 250W PEP
- Only 7.2m high, weighs a mere 3.2kg
- Great performance on all bands
- Very low visual impact & low wind resistance

£299.95

H422 Rotary Dipole Covers 40/20/15/10M

Put out a bigger signal with this 4 Band trapped dipole. Use it as a fixed or rotary antenna. Rotate it to put the maximum signal where you need it and to reject interference from the sides. Use it as a Vee or straight dipole from as low as 10ft high! With high quality Japanese construction the H422 handles 1kW PEP with ease. It's ideal for home or portable operation.

- Freq bands: 7, 14, 21, 28 MHz
- Impedance: 50 Ohms nominal
- Input connector: SO239
- Power rating: 1kW PEP
- Max wind speed: 35m/sec
- Length: 10.4m (straight), 7.4m (V)
- Weight: 5.4kg
- Suitable mast dia: 38-62mm

£269.95

HB9CV
Wideband 6 Metre Beams

These antennas are perfect for Portable, Travel and Dxpedition use, being lightweight with butterfly nuts, for quick assembly. Dual driven elements, give 50 - 53.5 MHz coverage with low SWR.

CA-52HB2
2 el Yagi ...6.3 dBi 910g £79.95
CA-52HB4
4 el Yagi ...10.4 dBi 2.1kg ...£119.00

CWA 1000
Trapped Dipole

- Operating bands: 80, 40, 20, 15, 10m
- Maximum power: 500W PEP
- Total length: 19.9m

£99.95

Handheld Antennas

CH-501
SMA For 144/430 MHz £19.95
CH-701
SMA FMA 144/430/1200.....£19.95
BNC-750 HF Telescopic Whip
7-50 MHz with base loading..£79.95

SWR/Power Meters

CMX 2300
2 separate SWR/Power meters in one box!
- Meter 1 range - 1.8-200 MHz Power 30/300/3kW
- Meter 2 range - 140-525MHz Power 20/50/200 Watts

£149.95

CD 300HV
- Meter 1 range - 1.8-200 MHz
- 30/300/3kW
- Measures PEP

£129.00

Baluns

CBL-1000
1.7 - 30MHz
1kW (PEP) 1:1 .....£35.95
CBL-2000
0.5 - 60MHz 2kW (PEP) 1:1....£39.95
CBL-2500
1.8 - 56MHz 2.5kW (PEP) 1:1.£44.95

Lightning Arrestor
CS-400P

- DC-500MHz 500W

£22.95 *P&P £5*

Antenna Tuners

SPECIAL OFFER

CAT-300
- Freq: 1.8 - 60 MHz
- Power: 300W (SSB)
- Impedance: 10 – 60 Ohms

~~*£189.00*~~ ***£159.95***

SPECIAL OFFER

CAT-10
- Freq: 3.5 to 50 MHz (in 7 bands)
- Power: 10W
- Impedance: 50 – 600 Ohms

~~*£99.00*~~ ***£79.95***

Tri-Band Antennas
Covering 144/430/1200MHz

Base
GP93 Gain: 4.5/7.2/10.00 dBi
1.78 mtrs long.....£89.95
GP95 Gain: 6.00/8.6/12.80dBi
2.42 mtrs long.....£109.95

Mobile
SB92 Gain: 0/2.15/5.5dBi
0.39 mtrs long.....£37.95
SB94 Gain: 2.15dBi/5.1dBi/7.2dBi
0.6 mtrs long.....£39.95
SB97M Gain: 3.0dBi/6.8dBi/9.6dBi
1.32 mtrs long.....£44.95

nevada® radio

www.nevadaradio.co.uk

UK Importers & Distributors of COMET Antennas & Accessories

UNIT 1 FITZHERBERT SPUR FARLINGTON PORTSMOUTH PO6 1TT PHONE 023 9231 3090 EMAIL SALES@NEVADA.CO.UK FAX 023 9231 3091

Yaesu FT-950 Transceiver

Direct lineage from the legendary FT DX 9000 and FT-2000

HF/50 MHz 100 W Transceiver
FT-950

- Triple-conversion super-heterodyne receiver architecture, using 69.450 MHz 1st IF
- Eight narrow, band-pass filters in the RF stage eliminate out of band interference and protect the powerful 1st IF
- 1st IF 3 kHz Roofing filter included
- High-speed Direct Digital Synthesizer (DDS) and high-spec Digital PLL for outstanding Local Oscillator performance
- Original YAESU IF DSP advanced design, provides comfortable and effective reception. IF SHIFT / IF WIDTH / CONTOUR / NOTCH / DNR
- DSP enhancement of Transmit SSB/AM signal quality with Parametric Microphone Equalizer and Speech Processor
- Built-in high stability TCXO (0.5 ppm at room temperature)
- Built-in automatic antenna tuner ATU, with 100 memories
- Powerful CW operating capabilities for CW enthusiasts including CW Zero-in and CW Spot features
- Five Voice Message memories, with the optional DVS-6 unit
- Large Multi-colour VFD (Vacuum Fluorescent Display)
- Optional Data Management Unit (DMU-2000) permits display of various operating conditions, transceiver status and station logging.
- Optional RF μ-Tune Ultra Sharp Preselector System for 160 m, 80/40 m and 30/20 m Bands

Optional, YAESU Exclusive, Fully-Automatic -Tuning Preselector System!

Fully automatic, Ultra-sharp, External μ-Tuning Preselector (optional) features a 1.1" (28 mm) Coil for High Q

On the lower Amateur bands, strong signal voltages can impinge on a receiver and create noise and intermod that can cover up the weak signals you're trying to pull through. YAESU engineers developed the μ (Mu) Tuning system for the FT DX 9000/FT-2000, which is now available as an option for the FT-950. There are three modules available, the MTU-160, MTU-80/40, and MTU-30/20); these may be connected externally, using the optional base kit, with no internal modification required.
When the μ-Tuning module is engaged, the VRF system is bypassed, but the fixed Bandpass Filters are still in the received signal path.

Optional External Data Management Unit (DMU-2000) Provides Many Display Capabilities

Enjoy the ultimate in operating ease by adding the DMU-2000!

Enjoy the same displays that are available with the FT DX 9000 and FT-2000: Band Scope, Audio Scope, X-Y Oscilloscope, World Clock, Rotator Control, Extensive Transceiver Status Displays, and Station Logging Capability. These extensive functions are displayed on your user-supplied computer monitor.

Shown with after-market keyer paddle, keyboard, and monitor (not supplied).

DMU-2000
Data Management Unit (option)

For the latest Yaesu news, visit us on the Internet:
http://www.yaesu.co.uk

Specifications subject to change without notice. Some accessories and/or options may be standard in some areas. Frequency coverage may differ in some countries. Check with your local Yaesu dealer for specific details.

YAESU
Choice of the World's top DX'ers