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## Perfect Pairing

Spectrum Transverter &  
Sandpiper Antenna



December 2003

£2.95



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Over 350 colour pages, making it the largest of its kind in the world packed full of technical spec, over 4000 products, 2500 photographs and additional articles.

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**MORE STOCKING FILLERS.....**

**RT-9500B5 POCKET-TOOL 18-IN-1 £6.95 A**



- 18-tools-in-one
- Stainless steel
- Pliers & grippers
- Wire cutters
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- Bottle opener
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- Phillips screwdriver
- Parcel hook
- Handle & pry bar
- Size 165 x 45mm
- Weight 325g

**SRSD 7-IN-1 RATCHETING SCREWDRIVER**

Football shaped casing unscrews to store 1PC Bit Adaptor & 6PC 25mm (1") Chrome Vanadium Bits. Insert magnetic bit holder in forward or reverse slot then insert desired screw bit for forward or reverse ratcheting.

**Only £2 A**



**LAC-1 WINDOW CLIP MOUNT £4.95 A**

High quality car window antenna mount with BNC socket. Suitable for use with scanners, receivers and transceivers. Complete with 2.8m of coax terminated in a BNC plug. (Note BNC antenna not supplied).



**FBSS 8-IN-1 SCREWDRIVER SET £2.95 A**

4-PC double-ended bits stored within chrome plated shaft. Two colour rubberized handle develops up to 3-times the turning power of conventional drivers and ensures a non-slip hold. (Double ended bits: Phillips#1 x Phillips#2, Star SD-15 x Star SD-20, Poz#1 x Poz#2, Flat 3/16" x Flat 1/4")



**ICOM IC-756 PRO II**

**£1999 C**



Flagship of the Icom range of HF transceivers. HF & 50MHz, features large colour LCD with spectrum scope, auto ATU and 32-bit floating point DSP unit.

**ICOM IC-7400**

**£1249 C**



HF/VHF 100W transceiver. Features large LCD with spectrum scope, auto ATU and same DSP system as IC-756PRO II.

**ICOM IC-706 IIG DSP**

**£789 C**



HF/VHF/UHF mobile DSP transceiver. Its relative small size not only makes it a great mobile rig but also for fixed station use as well. HF general coverage Rx and VHF & UHF.

**ICOM IC-703 NEW**

**£599 C**



HF/50MHz Transceiver 0.1-10W Portable, Mobile, Base Station. (9-15.87V DC) Designed especially for the Foundation Licence/QRP. Built-in features auto ATU, DSP memory keyer. (5W when using 9.6V batts)

**ICOM IC-718**

**£499 C**



HF 100W transceiver. Covers all HF bands plus wideband receive. C/w auto notch, dual VFO, SWR meter etc. Options include extnl ATU DSP & filters.

**ICOM IC-910X with 23cm**

**£1249 C**



Icom's all mode VHF/UHF transceiver with 23cm. Large clear LCD with lots of facilities. 100W on VHF and 75W on UHF, 10W on 23cm. IC-910H version £1149

**KENWOOD TS-2000**

**£1599 C**



Top-of-the-range 100W Kenwood transceiver. HF/VHF/UHF or up to 23cm with the optional module. Built-in auto ATU, DSP and its unique TNC.

**KENWOOD TS-870S DSP**

**£1399 C**



HF DSP 100W base station. Excellent all round rig great for DX working with its ability to winkle out weak stations using its true IF DSP. No filters to buy.

**KENWOOD TS-570DGE**

**£849 C**



HF/100W base station with built-in auto ATU. Very popular rig, excellent performance on SSB and CW. Two fitted antenna sockets - very handy.

**YAESU FT-1000 MKV**

**£2349 C**



200W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC PSU - Acknowledged as one of the finest DX rigs on the market. Superb tailored audio and the ability to select Class A bias for dramatic signal purity.

**YAESU FT-1000 FIELD**

**£1749 C**



100W HF transceiver, EDSP, Collins filter, auto ATU, 220V AC / 13.8V DC - Building on the success of the FT-1000MKV, the Field has become a respected leader in its class.

**YAESU FT-897 NEW**

**£989 C**



100W HF rig plus 2m and 70cms (50W/20W) 13.8V external supply / internal optional FP-30V AC power supply / self powered portable using optional Ni-MH pack at 20W output. Compatible with FC-30 auto ATU and ATAS 120/100 antennas. The "must have" radio for 2003.

**YAESU FT-857 NEW**

**£799 C**



HF/50/144/430MHz Mobile Transceiver HF/6m 100W, 2m 50W, 70cm 20W. (13.8V DC) Developed on the FT-897 and FT-817 transceivers. Built-in features 32 colour display, spectrum scope, AM airband receive, built-in memory keyer, detachable front panel, DSP unit supplied.

**YAESU FT-847**

**£1199 C**



1.8 to 440MHz, this all-in-one transceiver offers unbeatable value. 100W on HF plus 6m, and 50W on 2m and 70cm. You get genuine RF clipping on SSB for up to 6dB gain and there are 4 separate antenna sockets.

**YAESU FT-817**

**£539 C**



**bhi DSP Module now available!**

**£89.95**

160m - 70cms. Up to 5W output all modes. **Ours includes battery and charger. Add £110 for DSP ready fitted.**

**NEW DSP Module**

There is NO new FT-817 DSP! The fact is that the UK manufacturers, bhi, (of whom we are their largest distributor), have produced a lovely 4-stage DSP module that can be fitted inside the FT-817. The module costs £89 plus a fitting charge of £25 for retro-fitting to existing models. This includes installing a mini switch and LED on top cover.

**NEW FT-817 Clip on metal front support stand.** In stock now £19.95 +£1 P&P

**LINEAR AMP UK RANGER 811H £895 C**



HF linear amp 160-10m including WARC bands. Drive 10-100W, output 800W (max) CW. Soft start on switch-on. Compatible with all modern 100W HF rigs. Silent running Papst fan.

**AMERITRON AL-811 XCE**

**£799 C**



Ideal 600W HF Linear more than enough for the full UK limit. 160-10m including WARC bands. Uses 3x 811A low-cost valves. Matches all modern 100W solid state HF rigs. Silent running cooling fan.

**PHONE FOR EXPERT ADVICE ON ANY ITEM**



**GENERAL ENQUIRIES:**  
**01702 206835/204965**  
**FREEPHONE ORDERLINE:**  
**08000 73 73 88**



**carriage charges: A=£2.75, B=£6, C=£10**

**ICOM IC-2725E NEW £309 C**



The Icom IC-2725E dual band FM transceiver is proving very popular. Easy to install, the controller is separated from the main unit - great where space is limited.

**ICOM IC-2100H £229 C**



2m 55W FM mobile. Commercial grade, rugged construction. One piece die-cast aluminium chassis. Selectable green or amber display.

**YAESU FT-8800E NEW £299 C**



2m/70cm Mobile  
 \*144-146MHz, 430-440MHz Tx \*108-520MHz, 700-999MHz Rx \* 512 memories per band \* 6 Hyper memories\* tuning steps: 5/10/12.5/15/20/25/50kHz \* Audio: 2W output \* Supply: 13.8V DC \*Size: 140x41.5x168mm Weight:1kg

**YAESU FT-8900R NEW £349 C**

Want the best of all worlds then the FT-8900R is just the ticket! A rig with four of the most popular mobile bands - 10m/6m/2m & 70cm. Detachable head. Airband Receive.



**YAESU FT-2800M NEW £159 C**

The FT-2800M 2m FM 65W High Power mobile transceiver. Rugged construction, excellent receiver performance and direct keypad entry.



**YAESU FT-1500M £159 B**

Remarkably small and compact, yet built like a Battleship! Should last for years.



**NEW LOWER PRICE!**

**KENWOOD TMD-700E £449 C**



Certainly the best dual band mobile transceiver with APRS. Does not need extra high cost boards to function. The only extra if required is a compatible GPS receiver.

**KENWOOD TM-V7E £359 C**



A lovely cool blue display, easy with 50/35W output. 50W/35W plus 280 memos and five storable operating profiles.

**KENWOOD TM-G707E £289 C**



If you are looking for simplicity and low cost, here's the answer. 2m & 70cm with detachable front panel and "Easy operation mode." GREAT!

**IC-E208 NEW £319 B**

**VHF/UHF FM Dual Band Mobile Transceiver** \*Freq range 144-146MHz, 430-440MHz Tx \*55/50W (3 pwr steps each band) \*Wideband Rx 118-173, 230-549 & 810-999MHz \*512 memories \*FM narrow capability \*104x2 DTCS, 50 CTCSS tone squelch \*16 DTMF channels \*HM-133 remote control mic \*Packet ready for 9600/1200bps-mini DIN or 1200bps-mic socket \*Supply 13.8V



**YAESU VX-7R £299 B**



6m/2m/70cm handie. The case, keypad, speaker and connectors are all sealed against water damage. Wide Frequency coverage from 500kHz to 900MHz. Easy-to-read 132x64 dot matrix display + plus pictorial graphics.

**Available in Silver or Black**

**YAESU VX-2E NEW £169 B**



**Dual Band Ultra Compact FM Handie.** The VX-2E is unbelievably small yet provides 1.5W on 144MHz and 1W on 430MHz (3/2W with external supply). General coverage receiver 0.5-999MHz, which includes AM mediumwave & FM broadcast bands plus AM aircraft & UHF TV bands.

**YAESU VX-110 £109 B**



Combining the ruggedness of the VX-150 with the simplicity of 8-Key operation, the VX-110 is a fully featured 2m handheld ideal for the most demanding of applications. It has a die-cast case, large speaker and illuminated keypad.

**ICOM IC-E90 £269 B**



The new E-90 offers triple band coverage of 6m, 2m and 70cms. Up to 5W output and rx coverage from 495kHz - 999MHz makes this a very attractive rig.

**ICOM IC-T3H £129 B**



The IC-T3H 2m handheld features tough quality but with slim looks. Its striking green polycarbonate case has been ergonomically designed. The rig is capable of providing a powerful 5.5W output with either Ni-Cad or Ni-MH battery packs. Supplied with charger and rechargeable battery.

**KENWOOD TH-D7E £319 B**



**DATA COMMUNICATOR**  
 One of the most successful handhelds over the past few years. It has a built-in TNC for Packet use. You can also use it for APRS operation in conjunction with an external GPS unit. Plus NMEA, 200 memos, and up to 5W output.

**KENWOOD TH-F7E £259 B**



**WITH EXTRA WIDE RX COVERAGE**  
 • 144-146MHz Tx/Rx: FM  
 • 430-440MHz Tx/Rx: FM  
 Up to 6W out with Li-ion battery and "scanner" style coverage from 100kHz to 1300MHz including SSB on receive! This is a great radio to have at all times when you are on your travels.

**KENWOOD TH-G71E £199 B**



If you want an excellent 2m/70cm dual-band then you can't go wrong with the TH-G71. Fully functional with three power levels, 200 memories, CTCSS tone encoder/decoder, illuminated keypad and backlit LED.

**MOTOROLA T-5512 £69.99 B**



**Motorola Dual Pack PMR-446 Recreational 2-Way radio**  
 •No Licence Fee or Airtime Charges  
 •8 Channels and 38 Codes  
 •3km Range  
 •Lightweight  
 •Water Resistant  
 •Handsfree use (VOX) (with optional accessory)  
 •Supplied with 2 belt clips

**MOBILE ANTENNAS**

**WATSON ANTENNAS (PL-259 base type)**

Comes with coax & BNC



**WSM-270.** 2m/70cm, 2.5dBi, 6.15dBi, 50W max, micro-magnetic 29mm base, length 0.46m. **£19.95 A**

<b>W-2LE</b>	2m quarter wave 2.1dBi 0.45m	<b>£9.95</b>	<b>A</b>
<b>W-285S</b>	2m 3.4dB 0.48m (fold over base)	<b>£14.95</b>	<b>B</b>
<b>W-77LS</b>	2m/70cm 0/2.5dB 0.42m	<b>£14.95</b>	<b>B</b>
<b>W-770HB</b>	2m/70cm 3/5.5dB 1.1m	<b>£24.95</b>	<b>B</b>
<b>W-7900</b>	2m/70cm 5.6/7.6dB	<b>£32.95</b>	<b>B</b>
<b>W-627</b>	6m/2m/70cm 2.15/4.8/7.2dB 1.6m	<b>£34.95</b>	<b>B</b>
<b>WGM-270 NEW</b>	2m/70cm On glass 3.7m coax 50W	<b>£29.95</b>	<b>B</b>

**MOBILE BASES**

**WATSON**



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

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

**BASE STATION ANTENNAS**

**DIAMOND**



**VHF/UHF Dual Band**

<b>X-50</b>	2m/70cm colinear 6/8dB 2.5m	<b>£54.95</b>	<b>C</b>
<b>X-50N</b>	2m/70cm colinear 6.5/9dB 3.1m	<b>£59.95</b>	<b>C</b>
<b>V-2000</b>	6m/2m/70cm 2.15/6.2/8.4dB 2.5m	<b>£89.95</b>	<b>C</b>

**CHECK OUR WEBSITE FOR FULL DIAMOND RANGE**

**WATSON**



**W-300.**  
 Very popular dualband base antenna. Supplied with u-bolts for mast fixing.

<b>W-30</b>	2m/70cm colinear 3/6dB 1.15m long	<b>£39.95</b>	<b>C</b>
<b>W-50</b>	2m/70cm colinear 4.5/7.2dB 1.8m long	<b>£49.95</b>	<b>C</b>
<b>W-300</b>	2m/70cm colinear 6.5/9dB 3.1m long	<b>£64.95</b>	<b>C</b>
<b>W-2000</b>	6m/2m/70cm 2.15/6.2/8.4dB 2.5m	<b>£69.95</b>	<b>C</b>

**WATSON SAFE-2-WAY NEW £89.95 B**

**AT LAST !!  
 A HANDS FREE  
 SYSTEM THAT  
 REALLY WORKS!**



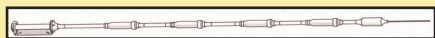
\*Widely used commercially \*Approved to Pan-European Standards \*True Hands-Free \*Noise Reducing \*Acoustic Tailored Mic \*Remote (3m) Latching PTT \*Boom mic (3m) with Velcro \*Adjustable gain \*Adjustable Time-Out \*Powered from rig mic socket \*Ready made rig leads (£14.95 extra) \*Also matches handhelds.

The Safe-2-Way mobile Interface is made for Watson in the UK by the same company that equips UK Police and Emergency services with similar units. Purchase the ready-made lead to match your radio and tuck the unit out of sight. The plug-in PTT and boom mic both have 3m leads for dressing around vehicle. Don't risk your Licence or people's lives! Drive with Safe-2-Way.

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

## VERTICAL ANTENNAS

### HUSTLER



#### 6-BTV. HF 6-band vertical

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

### CUSHCRAFT

#### MA5V HF 5-band compact vertical.



MA6V <b>NEW</b>	20-17-15-12-10-6 250W PEP	£289.95	C
MA5V	20-17-14-12-10m 250W PEP	£229.95	C
R8	40-30-20-17-15-12-10-6m 1.5kW	£529.95	C
R6000	20-17-15-12-10-6m 1.5kW PEP	£349.95	C

## HORIZONTAL BEAMS & DIPOLES

### CUSHCRAFT



#### MA-5B - Best Selling 5 band Mini-beam

Cushcraft prices increasing soon - Buy now!

MA-5B	10-12-15-17-20m 4 el. Yagi 2kW	£349.95	C
A4-S	10-15 & 20m 4 el. Yagi 2kW	£599.95	C
A3-WS	12 & 17m 3 el. Yagi 2kW	£399.95	C
X-7	20/15/10m 7 el. Yagi 2kW	£699.95	C
TEN-3	10m 3 el. Yagi 2kW	£219.95	C

### RADIO WORKS



A choice of quality wire antennas available to fit almost any circumstances.

CW-160	160-10m 76.8m long	£139.95	C
CWS-160	160-10m 40.5m long	£134.95	C
CW-80	80-10m 40.5m long	£99.95	C
CWS-80	80-10m 20.1m long	£119.95	C
CW-40	40-10m 20.1m long	£94.95	C
CW-20	20-10m 10.36m long	£84.95	C
CW-620	20-6m 9.7m (32ft) long	£94.95	C

## MOBILE ANTENNAS

### HUSTLER

Standard Resonator 400W (mast sections not included)



RM-10	10m 150-250kHz	£19.95	B
RM-11	11m 150-250kHz	£19.95	B
RM-12	12m 90-120kHz	£19.95	B
RM-15	15m 100-150kHz	£19.95	B
RM-17	17m 120-150kHz	£24.95	B
RM-20	20m 80-100kHz	£24.95	B
RM-30	30m 50-60kHz	£26.95	B
RM-40	40m 40-50kHz	£26.95	B
RM-80	80m 25-30kHz	£29.95	B

ALL HUSTLER ACCESSORIES IN STOCK - PHONE FOR QUOTE

## MFJ-902 NEW

£69.95 B



\*3.5-30MHz (80 - 10m)  
\*150W  
\*Mobile and portable use  
\*SO-239 sockets  
\*Size w112xd77xh58 mm  
\*Weight 450g

The MFJ-902 uses real air variable capacitors (600V, 322pf) and three stacked powder iron toroids especially designed to handle power - not just QRP!

It is ideally suited for use with the IC-706MKIIG, FT-100D and FT-817 and other small rigs. Its got to be the world's smallest 150W, 80-10m antenna tuner. Operate anywhere, anytime with a quick easy set-up. The possibilities are endless. Tune out SWR on your mobile whip from inside the car. Operate with an antenna from within an apartment or a wire dropped from a hotel window. Its just as great for DXpeditions or Field Day. You can rely on it wherever you go! Its easy to pack away in your briefcase, suitcase or backpack.

## MANSON EP-925 PSU

£99.95 C



A general purpose 3-15V DC, 25A (30A peak) power supply able to provide the needs of the modern 100W HF transceiver.

\*Dual analogue meters \*Over current protection \*Large power terminals for rigs \*Quick snap connectors for ancillaries

## WATSON FC-130 Frequency Counter

£59.95 B



### SPECIAL PRICE

The FC-130 is an ideal frequency counter for the shack, mobile or portable use. Supplied complete with Ni-Cads, charger and telescopic whip.

## MFJ-461 Morse Code Reader

£84.95 B



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

## bhi NES10-2 & NES-5 DSP Speakers



NES10-2

£99.95 B

\*Speaker with built-in DSP noise filters \*Dip switches for 8 filter settings (NES10-2) \*DSP settings preset, no user adjustment (NES-5) \*Plugs directly into 3.5mm speaker socket \*Handles up to 5 Watts input \*Max 2.5 Watts output \*Requires 12V at 0.4 Amps max



NES-5

£79.95 B

## bhi NEIM1031

£129.95 B



**NOISE ELIMINATING IN-LINE MODULE**  
\* Noise attn - 9-30dB (typical) \* Noise Attn levels 8  
\* Audio output power 2.5W RMS max (8 Ohms)  
\* Audio connections: Line level in/out (RCA Phono), Audio in/out 3.5mm mono jack \* Line in impedance 10K  
\* Line out impedance 100 Ohms \* Line in sensitivity 300mV - 2V RMS \* Headphone socket 3.5mm mono jack \* Power 12-24V DC 500mA

## bhi 1042 SWITCH BOX

£29.95 B



Connect more than one piece of equipment to your bhi noise eliminating speaker with the 1042 Switch Box.

Allows 6 pieces of equipment to be connected, 3 inputs loaded at 8 Ohms and 3 unloaded inputs (for low level signals). Two audio leads provided.

## SGC ADSP<sup>2</sup> SPEAKER NEW

£99.95 B



NEW LOWER PRICE!

The ADSP<sup>2</sup> Speaker has three modes of operation - no noise reduction - original ADSP noise reduction - or the new ADSP<sup>2</sup> noise reduction mode which provides up to 26dB of noise reduction within the passband.

## SGC ADSP<sup>2</sup> MODULES NEW

£89.95 B



NEW LOWER PRICE!

ADSP<sup>2</sup> is supplied in two versions. One for low level audio power ADSP-2 Board Low (70-11) and the ADSP-2 Board High (70-12) for high level audio power installation. Both versions contain full instructions and identify the relevant wire connections. They can be installed by the user or by a dealer. All SG-2020 upgrades will be done at the factory.

## HEIL QUIET PHONES NEW

£99.95 B



Active Noise Cancelling Headphones that use two small mics inside the headphones that listen to outside ambient noise and the in-line differential amplifier cancel it out! Everything below 400Hz drops away as you switch NR unit on. Amazing reduction! \*Soft leatherette cushions \*Fitted 3.5mm / 1/4" jacks. \*In-line battery holder \*Requires 1xAA battery (lasts 30hrs) .

## WEST MOUNTAIN RIGBLASTERS

RIGblaster pro Data interface 8-pin/mod, Cd & cables £229.95 B



The RigBlaster Pro

RIGblaster Plus	Data interface 8-pin/mod, Cd & cables	£139.95	B
RIGblaster M8	Data interface 8-pin, software & cables	£109.95	B
4T8-KIT <b>NEW</b>	Conversion Kit from M8 or Plus to 4pin	£19.95	A
Rigblaster RJ	Data interface RJ45, software & cables	£109.95	B
RIGblaster nomic8P	Data interface 8-pin, software & cables	£59.95	B
RIGblaster nomicRJ	Data interface RJ, software & cables	£59.95	B
FT100-CBL	Adapts all units to FT100 input	£12.95	A

## HEIL AUDIO ACCESSORIES



HCL-5/4

Desk Microphones

HCL-5/4 Classic retro-look HC-5/4 desk mic £259.95 B



GM-4/5

Hand Microphones

GM-4/5 Goldline HC-4/HC-5 hand mic £129.95 B



HST-817

Headsets & Boom microphones

HST-817 Traveler single side headset for FT-817 £89.95 B



HST-706

Traveler single side headset for IC-706 £89.95 B



PRO-SET-PLUS

Headphones & Boom Microphones

PRO-SET-PLUS Large H/phones with HC-4 & HC-5 £199.95 B



SB-1

**SPECIAL OFFER!**

Free SB-1 Boom worth £38 with every Heil Goldline Mic Sale

## WATSON AUDIO ACCESSORIES



WM-308

Base Microphones

WM-308 Desk electret mic c/w ML-308 £59.95 B



WEP-300B

Earpieces

WEP-300B Over the ear, 3.5mm mono jk-plug £2.95 A



QS-112

Speaker Microphones

QS-112(Y,K,I,M) H/held spkr/mic (state which model) £16.95 A

## TRANSMITTING LOGBOOK

£4.99 A



LOGBOOK

Traditional Logbook for Radio Amateurs, A4 size, spiral bound for ease of use plus updated Prefix List and room for extra notes. A log is a legal requirement for any radio station.

## MOBILE/PORTABLE LOGBOOK

£4.99 A



LOGBOOK

The new Radio Amateurs Mobile/Portable Logbook. A5 size, spiral bound. Also contains relevant repeater information. Not a legal requirement for mobile, but great for recording QSO's.

## GREAT CIRCLE DX MAP NEW



A2

Full colour Great Circle DX Map of the World based on the true bearing and distance from London (Lat 51° 30'N, Long 0° 00') of every position on the globe. Scaled in kilometres & miles. Laminated in clear plastic, A2 for wall, A3 wall or desk and A4 for desk.



A3/A4

\*There are differences in information between size formats.

# RSGB Bookshop

## RSGB YEARBOOK 2004

The 2004 edition of the RSGB Yearbook is bigger than ever. with more pages in the information section and more colour pages. Every page has been reviewed and updated from last year. The Yearbook reflects the current state of the hobby, with pages devoted to contesting, awards, satellites and propagation. Plus the mass of information you have come to expect, and the most accurate and comprehensive UK and Eire callsign listings.

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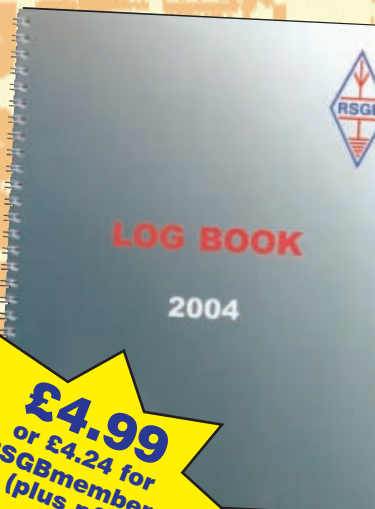
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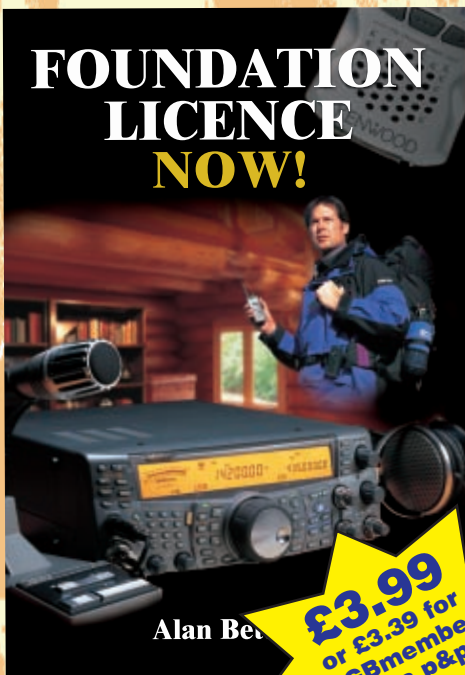
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## December 2003

On Sale 13 November  
Vol.79 No.12 Issue 1161  
(January Issue on sale 11 December)

Published by  
PW Publishing Limited  
Arrowsmith Court  
Station Approach  
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Dorset BH18 8PW  
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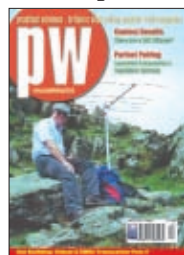
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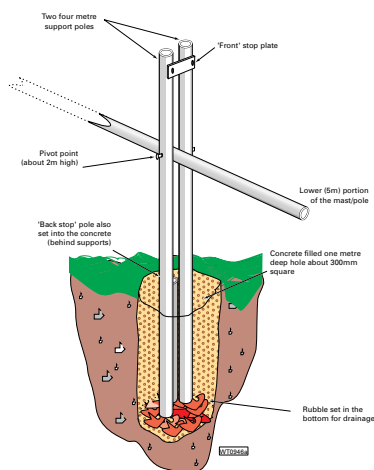
### Cover subject



**Cover Subject**  
Tom Harrison GM3NHQ, operating as GW3NHQ/P was placed 32nd in this year's 144MHz QRP Contest. This shot was taken at the summit of Snowdon 1085m a.s.l. Tom and his wife Jean cheated slightly to reach the summit by taking a trip on the Snowdon Mountain Railway along with all the radio gear but after the event they walked back down!

**Design:** Steve Hunt  
**Photograph:** Jean Harrison (with a little help from husband Tom)

# December features



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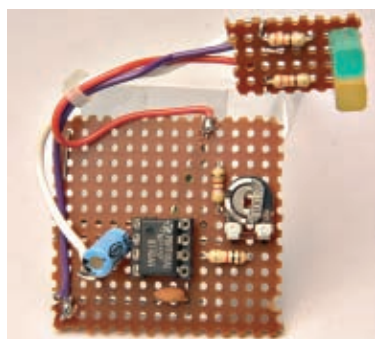
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Page 46

## 18 Tex's Tips & Topics

A selection of readers' handy hints and tips are collated by Tex Swann G1TEX/M3NGS for you to share. If you have a tip that you'd think others would find useful send it in!

## 22 Radio Basics

**Rob Mannion G3XFD** encourages you to explore v.h.f. construction techniques as he looks at a classic 144MHz down converter design. He's hoping to 'whet your appetite' for a 70MHz version he's planning.

## 24 The Practical Wireless 144MHz QRP Contest 2003 Results

Did you take part in this year's QRP Contest? If so you'll be keen to know how you fared among all the other entrants, so read **Neill Taylor G4HLX's** report on how you all did in 2003.

## 28 A 70MHz Experience

Using the Spectrum Communications 28 to 70MHz transverter and Sandpiper 70MHz 3-element Yagi antenna. **Rob Mannion G3XFD** has been busy on 70MHz. Join him in the experience by reading this feature.

## 30 Everyone's A Winner! Club Spotlight Magazine Results 2003

On behalf of the adjudication panel we present the results of the 2003 *PW* and Kenwood Club Spotlight Magazine Competition. Judging by the standard of entries, it appears that radio clubs are 'fizzing' with Amateur Radio activity!

## 33 A Standard Signal Level Source

You don't need a complicated signal generator to check the sensitivity of your receiver says **Gerald Stancey G3MCK**. Find out why in this article.

## 36 Electronic QSLing

**Tim Kirby G4VXE** explains how you can use your computer to best advantage to confirm your QSOs electronically.

## 38 The Sidcot 3.5MHz CW Transceiver Part 2

Well known for his kit designs for c.w. and s.s.b. h.f. transmitter and receivers, **Tim Walford G3PCJ** is keen to share his designs with *PW* readers. This month he describes the transmitter section of his simple but innovative 3.5MHz transceiver.

## 46 Carrying on the Practical Way

**George Dobbs G3RJV** spreads a little Christmas spirit with his designs for simple projects incorporating flashing light emitting diodes. Why not join him and enjoy a little bit of radio fun during the festivities?

## 48 Creating A Good Earth System

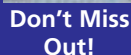
When **Terry Brown G0NSA** had a home extension built he took full advantage of the holes that were being dug by installing an earthing system for his antennas.

## 50 Valve & Vintage

**Phil Cadman G4JCP** helps you find a use for all those old television valves that are lurking in the corners of your 'junk' box.

## 60 Practical Wireless Index 2003

Another year has passed! For your reference we present a useful index of Antenna, Features, Practical Projects, Reviews and Theory articles.



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This month **Rob Mannion G3XFD** invites feed-back from you regarding having *PW* on CD archives arising from requests at his recent talk at the G-ORP Mini-Convention.



**E-mail:** G8emx@tiscali.co.uk

Published on the second Thursday of each month by PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 9PW. Tel: 0870 224 7810. Printed in England by Warners Midlands PLC, Lincolnshire. Distributed by Seymour, 86 Newman Street, London, W1P 3SL. Tel: 207-396-3966; Fax: 207-306-8002; Web: <http://www.seymour.co.uk>. Sole Agents for Australia and New Zealand - Gordon and Gotch (Asia) Ltd., South Africa - Central News Agency, Publications INLAND £31, EUROPE £29, and OUT OF EUROPE £35. POST REST OF EUROPE £50 (Airmail), payable to PRACTICAL WIRELESS, Subscription Department, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 9PW. Tel: 0870 224 7830. 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 other form that would be prejudicial to its sale. It shall not be used for any purpose by way of Trade, or affixed to or used 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 9PW. Royal Mail International, c/o Yellowstone International, 87 Burfles Court, Hackensack, NJ 07601. UK Second Class Postage paid at South Hackensack, New Jersey. Postmaster: Please send address changes to *Practical Wireless*, c/o Yellowstone International, 2725 Pratt Boulevard, Elk Grove Village, IL 60007-5597. The USPS (United States Postal Service) number for *Practical Wireless* is 007070.

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- **Kevin Nice visits VT Merlins Rampisham short wave broadcast site**
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## rob manning's keylines

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

**A**s I write this edition of Keylines I've just arrived back from my annual visit to the **Rochdale G-QRP Club's** mini-convention near Manchester, on Saturday 11 October. This was preceded by a visit to the **Oldham Amateur Radio Club (ORC)**.

The wonderfully friendly (and hectic) Saturday Rochdale QRP event is held in the hall associated with St. Aidan's Church in Sudden, where the G-QRP Club's (and *PW* author) **Rev. George Dobbs G3RJV** is based. It's a day I look forward to each year and I hope you'll join me in this month's Topical Talk (page 77) where I report on some interesting feedback.

### A Visit & Surprise!

Club visits provide me with a great deal of pleasure, especially as they provide an excellent opportunity to meet and chat with readers. The Oldham Amateur Radio Club had been on my 'waiting list' for some time - and we'd arranged that I attend while I was in the area for the annual Rochdale trip, and so the visit was planned for Thursday 9 October.

During the Leicester show some of the ORC club members had patiently waited\* in line to chat with me and to extend the invitation to formally open their new club room during my visit. Needless to say I was both very flattered and honoured to accept! But when the time came I was in for much more of a surprise!

**\*Note:** I offer my sincere apologies to the many readers who, after waiting patiently in line, gave up hope of chatting to me at the Leicester show, particularly on the extremely busy Friday. The old (Granby Halls) 'record' was 37 readers waiting to chat and we almost broke it at Donington this year with 35! However, the long queue doesn't inflate my ego - on the contrary it makes me feel I'm not talking or working fast enough. So, next year I'll issue Tesco type delicatessen style numbered tickets to ensure you don't miss your place in being 'served' (remembering that an Editor does '**Serve**' the reader). Your opinion, thoughts, suggestions and criticisms are extremely important. So, please don't give up!

### Oldham Opening

Back to the surprise at Oldham now! Fortunately, it turned out to be a clear, cool dry evening in the

Oldham Amateur Radio Club (ORC) - the unpredictable Pennine weather holding off to keep us all dry!

I enjoyed cutting the white ribbon surrounding the splendid purpose-designed portable style building housing the club shack and wishing the club "All the best" for the future. Everyone then trooped into the main club room for a short talk on just how much the duties of the *PW* Editor have changed in the last 71 years.

Actually, 'trooped' is a good choice of word, because the clubroom shares the same site as the **No. 1855 (Royton) Squadron Air Training Corps**, at Park Lane, Oldham. Other clubs - looking for a permanent site - might like to note that such site sharing is possible. The level of co-operation between the ATC and the ORC was immediately obvious and tangible. It even extended to the Commanding Officer's wife providing an absolutely splendid buffet meal after the talk!

After finishing off the talk, I was rather taken aback when I was made an Honorary Life



● Fig. 1: A surprise for G3XFD on Thursday 9 October.

Member of the ORC and presented with a bottle of Irish Whiskey. The wording on the certificate, **Fig. 1**, made me fully realise just what an important part *PW* plays in our hobby and it also acknowledges the friendship shown towards myself as I try my hardest to serve readers in the best way possible. Thank you everyone!

### Two Facts!

However, two facts arise from my Honorary Life Membership of the OARC. The first is I shan't be able to judge their (very high standard) club magazine when they enter the *PW*/Kenwood Club Spotlight Competition in future.

The second fact is that I'm now becoming well known as a collector (Not a victim I hope!) of high quality alcoholic beverages. Oh well, it's not really a problem as I hear that a "sip a day keeps old age away"! Where's that teaspoon?

**Rob G3XFD**

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



● **Dear Sir**

would like to relate to his friend's experience. I lost my late wife in 1997 after he suffered several strokes. It was a very

happy marriage of some 46 years and I had never even considered re-marrying as I was getting on in years. But then a lady I knew was on the committee of our club, of which at that time I was Chairman.

A very close friend of ours and Treasurer at the time died and his job was taken over by the lady in question. We had to meet regularly to discuss club matters and attend meetings. We struck up a friendship as she was an 'A' licensee and used to try to teach me c.w. (to no avail I might add!).

My father was a 'G2' many years ago, anyway we have now been married three years in November and I never realised I could be as happy again. We work all bands regularly and really get a lot out of our marriage seeing as there is 25 years difference in age. My wife 'Lesa' (Elizabeth) M0BQD is 49 and I'm 74, but just to tell you all... it's never too late, if you love someone years don't matter.

**George Lee M1BTG**

**New York**

## Tyne & Wear

**Editor's comment: A really heart-warming story George. Thank you for sharing it with us!**

## Joshi From Japan Delighted!

● **Dear Sir**

My name is Minaxi Joshi and I was delighted to receive the callsign MJ0SHI which was issued to me on the 25 July 2003. As I already held the call M1AXI I was warned by my friend **Frank G3WMR/GJ3WMR** that unless I passed the Morse test fairly soon, I would lose the chance of ever getting my special personalised call.

Motivated by **Lawrence GJ3RAX** and **Brian G8AOL/M5AOL** both of whom took many years to succeed, I started learning in earnest with six weeks to spare. With not enough

experience, I fluffed the test at the Epsom Rally in June, but was encouraged to persevere by examiners **George G3NOH** and **Ron G3KTZ** who sent me practice tapes. Then came the announcement that everyone else was longing for...no more Morse test. I really had a deadline now. **Denise Carter** at the RA told me that the callsign was available, but the pass slip and application must be on her desk by the 25th.

I frantically rang around a list of examiners sent to me by the RSGB and booked a test with **Mary G0UMF** on the 21 July with an offer from **G3NOH** of a last chance the next day.

Fortunately, Mary managed to calm my nerves and despite a strange key and oscillator, I eventually made it. Next morning we took the result to **Catherine** at the RSGB who produced a certificate which we then took straight to Denise at the RA in Docklands in London.

It may well be that I was the last person needing Morse to gain a callsign as the rules changed on 26 July. I hope that the easing of the rules will not put others off learning the code. Let nobody say that 5w.p.m. is easy, because the characters are sent at 12w.p.m. and spaces just give you time to write it down - **if English happens to be your first language**. To learn, I used NuMorse on the computer, running at 15w.p.m. with Farnsworth spacing.

I now have the callsign MJ0SHI, which is my initial and surname, registered at our Jersey QTH and I look forward to using it during frequent visits to the Island. Best wishes and thanks to all who helped.

**Minaxi Joshi**  
**Erith**  
**Kent**

## Not a Window!

● **Dear Sir**

Just to let you know that I have renewed my subscription for another three years, an act of faith when you are past three score years and ten! However, I have a complaint, why do people keep referring to the antenna known as a 'Carolina Windom' as a 'Windom'? In my opinion the antenna is not a Windom, which is an off-centre-fed antenna using a single wire feed.

The antenna described as

a 'Carolina Windom' is in effect an off-centre-fed doublet and should be described as such.

Gripping apart, thanks for a good read every month. It's now 56 years since I bought my first copy of *PW* as a 13 year old schoolboy. I've written the letter because I think that too many things in Amateur Radio are given the wrong names and wrong attributions and it riles me to see it. The so called Carolina Windom is a prize example. Mr Windom must be nearly jumping out of his grave with anger that his design has been so vandalised.

**Mike G3TEV**

**Stroud**

## Gloucestershire

**Editor's comment: Nice to hear from you Mike - and it's over to you readers - join in the debate!**

## Slower Callsigns Please!

● **Dear Sir**

One of my favourite pastimes is listening to Amateur Radio telephony transmissions and keeping a log of their callsigns and locations. Whilst many are very good when passing callsigns, there are equally as many who either pass part or pass it so quickly that only those stations that they are talking to would be able to recognise it.

For the sake of so many of us who regularly listen and send in signal reports, could you please take a second or two to speak a little slower when identifying your station and always pass the entire callsign? Other than that, my grateful thanks for providing such an interesting hobby.

**John Richards**

## Bognor Regis

## West Sussex

## Thirty Nine Years & Counting

### ● Dear Sir

I've just been looking through my first logbook and suddenly realised that I had just passed the 39th anniversary of getting my B Licence (4 September 1964). This immediately led to the realisation that sometime next summer will be the 40th anniversary of the issuing of the first B Licence. This was the first step on the road that led to the present three tier Licence system.

Do you think that this anniversary should be celebrated in some way in *PW*? I have talked with a number of Foundation Licence (FL) holders - mainly on 144MHz - and have come to realise that the 1960s were a very different world and quite alien to them. No commercial gear, almost everything having to be built and radio component shops in every town.

Going onto 430MHz was then a step into the unknown which the RAE of the time had left us totally unprepared for. I remember being amazed when I worked into Bridgnorth (Shropshire), some 20 or so miles away, though we soon came to think of that as local! Now I am amazed that the FLs can't build and operate their own equipment, they're denied the chance to learn the way we did. It's incomprehensible.

Mention of home-brew leads me to another thought. I have only been

taking *PW* for a year since it gave me my moment of epiphany last autumn and its delightful and simple little construction projects. These are such an important feature of *PW* which makes it much more fun to read than *RadCom* are surely bringing on another generation of practically minded Amateurs that will not be content to be purely appliance operators. However, I don't under-rate the skills of a good operator with a good appliance!

One thing that has struck me is that whilst the virtues of regeneration are extolled from time to time in *PW*, nobody ever seems to mention super-regeneration. I remember an old friend **G8AJE** built a super-regen detector for the 144MHz band, based if I remember correctly (though it was nearly 40 years ago) on an idea in G3VA's 'Technical Topics' in *RadCom*.

After he'd had his fun with the super-regen detector he passed it onto me to try out and I found it amazingly sensitive for a.m., c.w. and even s.s.b., but useless for f.m. This is a circuit configuration that I suspect may well have some more mileage in it for QRP, since I remember picking up a 144MHz s.s.b. station in Aylesbury with it, using no r.f. amplifier and straight into headphones, so no a.f. amplifier either! (I can't be bothered to check on the map, but it must have been something like 70 miles).

It may even be possible to get over the f.m. problem by using slope

detection if an audio notch filter is incorporated to get rid of the beat note. I don't have time at present to follow up that thought, but you may like to toss it to one of your 'Brains Trust' of practical constructors and see what they come up with!

A final point to ponder, since the B Licence was merged with the A, activity on 144MHz has simply plummeted. I monitored the s.s.b. calling channel for five hours last night whilst wrestling with a recalcitrant computer and only heard one lonely caller who was over 100 miles away!

I suspect that h.f. is a nice shiny new toy for many former B Licensees and after the honeymoon effect has worn off many will return to their roots, just as 430MHz was depopulated for some time after the B Licensees were allowed on 144MHz, before things started to liven up again. At least, I hope so, because tonight again the silence is deafening! Many nights of this and even I might transfer my affections to 3.5MHz!

**Brian Carter G8ADD**  
**Birmingham**  
**West Midlands**

**Editor's comments: You have some very interesting points Brian! Please see my references to super-regeneration in Radio Basics (November *PW*, pages 24 and 25). The 70 and 144MHz super-regen projects I plan to re-publish will prove fascinating I'm sure.**

## Future Disposal Of Equipment

### ● Dear Sir

An acquaintance who is thinking of the future and the disposal of his stuff asked if I knew anyone who collected Amateur Radio gear. My search through the **British Vintage Wireless Society** (BVWS) list shows lots of Amateurs, but doesn't specify who actually collects.

My friend seems to have a fair amount of oldish items including a KW Viceroy. He prefers not to have it sold off but would rather give it away - only problem is to whom? (Preferably to a bona-fide collector who will appreciate it).

Is it possible that *PW* could take an initiative in either giving the problem an airing, or forming a list of collectors? It's just an idea!

By the way I absolutely agree with the Editor's Keylines comments (page 9 October 2003 issue) about BBC South/Radio Solent. Thank goodness someone has aired what I have long been bothered about! Not just missing vital bits of information from news items, but being basically unable to do such simple tasks as reading the tide tables for the early morning Information Exchanges and there are other problems.

**John Rose M0BQO**  
**Weymouth**  
**Dorset**

**Editor: The vintage/older equipment subject will be aired very soon in Keylines John, thank you for raising it. I'll also be pleased to hear from other readers with their own suggestions.**

## **PW Archives On CD Please!**

### ● Dear Sir

I enjoyed meeting the Editor once again during the Rochdale G-QRP Club's Convention in Rochdale on Saturday 11 October and also attending the annual *PW* 'State of the Nation' style report meeting. It's good to hear what *PW* has in store for us in the coming year, and interesting to discuss the

various articles from the current year and have the opportunity to comment directly.

Personally, as I'm now retired, no longer travelling very far and relying on public transport, I find it very helpful to meet G3XFD. Although he obviously can't please us all he tries to ensure *PW* has a good balance of editorial material. We're a critical lot and the Editor's job is difficult - more power to your mechanical elbow Rob!

During the convention I mentioned the subject of the *PW* archives being made available on CD. I would be one of your first customers if they were to be produced. What's the chances of this?

I'd be willing to pay up to £100 so I could have access to all the magazines from - let's say - 1945. Thanks for coming up north again Rob - and I look forward to meeting you at Rochdale in 2004.

**Ian Ward  
Marsden  
West Yorkshire**

**Editor's reply: It was nice to meet you again Ian! Please join me on page 77 (Topical Talk) for further comment on the possibilities of CD archives.**

## Twin Feeder - What's The Point?

### Dear Sir

With regard to twin feeder (Letters September/November *PW*), I say what is the point? Generally in our natural world we will be placing our antenna amongst materials of different dielectric constant and resistivity.

For example, one half of the antenna may run over a roof and the other half in the clear. This produces an invisible unbalanced environment for the antenna.

If you place a balanced antenna such as the dipole into an unbalanced environment, then regardless of feeding

arrangements, the pattern will in some way be imperfect. Unfortunately, the average textbook leads us to believe that our antennas radiation patterns are 'perfect textbook' even in the real world.

As someone who has performed possibly hundreds of thousands of measurements of antenna patterns for a living, I can assure you that imperfections are the norm and present no problems for our Amateur Radio purposes. A correctly matched and fed antenna (such as having the impedance matching network at the feedpoint as opposed to a black box a.t.u. at the rig end followed by an indeterminate length of coaxial cable) will **not** present any leaky feeder problems.

**Andy Foad G0FTD  
Whitstable  
Kent**

**Editor's comment: I have invited Andy to write an article on his experiences. The article (he's accepted) should be very interesting indeed!**

## Headphone Diaphragms

### Dear Sir

Referring to the letter Headphone Advice From

Mr HAC (Letters page 12 November *PW*) I remember that a while back it was possible to buy thin steel shimstock rolled up in a tin in various sizes from a couple of thousandths of an inch upwards, used I believe for shimming bearing blocks and the like for precise alignment. I've not checked whether its still available, but will do so.

I have read this month's issue with interest and I await the Radio Basics headphone project the Editor mentions eagerly. There are so many old circuits I remember as a kid that I'd like to try again, this time without the terminals and h.t. too close to the lugs!

**Mike Beith GM0OX  
Kilmarnock  
Scotland**

**Editor's reply: Thanks for the information Mike. I hope to present the article early in the new year. Incidentally, my apologies go to Martyn Lindars (Mr HAC) for inexplicably referring to him as 'Charles'. There were also some transcription errors on his headphone information figures, which will be re-published in my forthcoming Radio Basics article. My apologies for the errors.**

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

## Letters Received Via E-mail

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

# amateur radio **rallies**

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

### November 16

**The Mayo Radio Experimenter's Network 2003's Rally**

**Contact:** John McDonnell EI6IR

**Tel:** (00 353 from UK) 094 60127

This rally is to be held at the Belmont Hotel, Knock, County Mayo, with doors opening at 1100. Remembering the success of the first Mayo rally last year the club are already hard at work to ensure a repeat success and *PW* Editor Rob Mannion EI5IW/G3XFD will again be visiting.

### November 16

**The Midland Amateur Radio Society's 15th Radio & Computer Rally**

**Contact:** Norman G8BHE

**Tel:** 0121-422 9787 or mobile (07808) 078003

Held at King Edwards Grammar Camp Hill School, Vicarage Road, Kings Heath, Birmingham. There will be trade stands, local clubs, special interest groups, large free car park, refreshments and a Bring & Buy stall. Doors open 1000 and admission is just £1.

### November 22

**The Rochdale & DARS's Traditional Radio Rally**

**Contact:** John G7OAI

**Tel:** (01706) 376204

**Website:** [www.mbc.co.uk/RADARS](http://www.mbc.co.uk/RADARS)

Held at St. Vincent de Paul Catholic Church Hall, Caldershaw Road, off the A680 Edenfield Road, approx two miles west of Rochdale. Follow the orange arrows from M62, J20. Open from 1015/1030 admission just £1. There is ample free parking, plenty of trade stands, a Bring & Buy stall and a large chat/refreshment area. Talk-in on S22.

### December 7

**The West Manchester Radio Club's Red Rose Winter Rally**

**Contact:** Steve

**Tel:** (01942) 895198

**Website:** [www.wmrc.org.uk](http://www.wmrc.org.uk)

Held at Lowton Civic Centre, just off the A580 East Lancs Road. Bigger and better than last year's inaugural event at this superb venue, with more traders, low cost Bring & Buy, special interest groups, free parking, licensed bar and excellent catering. There will be an RSGB bookstall, disabled facilities and large social area. Talk-in on S22. Doors open 1000.

### 2004

### February 8

**The Harwell Rally**

**Contact:** Ann G8NVI

**Tel:** (01235) 816379

**Website:** [www.hamradio.harwell.com](http://www.hamradio.harwell.com)

This rally is to be held at the Didcot Leisure Centre, Mereland Road, Didcot, Oxon, signposted from the A34. Bring & Buy, trade stands, special interests, crafts, catering, licensed bar and talk-in on S22. Free car parking. Doors open 1030 (1015 for disabled visitors) and admission is just £1.50.

### February 15

**The Northern Cross Radio Rally**

**Contact:** John G7JTH

**Tel:** (01924) 251822

**Website:** [www.wdrs.org.uk](http://www.wdrs.org.uk)

Held at Thornes Athletics Stadium, Wakefield, West Yorkshire. One large hall on ground floor - just out of town on the Horbury Road. There will be ample parking on site, with easy access from M1 junctions 39 & 40 - well signposted. All the usual attractions and doors open at 1030 (1015 for disabled visitors and Bring & Buy). Admission charge is £2.

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

## ● Another British Loss

# AKD Closes

**Rob G3XFD**

**Out Now!**

# Communications Equipment Guide

**Website: [www.wsplc.com](http://www.wsplc.com)**



## ● Foundations

# Passes For Pembrokeshire

Pictured here with their certificates, following their success in the Foundation exam, are **Stuart Reed** (12), **Sian Reed** (12), **Ian MWOCAB** 'Lead Tutor', **Sarah Reed** (16), **Helen Lee**, **Elwyn Hollowell GWOGUY** 'Invigilator' and **Jack Lee** (9). Ian is the club and examinations secretary, Stuart, Sian and Sarah are brother and sisters and Helen and Jack are mother and son. Well done to you all!



## ● News From RAOTA

# The Spirit of Amateur Radio

**E-mail: [edit@raota.fsnet.co.uk](mailto:edit@raota.fsnet.co.uk)**



*Members of The World Association Of Christian Radio Amateurs And Listeners (WACRAL) recently held their annual conference in Derbyshire.*

The annual WACRAL conference took place at The Hayes Conference Centre, Swanwick, Derbyshire over the weekend of Friday 26 to Sunday 28th September and was officially opened by organiser **Geoff Grundy G4YJW**.

**George Dobbs G3RJV**, founder of the G-QRP club presented the Friday evening lecture on 'Minimalist Radio'. The main AGM took place on the Saturday morning after breakfast and was a lively and informative event and **Paul Goodhall M3JFM** was elected as Publicity Officer following **Victor Brand G3JNB** who stepped down from the post in 2002

Several other lectures took place over the weekend including presentations from **Paul Overton GOMHD** WACRAL data-comms co-ordinator who gave a talk and presentation on Managing Operational Risk and a talk by Paul **M3JFM** assisted by his son **Peter M3PHP** on the history of

During the conference a construction contest was run and this was judged and certificates presented on the Sunday morning. The prize for the best constructed Howes 3.5MHz receiver went to **Richard Paul G7KMZ** and **Alistair McGoff M3BIB** was awarded a Certificate with merit for his very first attempt at construction.

To find out more about WACRAL contact:

**Derek Chivers G3XNX,**  
**Membership Secretary,**  
**51 Alma Road,**  
**Brixham,**  
**South Devon TQ5 8QR**  
**Tel: (01803) 854504**  
**E-mail: [g3xnx@wacral.org](mailto:g3xnx@wacral.org)**  
**Website: [www.wacral.org](http://www.wacral.org)**



**Peter Goodhall  
M3PHP (17) holding his  
certificate, which was  
presented to him for his  
help in presenting the  
History of WACRAL talk.**

## CARS AWARDS

*The first Chelmsford c.w. only award has been issued to CARS member Ron Ingate M3CAM.*

**R**on Ingate **M3CAM** has been very active on the 'key' since getting his Foundation Licence and practice obviously does make perfect as he can copy Morse at up to 20w.p.m. He recently submitted the first ever **all** c.w. entry for the Chelmsford Award and he is shown here receiving his certificate from CARS Vice-President **Carl Thomson G3PEM**.

The Chelmsford Award is available to all Amateurs and short wave listeners and the proceeds raised from it are donated to the Essex Air Ambulance. For more details contact the CARs Awards Manager **Martyn Medcalf G1EFL** at:

**47 Paddock Drive,  
Chelmsford,  
Essex CM1 6UX  
Tel: (01245) 469008  
E-mail: [awards@g0mwt.org.uk](mailto:awards@g0mwt.org.uk)  
Website: <http://www.g0mwt.org.uk/>**



## ● Magazine Goes QRT

*After 43 years of publication, 73 Amateur Radio Today magazine calls it quits.*

The first issue of 73 was published in October 1960 in Brooklyn, New York, but from the summer of 1962, it was based in Peterborough, New Hampshire. The magazine was a pioneer promoter of s.s.b., f.m., solid-state, easy construction projects and the joining of personal computing and Amateur Radio.

At the peak of its popularity in the 1970s and 1980s, individual issues of 73 totalled more than 300 pages of ads, articles and commentary. However, when plans to publish a joint October/November issue fell through the September 2003 issue was the magazine's last.

Editor and Founder **Wayne S. Green II**  
**W2NSD** commented: "After failing a last minute effort to collect on some larger accounts receivable we have decided to throw in the towel and that the September issue will have to be the last". Green's editorials and reports will continue to appear on his website at <http://www.waynegr.com> (at the time of going to press with *PW* we understand that no definite arrangements had been made as to how to handle outstanding 73 subscriptions).

**Dick Ross K2MGA**, CQ Publisher said he takes no joy from the passing of 73 "The loss of any publication serving Amateur Radio leaves all of us a bit poorer. "Thank you, Wayne, for 43 entertaining, informative, sometimes infuriating and always interesting years of 73. We'll genuinely miss it". A thought echoed by the PW Editorial team - 73s - RIP.

☐ Cockenzie Presentation

*Members of the Cockenzie & Port Seton ARC are well known for their support of the British Heart Foundation and the latest fund raiser was no exception.*

The annual official presentation of the money raised over the year by the Cockenzie & Port Seton Amateur Radio Club took place on Friday 3 October during the club's monthly club night. **Iain Lowis**, Director for Scotland for the British Heart Foundation accepted the cheque for £1,165.34 from the club's chairman **Bob Glasgow GM4UYZ**.

Over the past ten years the Cockenzie club have raised the sum of £9,436.51 for the charity. It's great to see from a tremendous hobby that something good can be put back into the community.

The Amateur Radio hobby takes many knocks, many from people who do or are not prepared to do anything for it. So Cockenzie club members would like to say to all Amateurs "...don't knock the hobby, think positive and drive it forward in a positive light"!



**Bill Gordon MM0BXK, Colin Smith  
GM0CLN, Bob Glasgow GM4UYZ, Cambell  
Stevenson MM0DXC, Tom Hood GM4LRU,  
Iain Lowis British Heart Foundation,  
Peter Easton GM1RCP.**

## ● Introducing Youngsters

# Adventures of Zack & Max

Icom (UK) Ltd launch an Amateur Radio 'comic' aimed at encouraging newcomers to Amateur Radio.

**T**he Adventures of Zack & Max The Odyssey Begins Volume 1 follows the story of Zack and his father and his introduction into the amateur radio hobby. The story is designed to provide basic information about the hobby, a brief history, applications and its place in our ever changing technological world today.

Printed in bright colours in a comic style, this short form publication is interesting, fun and easy to understand, as well as providing details of societies, magazines and equipment stockists. It's a great way to introduce youngsters to the fascinating world of Amateur Radio without bombarding them with all the technicalities.

Copies of *The Adventures of Zack & Max The Odyssey Begins* are available for anyone planning a Special Event Station, talk or who is involved in

Jamboree on the Air or Thinking Day on the Air.

Alternatively you can download copies from the Icom website.

**Icom (UK) Ltd.**

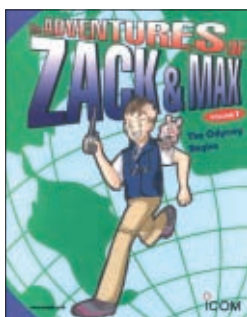
**Sea Street,  
Herne Bay,  
Kent CT6 8LD**

**Tel:**  
**(01227) 741741**

**FAX: (01227) 741742**

**E-mail: marketing@icomuk.co.uk**

**Website: www.icomuk.co.uk**



## ● Date for your Diary

# Summer Rally

*It may only be November, as we put this issue of PW together but rally organisers are already preparing for next year's rally season.*

**T**he annual Colchester Radio Amateurs (CRA) Rally 2004 will be held at the St. Helena School, Sheepen Rd, Colchester on Sunday 25 July 2004. Doors open for traders at 0730 and the public at 1000 hours.

Attractions will include traders, Bring & Buy, car boot, the RSGB stall, clubs and associations, food and drink and much more! There will also be some mystery attractions on the day, watch this space in the coming months to find out more.

For more details contact **James MØZZO** on **(01255) 242746**,  
**E-mail: james@mcginty.net** or  
**Gary MØJJH** on **(01621) 818620**,  
**E-mail: gary@garycavie.com**

## ● Kenwood Products

# Just Launched

*Kenwood Electronics UK Ltd. have just launched two new models for the Amateur Radio market - look out for them on dealer's shelves!*

**T**he new models are the **TM-271E** 144MHz f.m. mobile and the **TS-480HX/TS-480SAT** h.f. +50MHz transceivers.

Features of the TM-271E include:

- Tough, compact construction
- High r.f. power output (60W)
- Alphanumeric l.c.d. and illuminated keypad
- 200 memory channels plus 1 call-channel
- Multiple scan functions
- Built-in CTCSS and DCS encoder/decoder
- Auto repeater offset

The TM-271E is supplied with a DTMF microphone and a range of accessories are

available to buy. Recommended retail price of the TM-271E is **£219.95**.

The second new Kenwood to be added to their comprehensive range of models is the **TS-480HX/TS-480SAT** and is billed as a go-anywhere h.f./50MHz all-mode transceiver. The TS-480HX version offers 200W of output power whereas the TS-480SAT offers 100W of power and is equipped with a built-in auto antenna tuner.

Other features include:

- TX/RX AF DSP
- Compact construction
- Separate l.c.d. control panel
- Continuous RX: 500kHz (VFO: 30kHz) to 60MHz
- TX covers all Amateur bands 1.8 to 50MHz
- Quad-mixer
- PSK31 compatibility.
- AF filters
- Speech processor
- Multiple scan functions
- CTCSS (42 subtone frequencies)
- 1750Hz Tone

The TS-480HX costs

**£1199.95** and

the TS-480SAT

**£1099.95**, please note

both are

recommended retail prices. Look out for reviews in *PW* of these latest Kenwood models very soon. For more information contact Kenwood Electronics UK Ltd. or any approved Kenwood dealer.

**Kenwood Electronics UK Ltd.**

**Kenwood House,**

**Dwight Road,**

**Watford,**

**Hertfordshire WD18 9EB**

**Tel: (01923) 655284**

**FAX: (01923) 655297**

**E-mail: comms@kenwood-electronics.co.uk**



# amateur radio clubs

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

## COUNTY DURHAM

### Great Lumley AR & E Society

**Contact:** Nancy Bone

**Via Post:** 217 Bensham Road, Gateshead NE8 1US

**Tel:** 0191-477 0036 or (07990) 760920

**E-mail:** nancybone2001@yahoo.co.uk

**Website:** www.glares.fsnet.co.uk

The Great Lumley Amateur Radio And Electronics Society meet at the Community Centre, Front Street, Great Lumley, Chester-le-Street Co. Durham every Wednesday from 1930 to 2130 hours. Forthcoming meetings include: **Nov 19:** A talk by Carolyn Crook B. E. Eng on the topic of "Radiocommunications in Developing Countries" or "What do you do when someone points a machine gun at you!". On **Dec 10** the club will be having a Christmas meal at the Waldrige Tavern Waldrige Village (on Waldrige Fell) at £13.95 per head at 1900 for 1930 hours. If you are interested please contact Nancy Bone.

## ESSEX

### Chelmsford ARS

**Contact:** David Bradley M0BQC

**Tel:** (01245) 602838

**E-mail:** info@g0mwvt.org.uk

**Website:** http://www.g0mwvt.org.uk

The Chelmsford Amateur Radio Society meets on the 1st Tuesday of each month in the Marconi Social Club, Beehive Lane, Great Baddow. The doors open at 1915 for a 1930 start. Visitors are always welcome and there is a bar available for refreshments. The club also run Amateur Radio Courses on Thursday evenings at 1900 hours in the Danbury Village Hall. Future course start dates are: **Nov 27:** - Intermediate Course; **March 11 2004:** Foundation Course and **May 13:** Intermediate Course. If you want to enrol contact the training officer **Clive Ward M0SIX. Tel: (01245) 224577/07860 418835** or **E-mail: training@g0mwvt.org.uk** As from this month the club now have an additional website at **www.qsl.net/g0mwvt** that contains all the tuition material the club have produced for their Foundation and Intermediate courses and its now available for others to download to encourage more clubs to set up courses.



## NORTH OF ENGLAND

### Wakefield & District RS

**Contact:** Rick G4BLT

**Tel:** (01924) 255515

**Website:** www.wdrs.org.uk

Meetings of the Wakefield & District Radio Society are held every Tuesday at 2000 hours at Ossett Community Centre, Prospect Road, Ossett (near Wakefield), West Yorkshire. Forthcoming meetings include: **Dec 2:** Quiz Night & Bingo (with prizes); **9th:** 'Building Web Pages' Talk by **G0BQB**; **16th:** Xmas Social, preceded by committee meeting and **30th:** Meet at Queens Arms, Denby Dale Rd. **Please note there will be no meeting on 23 December as the venue is closed.**



## NORTHERN IRELAND

### Bangor & District ARS

**Contact:** Mike G14XSF

**Tel:** 0284-277 2383

**Website:** http://www.bdars.com

Bangor and District Amateur Radio Society meet on the 1st Wednesday of every month in "The Stables", Groomsport at 2000hours. On Dec 3 the club are hosting a talk on "Effects of solar weather on propagation" by **Professor Brian Gilbody**. Visitors and new members are (as always) most welcome.

## WEST MIDLANDS

### MAXPAK

**Contact:** Miles Hall

**Tel:** (01952) 585447

**E-mail:** milesclifford@aol.com

**Website:** www.maxpakgb.org.uk

The MAXPAK group meet on the first Monday of the month at The Sir Robert Peel public house, Bloxwich, near Walsall, West Midlands. Meetings start at 2000 hours in the bar! So, why not go along and join in?



www.amateurantennas.com

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

## LOG PERIODIC

**MLP32** TX & RX 100-1300MHz one feed, S.W.R. 2:1 and below over whole frequency range professional quality (length 1420mm).....**£99.95**  
**MLP62** same spec as MLP32 but with increased freq. range 50-1300 Length 2000mm.....**£169.95**

## MOBILE HF WHIPS (with 3/8 base fitting)

**AMPRO 6** mt.....**£16.95**  
 (Length 4.6' approx)  
**AMPRO 10** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 12** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 15** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 17** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 20** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 30** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 40** mt.....**£16.95**  
 (Length 7' approx)  
**AMPRO 80** mt.....**£19.95**  
 (Length 7' approx)  
**AMPRO 160** mt.....**£49.95**  
 (Length 7' approx)  
**AMPRO MB5** Multi band 10/15/20/40/80 can use 4 Bands at one time (Length 100").....**£69.95**

## VHF/UHF MOBILE ANTENNAS

**MICRO MAG 2** Metre 70 cms Super Strong 1" Mag Mount (Length 22").....**£14.95**  
**MR700** 2m/70cms, 1/4 wave & 5/8, Gain 2m 0dB/3.0dB 70cms Length 20" 3/8 Fitting.....**£7.95**  
**SO239** Fitting.....**£9.95**  
**MR 777** 2 Metre 70 cms 2.8 & 4.8 dBd Gain (5/8 & 2x5/8 wave) (Length 60") (3/8 fitting).....**£16.95**  
 (SO239 fitting).....**£18.95**  
**MRO525** 2m/70cms, 1/4 wave & 5/8, Gain 2m 0.5dB/3.2dB 70cms Length 17".....**£19.95**  
 SO239 fitting commercial quality.....**£19.95**  
**MRO500** 2m/70cms, 1/2 wave & 2x5/8, Gain 2m 3.2dB/5.8dB 70cms Length 38" SO239 fitting commercial quality.....**£24.95**  
**MRQ750** 2m/70cms, 6/8 wave & 3x5/8, Gain 2m 5.5dB/8.0dB 70cms Length 60" SO239 fitting commercial quality.....**£39.95**  
**MRQ800** 6/2/70cms 1/4 6/8 & 3 x 5/8, Gain 6m3.0dB/2m 5.0dB/70 7.5dB Length 60" SO239 fitting commercial quality.....**£39.95**  
**GF151** New low price.....**£29.95**

## SINGLE BAND MOBILE ANTENNAS

**MR 214** 2 Metre 1/4 wave (3/8 fitting).....**£3.95**  
 (SO239 fitting).....**£5.00**  
**MR260S** 2 Metre 1/2 wave 2.5 dBd gain Length 43" SO239 fitting.....**£24.95**  
**MR 258** 2 Metre 5/8 wave 3.2 dBd Gain (3/8 fitting) (Length 58").....**£12.95**  
**MR 650** 2 Metre 5/8 wave open coil (3.2 dBd Gain) (Length 52") (3/8 fitting).....**£9.95**  
**MR268S** 2 Metre 5/8 wave 3.5dBd gain Length 51" SO239 fitting.....**£19.95**  
**MR280S** 2 Metre 6/8 wave 5.8dBd gain Length 58" SO239 fitting.....**£29.95**  
**MR 614** 6 Metre loaded 1/4 wave (Length 56") (3/8 fitting).....**£13.95**  
**MR 644** 6 Metre loaded 1/4 wave (Length 40") (3/8 fitting).....**£12.95**  
 (SO239 fitting).....**£15.95**

## SINGLE BAND END FED BASE ANTENNAS

**70 cms** 1/2 wave, length 26", gain 3.5dB.....**£24.95**  
**2 metre** 1/2 wave, length 52", gain 3.5dB.....**£24.95**  
**4 metre** 1/2 wave, length 80", gain 3.5dB.....**£34.95**  
**6 metre** 1/2 wave, length 120", gain 3.5dB.....**£44.95**  
**6 metre** 3/4 wave, length 150", gain 5.5dB.....**£49.95**  
 (All above end fed antennas are DC grounded, so are radial free!)

## VHF/UHF VERTICAL CO-LINEAR FIBREGLASS BASE ANTENNA

**SQ & BM Range VX 6 Co-linear:- Specially Designed Tubular Vertical Coils individually tuned to within 0.05pf (maximum power 100 watts)**  
**BM100 Dual-Bander**.....**£29.95**  
 (2 mts 3dBd) (70cms 6dBd) (Length 39")  
**SQBM100 Dual-Bander**.....**£39.95**  
 (2 mts 3dBd) (70cms 6dBd) (Length 39")  
**BM200 Dual-Bander**.....**£39.95**  
 (2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")  
**SQBM200 Dual-Bander**.....**£49.95**  
 (2 mts 4.5dBd) (70cms 7.5dBd) (Length 62")  
**SQBM500 Dual - Bander Super Gainer**.....**£59.95**  
 (2 mts 6.8dBd) (70cms 9.2dBd) (Length 100")  
**SQBM800 Dual - Bander Ultra Gainer**.....**£129.95**  
 (2 mts 8.5dBd) (70cms 12.5dBd) (Length 200")  
**BM1000 Tri-Bander**.....**£59.95**  
 (2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")  
**SQBM1000 Tri-Bander**.....**£69.95**  
 (2 mts 6.2dBd) (6 mts 3.0dBd) (70cms 8.4dBd) (Length 100")  
**SQBM 100/200/500/800/1000 are Polycoated Fibre Glass with Chrome & Stainless Steel Fittings.**

## SINGLE BAND VERTICAL CO-LINEAR BASE ANTENNA

**BM33** 70 cm 2 X 5/8 wave Length 39" 7.0 dBd Gain.....**£34.95**  
**BM45** 70cm 3 X 5/8 wave Length 62" 8.5 dBd Gain.....**£49.95**  
**BM55** 70cm 4 X 5/8 wave Length 100" 10 dBd Gain.....**£69.95**  
**BM60** 2mtr5/8 Wave, Length 62", 5.5dBd Gain.....**£49.95**  
**BM65** 2mtr 2 X 5/8 Wave, Length 100", 8.0 dBd Gain.....**£69.95**

## MINI HF DIPOLES (length 11' approx)

**MD020** 20mt version approx only 11ft.....**£39.95**  
**MD040** 40mt version approx only 11ft.....**£44.95**  
**MD080** 80mt version approx only 11ft.....**£49.95**  
 (aluminium construction)

## ROTATIVE HF DIPOLE

**RDP-3B** 10/15/20mtrs length 7.40m.....**£99.95**  
**RDP-40M** 40mtrs length 11.20m.....**£139.95**  
**RDP-6B** 10/12/15/17/20/30mtrs boom length 1.00m. Length 10.0m.....**£199.95**

## HF DELTA LOOPS

**DLHF-100** 10/15/20mtrs (12/17-30m) Boom length 4.2m. Max height 6.8m. Weight 35kg. Gain 10dB.....**£399.95**

## HAND-HELD ANTENNAS

**MRW-300** Rubber Duck TX 2 Metre & 70 cms RX 25-1800 Mhz Length 21cm BNC fitting.....**£12.95**  
**MRW-310** Rubber DuckTX 2 Metre & 70 cms Super Gainer RX 25-1800 Length 40cm BNC fitting.....**£14.95**  
**MRW-232** Mini Miracle TX 2 Metre 70 & 23 cms RX 25-1800 Mhz Length just 4.5cm BNC fitting.....**£19.95**  
**MRW-250** Telescopic TX 2 Metre & 70 cms RX 25-1800 Mhz Length 14-41cm BNC fitting.....**£16.95**  
**MRW-200** Flexi TX 2 Metre & 70cms RX 25-1800 Mhz Length 21cm SMA fitting.....**£19.95**  
**MRW-210** Flexi TX 2 Metre & 70cms Super Gainer RX 25-1800 Mhz Length 37cm SMA fitting.....**£22.95**

All of the above are suitable to any transceiver or scanner.

Please add £2.00 p+p for hand-held antennas.

## HB9CV 2 ELEMENT BEAM 3.5 dBd

**70cms** (Boom 12").....**£15.95**  
**2 metre** (Boom 20").....**£19.95**  
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**CONNECTORS & ADAPTERS**

PL259/9 .....	£0. <sup>75</sup> each
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BNC (Screw Type) .....	£1. <sup>00</sup> each
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N TYPE for RG58 .....	£2. <sup>50</sup> each
N TYPE for RG213 .....	£2. <sup>50</sup> each
SO239 to BNC .....	£1. <sup>50</sup> each
PL259 to BNC .....	£2. <sup>50</sup> each
N TYPE to SO239 .....	£3. <sup>00</sup> each
BNC to N-type .....	£2. <sup>50</sup>
SMA to BNC .....	£3. <sup>95</sup>
SMA to SO239 .....	£3. <sup>95</sup>
SMA to PL259 .....	£3. <sup>95</sup>
SMA to BNC (male) .....	£3. <sup>95</sup>
SO239 chassis socket round .....	£1. <sup>00</sup>
N-type chassis socket round .....	£2. <sup>50</sup>
SO239 double female .....	£1. <sup>00</sup>
N-type double female .....	£2. <sup>50</sup>
SO239 double female .....	£1. <sup>00</sup>

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G.A.P.58 5/8 wave aluminium (length 21' approx) .....	£29. <sup>95</sup>
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S27-4 4-element yagi. Freq: 27-28MHz. Length: 3.8mtrs. Gain: 10.5dB .....	£69. <sup>95</sup>

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MB-6 6:1 Balun 400 watts power .....	£24. <sup>95</sup>
MB-1X 1:1 Balun 1000 watts power .....	£29. <sup>95</sup>
MB-4X 4:1 Balun 1000 watts power .....	£29. <sup>95</sup>
MB-6X 6:1 Balun 1000 watts power .....	£29. <sup>95</sup>
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CS201-N Same spec as CS201 but with N-type fittings .....	£28. <sup>95</sup>
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RC5-1 Heavy duty HF .....	£349. <sup>95</sup>
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RC26 Alignment Bearing for RC5-1/3 .....	£49. <sup>95</sup>

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SO259 fitting .....	£14. <sup>95</sup>
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SO259 fitting .....	£12. <sup>95</sup>
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Flexweave high quality (50mtrs) .....	£27. <sup>95</sup>
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300Ω Ladder Ribbon heavy duty USA imported (20mtrs) .....	£15. <sup>00</sup>
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(Other lengths available, please phone for details)

**HF BALCONY ANTENNA**

BAHF-4 FREQ: 10-15-20-40 Mtrs LENGTH: 1.70m HEIGHT: 1.20m POWER: 300 Watts .....	£129. <sup>95</sup>
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**MISCELLANEOUS ITEMS**

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AKD TV1 filter .....	£9. <sup>95</sup>
Amalgamating tape (10mtrs) .....	£7. <sup>50</sup>
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TMA1 2" to 1 1/4" heavy duty aluminium telescopic mast set, approx 20ft when erect, 6ft collapsed .....	£99. <sup>95</sup>
TMAF-1 2" to 1 1/4" heavy duty fibreglass telescopic mast set, approx 20ft when erect, 6ft collapsed .....	£99. <sup>95</sup>
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**HF YAGI**

HBV-2 2 BAND 2 ELEMENT TRAPPED BEAM FREQ: 20-40 Mtrs GAIN: 4dBd BOOM: 5.00m LONGEST ELEMENT: 13.00m POWER: 1600 Watts .....	£329. <sup>95</sup>
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**ADEX-3300 3 BAND 3 ELEMENT TRAPPED  
BEAM**

FREQ: 10-15-20 Mtrs GAIN: 8 dBd BOOM: 4.42m LONGEST ELE: 8.46m POWER: 2000 Watts .....	£269. <sup>95</sup>
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**ADEX-6400 6 BAND 4 ELEMENT TRAPPED**

BEAM FREQ: 10-12-15-17-20-30 Mtrs GAIN: 7.5 dBd BOOM: 4.27m LONGEST ELE: 10.00m POWER: 2000 Watts .....	£499. <sup>95</sup>
40 Mtr RADIAL KIT FOR ABOVE .....	£99. <sup>00</sup>

**HF VERTICALS****VR3000 3 BAND VERTICAL**

FREQ: 10-15-20 Mtrs GAIN: 3.8 dBd HEIGHT: 3.80m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials) .....	£89. <sup>95</sup>
OPTIONAL 10-15-20mtr radial kit .....	£34. <sup>95</sup>

**VR5000 5 BAND VERTICAL FREQ: 10-15-20-40-80 Mtrs**

GAIN: 3.5 dBd HEIGHT: 4.00m RADIAL LENGTH: 2.30m (included). POWER: 500 Watts .....	£169. <sup>95</sup>
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**EVX4000 4 BAND VERTICAL FREQ: 10-15-20-40 Mtrs**

GAIN: 3.5 dBd HEIGHT: 6.50m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials) .....	£99. <sup>95</sup>
OPTIONAL 10-15-20mtr radial kit .....	£34. <sup>95</sup>
OPTIONAL 40mtr radial kit .....	£12. <sup>95</sup>

**EVX5000 5 BAND VERTICAL FREQ: 10-15-20-40-80**

Mtrs GAIN: 3.5 dBd HEIGHT: 7.30m POWER: 2000 Watts (without radials) POWER: 500 Watts (with optional radials) .....	£139. <sup>95</sup>
OPTIONAL 10-15-20mtr radial kit .....	£34. <sup>95</sup>
OPTIONAL 40mtr radial kit .....	£12. <sup>95</sup>
OPTIONAL 80mtr radial kit .....	£14. <sup>95</sup>

**EVX6000 6 BAND VERTICAL FREQ: 10-15-20-30-40-**

80 Mtrs HEIGHT: 5.00m RADIAL LENGTH: 1.70m (included) POWER: 800 Watts .....	£249. <sup>95</sup>
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**EVX8000 8 BAND VERTICAL FREQ: 10-12-15-17-20-**

30-40 Mtrs (80m optional) HEIGHT: 4.90m RADIAL LENGTH: 1.80m (included) POWER: 2000 Watts .....	£269. <sup>95</sup>
80 MTR RADIAL KIT FOR ABOVE .....	£79. <sup>00</sup>



(All verticals require grounding if optional radials are not purchased to obtain a good VSWR)

**TRAPPED WIRE DI-POLE ANTENNAS**

(Hi Grade Heavy Duty Commercial Antennas)

UTD160 FREQ: 160 Mtrs LENGTH: 28m POWER: 1000 Watts .....	£44. <sup>95</sup>
MTD-1 (3 BAND) FREQ: 10-15-20 Mtrs LENGTH: 7.40 Mtrs POWER: 1000 Watts .....	£39. <sup>95</sup>
MTD-2 (2 BAND) FREQ: 40-80 Mtrs LENGTH: 20Mtrs POWER: 1000 Watts .....	£44. <sup>95</sup>
MTD-3 (3 BAND) FREQ: 40-80-160 Mtrs LENGTH: 32.5m POWER: 1000 Watts .....	£89. <sup>95</sup>
MTD-4 (3 BAND) FREQ: 12-17-30 Mtrs LENGTH: 10.5m POWER: 1000 Watts .....	£44. <sup>95</sup>
MTD-5 (5 BAND) FREQ: 10-15-20-40-80 Mtrs LENGTH: 20m POWER: 1000 Watts .....	£79. <sup>95</sup>

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

**PATCH LEADS****STANDARD LEADS**

1mtr RG58 PL259 to PL259 lead .....	£3. <sup>95</sup>
10mtr RG58 PL259 to PL259 lead .....	£7. <sup>95</sup>
30mtr RG58 PL259 to PL259 lead .....	£14. <sup>95</sup>

**MILITARY SPECIFICATION LEADS**

1mtr RG58 Mil spec PL259 to PL259 lead .....	£4. <sup>95</sup>
10mtr RG58 Mil spec PL259 to PL259 lead .....	£10. <sup>95</sup>
30mtr RG58 Mil spec PL259 to PL259 lead .....	£24. <sup>95</sup>
1mtr RG213 Mil spec PL259 to PL259 lead .....	£4. <sup>95</sup>
10mtr RG213 Mil spec PL259 to PL259 lead .....	£14. <sup>95</sup>
30mtr RG213 Mil spec PL259 to PL259 lead .....	£29. <sup>95</sup>

(All other leads and lengths available, ie. BNC to N-type, etc. Please phone for details)

**COAX SWITCH SALE**

CS201 Two-way 3 X SO239 £18.95 .....this month just	£12. <sup>99</sup>
CS201N Two-way 3 X N-type £28.95 .....this month just	£18. <sup>99</sup>
CS401 Four-way 5 X SO239 £49.95 .....this month just	£39. <sup>99</sup>

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# Tex's

## Tips & Topics

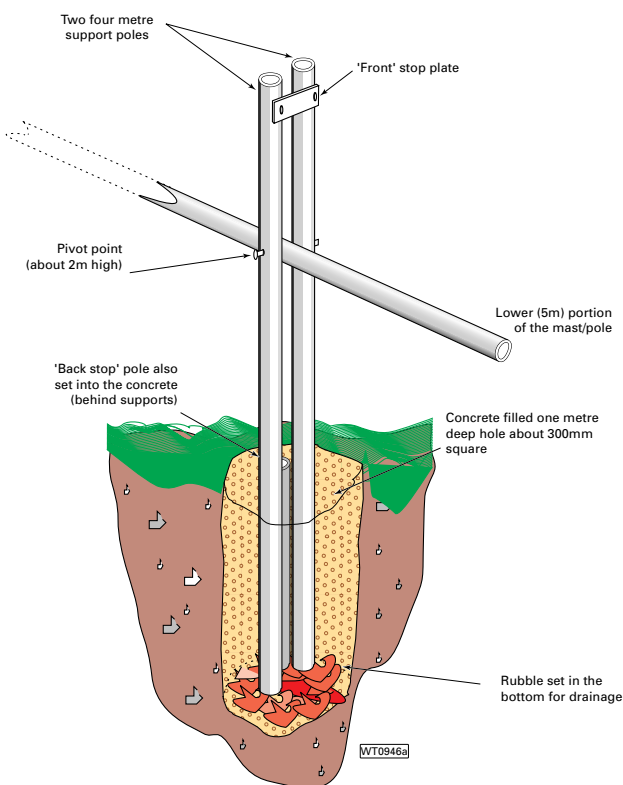
Hello and welcome to the occasional column that, although it's called Tex's Tips and Topics, (TT&T) is really about your ideas, tips and any 'tricks' used in the hobby. So, here's a few suggestions from readers seeking to win book vouchers for every tip published!

I've had an E-mail from Clive who holds the callsigns G8BOU/M5CHH/VE3CHH, commenting on an article by Peter McNalley EI9GT in the August 1998 issue of PW (Antenna Workshop pages 46/47). In that article Peter described his mast (with it's base) Fig. 1, that can be erected single handed. Clive uses a similar technique and he described the differences.

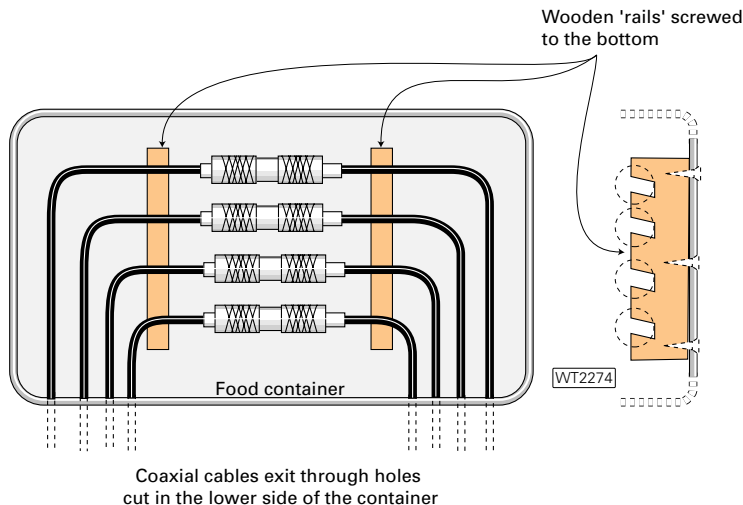
Clive wrote: "I used a scaffold pole for the lower section and a standard 6m (20ft) thin walled TV aluminium mast for the upper section as this is adequate when guyed. I fitted a swivel shackle at the top for the hauling rope, as I've found that they have a tendency to

twist. I only use good quality blocks as they are out in all weathers.

"I form the rope into a continuous loop, so there's no danger of losing the end once it is up. The loop also allows a weight to be attached, which will ride up and down slightly in high wind conditions rather than snapping the antenna wire. The bottom stop is set slightly away from the two pivot poles and is fitted with an eyebolt. The base of the lower swivelled pole is fitted with a similar eyebolt. With a rope though the two eyebolt rings, the pole can be hauled up from the antenna wire side.



● Fig. 1: From an article by Peter McNalley EI9GT in August 1998, Clive G8BOU suggest a few additional thoughts on this method of mast mounting. See text for details.



This allows me to push up the pole to about 30 degrees and also hold it on the rope".

Clive also modified the concrete base arrangement, as he said that he 'heaps' the concrete base around the poles so that water does not accumulate around the pole bases and cause eventual rusting. Clive also wraps all three posts to just above ground level, with a single layer of polythene sheeting taped on with masking tape. The polythene sheet should last for years and allow the poles to be removed if he moves house.

But Clive finished off by saying: "if you are feeling generous, leave one of the posts in as a clothes line support for the next owner". This should make the concrete less of a problem for the new owners too!

Now let me turn to a simple, yet effective idea for outside antenna installations from Roy Underwood MW0DRU. I have to add at this instance that you will need the cooperation of the XYL, as once again the kitchen cupboards need to be raided. Roy's 'anti-condensation' box is shown in skeletal form in the illustration Fig. 2. An air-tight sealing food container with wooden racks

● Fig. 2: Before using a food container from the kitchen for this condensation-proof housing, make sure you have the XYL's permission. See text for details.

makes an ideal connection box at the base of the mast or outside the shack.

In an additional 'aside' in his letter, Roy also mentions that he uses the discarded tubes from builders' sealants (such as the type used for sealing around bathroom fittings) as formers for coils and traps.

A splendid set of ideas Clive and Roy, and that will bring you both vouchers to spend in time for the festive season that's almost upon us!

Well, I've run out of space again. These are all splendid ideas, and a good selection of some of the useful tips that readers keep sending in. Many thanks for the tips that you've all sent in, they're all very useful. Book vouchers on the way for all published. So, if you want a book voucher for an idea - you've got to write in first! What are you waiting for?

Tex

As an incentive, each published 'Tip' gets a £5 Book service voucher for the author. The best idea each month gets an additional £5 voucher as well. So, get writing! G1TEX

# HAYDON

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PLT-20	20m mobile whip (56" long)	£24.95
PLT-40	40m mobile whip (64" long)	£24.95
PLT-80	80m mobile whip (64" long)	£24.95
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X-50 GF 144/70, 4.5/7.2dB (1.7m) glassfibre		£59.95
X-300 GF 144/70, 6.5/9dB (3m) glassfibre		£69.95
X-500 GF 144/70, 8.5/11dB (5.4m) glassfibre		£149.95
X-627 GF 50/144/70, 2.15/6.2/8.4dB (2.4m)		£79.95

### Q-TEK YAGIS

		Delivery £10.00
2m	5ele (boom 63" / 10.5dBd)	£49.95
2m	8ele (boom 125" / 13dBd)	£64.95
2m	11ele (boom 156" / 13.5dBd)	£94.95
2m	5ele crossed (boom 64" / 10.5dBd)	£79.95
2m	8ele crossed (boom 126" / 13dBd)	£99.95
4m	3ele (boom 45" / 8.5dBd)	£56.95
4m	5ele (boom 128" / 11.5dBd)	£69.95
6m	3ele (boom 72" / 8.5dBd)	£59.95
6m	5ele (boom 142" / 11.5dBd)	£79.95
70cm	13ele (boom 76" / 14.9dBd)	£46.95
70cm	13ele crossed (boom 83" / 14.9dBd)	£79.95

### NEW DOUBLE DELUXE G5RV

160-10M double length (200 foot). **£84.95** del £8.50

### DELUXE G5RV

P&P on either full/half size £6.50  
Multi-stranded heavy duty flexweave wire. All parts replaceable. Stainless steel and galvanised fittings.



Full size - 102ft (80-10m).....**£42.95**  
Half size 51ft. (40-10m).....**£36.95**

Choke Balun Inline balun for G5RV.....**£24.95 P&P £3**

### STANDARD G5RV

Full size 102ft (now includes heavy duty 300Ω ribbon).....£28.95 P&P £6  
Half size 51ft (now includes heavy duty 300Ω ribbon).....£24.95 P&P £6

### Q-TEK INDUCTORS

80mtr inductors + wire to convert 1/2 size G5RV into full size. (Adds 8ft either end).....£24.95 P&P £2.50 (a pair)

### DIPOLE CENTRE PIECES

Open wire.....£5.99  
SO-239.....£5.99

### 300Ω HEAVY DUTY FEEDER

5m length.....£5.00 P&P £3.00  
10m length.....£10.00 P&P £3.00

300m roll "club special buy".....£135.00 P&P £10.00

### BALUNS & TRAPS

1.1 Balun	.....	£25.00 P&P £2
4.1 Balun	.....	£25.00 P&P £2
6.1 Balun	.....	£25.00 P&P £2
40 mtrs Traps	(a pair)	£25.00 P&P £4
80 mtrs Traps	(a pair)	£25.00 P&P £4
10 mtrs Traps	(a pair)	£25.00 P&P £4
15 mtrs Traps	(a pair)	£25.00 P&P £4
20 mtrs Traps	(a pair)	£25.00 P&P £4
5.35MHz Traps	(a pair)	£25.00 (a pair)

Practical Wireless, December 2003

NEXT DAY DELIVERY TO MOST AREAS, £10.00.

### CUSHCRAFT BARGAINS

MA5V	New vertical 10, 12, 15, 17, 20m	£229.95	£215.00
MA5B	Mini beam 10, 12, 15, 17, 20m	£249.00	£299.95
A3S	3 ele beam 10, 15, 20m	£499.95	£399.00
A4S	4 ele beam (10-20m)	£599.95	£499.00
R6000	Vertical 6, 10, 12, 15, 17, 20m	£249.95	£315.95
R8E	Vertical (40-10m) "special"	£499.95	£399.00
X-7	7 ele 10, 15, 20m	£999.00	£599.95

### CAROLINA WINDOM

CW-160S	(160-10m) 40m long	£139.00 P&P £8.50
CW-160	(160-10m) 80m long	£134.95 P&P £8.50
CW-80	(80-10m) 40m long	£99.95 P&P £8.50
CW-80S	(80-10m) 20m long	£119.95 P&P £8.50
CW-40	(40-10m) 20m long	£94.95 P&P £8.50

### 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. On this cable simply wind cable round clamp 1-to-2 times. Simple yet effective!

OUR PRICE: 2 for £10 (p&p £2.50)

### DOUBLE THICK FERRITE RINGS

A superb quality ferrite ring with incredible properties. Ideal for "R.F.I.". Width 12mm/OD35mm. 6 for £12.00 12 for £20.00 P&P £3.50

### COAX BARGAINS

RG-213 Mil spec x 100m.	Genuine high quality coax
ONLY <b>£69.95</b> P&P £10	MILITARY SPEC
RG-58 Mil spec x 100m.	
ONLY <b>£35.00</b> P&P £10.00	
Coax stripping tool (for RG-58)	£4.50

### SP-350 STATIC PROTECTOR

Designed to reduce static build-up during electrical storms. (Gas discharge fuse is replaceable). DC-500MHz (SO-239 sockets). PWR up to 400W. **£24.95** P&P £2.50

### LOW LOSS PATCH LEADS

Connectors	Length	Price
PL-259 - PL-259	0.6m	£5.99
PL-259 - PL-259	4m	£9.99
BNC - BNC	1m	£6.99
BNC - BNC	5m	£10.00

### COPPER ANTENNA WIRE ETC

Enamelled (50m roll)	£12.95 P&P £5
Hard drawn (50m roll)	£13.95 P&P £5
Multi-Stranded (Grey PVC) (50m roll)	£11.95 P&P £5
Flexweave (H/duty 50 mtrs)	£30.00 P&P £5
Flexweave H/duty (18 mtrs)	£15.95 P&P £5
Flexweave (PVC coated 18 mtrs)	£18.95 P&P £5
Flexweave (PVC coated 50 mtrs)	£40.00 P&P £6
Special 200mtr roll PVC coated flexweave	£99.00 P&P £10
Copper plated earth rod (4ft)	£13.00 P&P £6
Copper plated earth rod (4ft) + earth wire	£18.99 P&P £6
New RF grounding wire (10m pack) PVC coated	£12.50 P&P £5

### NISSEI PWR/SWR METERS

RS-502 1.8-525MHz (200W)	£79.95 P&P £5
RS-102 1.8-150MHz (200W)	£59.95 P&P £5
RS-402 125-525MHz (200W)	£59.95 P&P £5
RS-3000 1.8-60MHz (3kW) Incls mod meter	£79.95 P&P £5
RS-40 144/430MHz Pocket PWR/SWR	£34.95 P&P £2
DL-30 diamond dummy load (100W max)	£26.99 P&P £3

### COAX SWITCHES

2 way CX-201 (0-1GHz) SO239	£18.95
2 way CX-201 'N' (0-1GHz) 'N'	£24.95
4 way CX-401 (0-500MHz) SO239	£69.95
4 way CX-401 'N' (0-500MHz) 'N'	£79.95

### NEW EASY FIT WALL PULLEY

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



PULLEY **£8.99** + P&P £2.50

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

WALL BRACKET **£2.99** P&P £1.00



### MAST HEAD PULLEY

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

**£8.99** + P&P £2.50

### FIBRE GLASS POLES

	1 1/2"	1 3/4"	2"
1m	£8.50	£10.50	£12.50
2m	£16.00	£20.00	£24.00

### TELESCOPIC MASTS

6 section telescopic masts. Starting at 2 1/4" in diameter and finishing with a top section of 1 1/4" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 8 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

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

Telescopic mast lengths are approx.

Tripod for telescopic masts.....**£89.95**

### CAR BOOT MAST SET

Once they've gone, they've gone! 5 section (15') 4.5m 1 1/4" slot together mast set. Collapsed length 0.92m (3') makes this ideal for travelling out with.

**£24.95** Del £10.00 2 for £44.95 del £10.00 3 for £64.95 del £10.00

### 20ft BARGAIN MAST SET

4 x 5' lengths of approx 2" extruded (16 gauge) heavy duty aluminium, swaged at one end to give a very heavy duty mast set.

OUR PRICE **£44.95** Del £10

**TWO FOR £79.95** 2 for £79.95 Del £12.50  
**THREE FOR £109.95** 3 for £109.95 Del £15.00

### NEW 20' (approx) SLEEVED SLOT TOGETHER MAST SET

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

**£49.99** Del £10.00. **TWO FOR £90.00** DEL £12.50

### METAL WORK & BITS

	P&P available on request
2" Mast base plate	£12.95 P&P £5
6" Stand off	£6.95 P&P £5
9" Stand off	£8.95 P&P £5
12" T&K Brackets	£12.00 P&P £8
18" T&K Brackets	£18.00 P&P £8
24" T&K Brackets	£20.00 P&P £8
10mm fixing bolts (needs 8mm hole)	£1.40 each
U bolts (1 1/2" or 2")	£1.20 each
8 nut universal clamp (2" - 2")	£5.95
2" - 2" cross over plate	£10.95
3-way guy ring	£3.95
4-way guy ring	£4.95
2" mast sleeve	£9.95
1 1/2" mast sleeve	£8.95
Standard guy kits (with wire)	£24.95 P&P £6
Heavy duty guy kits (with wire)	£29.95 P&P £6
Ground fixing spikes (3 set) powdered coated	£24.00 P&P £8
30m pack nylon guy 4.4mm/B/load 480kg	£12.50 P&P £3
132m roll nylon guy (4.4mm)	£40.00 P&P £7.50
Self amalgamating tape (roll)	£6.50
'Nylon' dog bone insulators	£1.00 each
Chimney lashing kit	£12.99

# HAYDON

## Communications

PRICES SUBJECT TO  
CHANGE WITHOUT PRIOR  
NOTICE. PLEASE VERIFY  
BEFORE ORDERING. E&OE.



Mail order: 01708 862524

NEXT DAY DELIVERY TO MOST AREAS, £10.00.

All items sold subject to our terms & conditions - available on request

power supplies

### NEW NISSEI MS-1228



'Smallest version to date'  
now with cigar socket.

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. RRP £79.95

OUR PRICE **£64.95**

### NISSEI PS-1020



New 25A. PSU.

- Volts adjust (9-15vdc)
- Light in weight: 2.1kg
- Automatic shutdown on load fault
- Ultra quiet cooling fan
- Over volts protection

OUR PRICE **£89.95** Delivery £10.00

### TRUE 'LINEAR' PSU NISSEI PS-300



One of the only power units in this magazine that has "over-voltage protection".

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.

30 AMP/12 VOLT PSU

**£119.95** Del £10

hf transceivers no problem

### KENWOOD TS-2000



New all mode multibander: HF/50/144/430 optional 1200MHz. Optional UT-20 (1200MHz module) £299.00

Or with 23 cm fitted £1749.00

OUR PRICE **£1549.00**

PS-53 matching PSU .....£229.00  
SP-23 matching speaker .....£68.95  
MC-80 desk mic .....£72.95  
MC-60A desk mic .....£119.95

### KENWOOD TS-870S



TRUE IF DSP TRANSCEIVER  
When only the best will do!  
Incl's ATU.

OUR PRICE **£1279.00**

PS-52 matching power supply .....£229.00  
MC-60A Desk mic .....£119.95  
MC-80 Desk mic .....£72.95  
SP-31 matching speaker .....£79.95

### KENWOOD TS-570DGE



In our opinion, the best HF Tx below £1200.

OUR PRICE **£795.00**

PS-53 matching power supply .....£229.00  
MC-60A Desk mic .....£119.95  
MC-80 Desk mic .....£72.95  
SP-23 matching speaker .....£68.95

### YAESU FT-857 NEW



The ultimate HF excitement in a small package. HF + 6m + 2m + 70cm

OUR PRICE

**£779.00**

FC-30 auto antenna tuner .....£219.95

New ATAS-120 mobile antenna .....£225.00

### YAESU FT-897



HF/6m/2m/70cm 1.8-430MHz. All mode. However, if you wish to configure the FT-897, there will be no limit to the Dx action you'll enjoy. (100W HF/50) (50W 144) (20W 430).

OUR PRICE **£949.00**

FC-30 auto antenna tuner .....£219.95

### YAESU FT-817



100kHz-440MHz (with gaps). All mode transportable. Includes nicads/charger. O/P- up to 5W. £799.00.

OUR PRICE **£519.00**

Optional case .....£20.00

FT-817 + MS-1228 PSU ~~£604.00~~ .....£569.00

### NEW ICOM IC-7400



HF+6m+2m. All mode, 32bit DSP for outstanding signal enhancing. £1549.00

OUR PRICE **£1229.00**

SP-21 optional extension speaker .....£74.99

SM-20 optional desk microphone .....£129.95

IC-7400 + PS-300 ~~£1367.00~~ .....£1299.00

### ICOM IC-706II G



Now on its 3rd generation, this classic all-band transceiver is still our No. 1 best seller. HF + 6m + 2m + 70cm.

**£769.00**

Icom AH-4 remote ATU .....£269.00

Icom AT-180 Auto ATU .....£335.00

### ICOM IC-703



'706' technology in a QRP version designed by experts to be used by same HF + 6m (up to 10W O/P). ATU

built-in DSP as standard. The only thing limited is the price. Ideal for M3. **£575.00**

IC-703 + MS-1228 PSU ~~£640.00~~ .....£625.00

hf specials

### MFJ-949E



Picture for reference only. Latest version is in black.

- 1.8-30MHz 300W ATU
- Large cross needle meter
- 30/300W PEP power meter
- VSWR
- 3-way antenna selector
- Internal bahn

OUR PRICE **£149.95**

### ICOM IC-718



HF (100W) with general coverage receiver. Dual VFO/SWR meter. (Optional DSP .....£85.00)

OUR SUPER LOW PRICE **£449.00**  
(or plus version: IC-718 + MS-1228 .....£499.00)

### ALINCO DX-70TH



100W HF + 6m transceiver. RRP £699.99

LATEST UK VERSION OUR PRICE **£595.00**  
Plus version: DX-70TH + MS-1228 .....£639.00

### YAESU G-650C



Extra heavy duty rotator for large HF beams, etc. Supplied with circular display control box and 25mtr of rotator cable.

OUR PRICE **£359.00**

G-450C .....£315.00  
G-1000DXC .....£499.95  
GC-038 Lower mast clamps .....£25.00  
GC-065 Thrust bearing (2") .....£48.00  
G-5500 (azimuth/elevation) rotator .....£499.99

### MFJ PRODUCTS

#### MFJ-259B

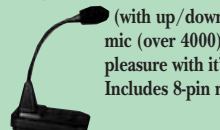


HF digital SWR analyser + 1.8-170MHz counter/resistance meter.

ONLY **£249.95** P&P £6

MFJ-269	160-70cm analyser	£315.95
MFJ-949	300W ATU + dummy load	£149.95
MFJ-969	HF + 6m ATU	£179.95
MFJ-962D	1.5kW versa tuna	£249.95
MFJ-784B	DSP filter	£229.95
MFJ-901B	200W "versa tuner"	£75.95
MFJ-260C	300W dummy load (600meg)	£39.95
MFJ-16010	Random wire tuner	£56.95

### D-308B BLACK DELUXE DESK MIC



(with up/down). Many amateurs using this mic (over 4000) have expressed extreme pleasure with it's performance. Includes 8-pin round to modular adapter.

**£49.95** P&P £6.00

Yaesu	8 pin round to modular adapter (FT-100, etc.)	£19.99
A-08	8 pin "Alinco" round	£9.95
K-08	8 pin "Kenwood" round	£9.95
I-08	8 pin "Icom" round	£9.95
AM-08	Modular phone "Alinco"	£9.95
IM-08	Modular phone "Icom"	£9.95
KM-08	Kenwood modular lead	£9.95
	Spare foam wind guard (M.C.) D-308 mic cover	£2.00 each

shack accs



### AR788 NEW MODEL

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

OUR PRICE **£44.99**

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

### BARGAIN WINCH



500kg brake winch. BARGAIN PRICE

OUR PRICE **£59.95** del £8.50

Winch wall bracket .....£19.99  
Extra heavy duty "hanging pulley" .....£14.50

### SGC SALE



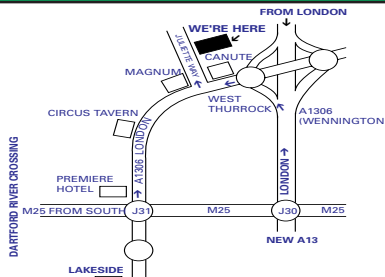
200W instant auto ATU. Tune any length of wire with this superb ATU. (Minimum length applies.)

**£329.95**

SGC-237 HF+6m Tuner .....£289.95  
SGC-239 Mini Tower (1.8-30MHz) .....£179.95  
SGC-231 HF + 6m .....£339.95

**HAYDON COMMUNICATIONS  
SHOWROOM & MAIL ORDER:**  
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**NO MAIL ORDER TO  
MIDLANDS BRANCH**

## YAESU FT-8800E



UK latest version. 50W 2m/35W  
70cm. Rx:- includes airband.

OUR PRICE **£289.00**

FT-847 .....Our price £1099  
FT-1000MP MkV .....Our price £2199.00  
VX-110 2m hand-held .....Our price £99.95  
FT-2800M 2m mobile .....Our price £149.95  
FT-8900 4-band mobile .....Our price £329.00

## NEW ICOM IC-2725



2m/70cm dual bander.  
Includes multi-function  
D.T.M.F. mic + loads  
more.

OUR PRICE **£299.00**

Optional extended receive available which includes AM airband  
T-3H .....Our price £119.00  
E-90 .....Our price £259.00  
IC-756 PRO II .....Our price £1799.00



## KENWOOD TH-F7E

Transceiver & scanner 2m/70cm Tx (5W).  
Rx:- 0.1-1300MHz, all mode (incl SSB).  
Incls:- Lithium ion battery & charger.

'BEST VALUE HANDIE 2003'

OUR PRICE **£249.00**

New TS-480HX (HF + 6m) .....£1049  
TM-D700 .....Our price £419.00  
TM-G707 .....Our price £249.00  
New TS-480SAT .....Our price £949.00

## YAESU VX-7R



Yaesu heavy duty tribander  
50/144/430MHz. (Lithium ion battery)  
high power (5W) as standard. Includes  
charger.

OUR PRICE **£299.00**

Soft case .....£17.99  
Remote "Yaesu" mic .....£27.50  
Dry cell battery box .....£20.50  
Spare battery .....£39.95  
Cigar lead .....£21.50

## YAESU VX-2E



Tx:- 2m/70cm.  
Rx:- 0.5-999MHz.  
Includes battery (Li-on) + charger.

OUR PRICE **£159.00**

Cigar lighter lead .....£21.50  
Optional soft case .....£17.99  
Speaker mic .....£27.50

## ALINCO DJ-596



2m + 70cm Handie.  
Includes: (NIMH) Battery/Charger.  
High + narrow switchable. High power  
(4.5W) OP as standard. Alpha Numeric  
channeling.

**SUPERB VALUE**

OUR PRICE **£169.95**

Optional case .....£15.99  
Dry cell battery box .....£14.99  
Cigar lighter lead .....£19.99  
PC lead .....£42.95  
Spare battery .....£39.95

## YAESU VR-5000



0.1-2.6GHz all mode  
receiver with DSP  
(optional) plus  
bandscope/world clock and  
too much more to print

OUR PRICE **£549.99** (INCL. PSU)

Optional DSP unit .....£79.99  
VR-500 (all mode hand-held scanner) .....£199.99

## UBC-780XLT



New comprehensive  
scanner (25-  
1300MHz)/slight gaps.  
Alpha Tag, PC  
cloning control. Smart scanner + trunk track facility.

NEW EUROPEAN VERSION

OUR PRICE **£299.99**

Optional software (for UBC-780) .....£34.99  
BC9000XLT .....£249.00

## GRE PSR-225



500 channel. 25-  
1300MHz.  
(25-550/760-1300MHz)  
AM/FM/WFM  
selectable.

Includes PSU

OUR PRICE **£219.99**  
Del £10

## ALINCO DJ-X3



Micro-handly scanner. 100kHz-1300MHz.  
700 memories/stereo FM (earphones)/  
attenuator/bug detector. AM/FM/WFM/  
Selectable tuning steps (incl's 8.33kHz).

**£99.95**

Soft case .....£15.99  
Cigar power lead .....£19.99  
Optional battery pack and drop in charger £39.99

## ALINCO DJ-X10



Full-featured handy. 100kHz-2GHz all mode.  
Includes SSB/CW band scope, alphanumeric  
display plus loads more. (Includes battery/  
drop-in charger).

OUR PRICE **£269.95** Del £10

Optional case .....£15.00  
Optional dry cell battery box .....£14.99  
PC interface .....£42.95  
Cigar lighter lead .....£19.99

## AOR AR8200MkIII



Never before has one hand portable offered  
so much. ★ Covers 100kHz-3GHz (all mode)  
★ Computer control capability ★ 8-33kHz  
steps for the new airband spacing ★ Reaction  
tune capability ★ Includes nicads/charger/  
antenna and car lead.

OUR PRICE **£379.00**

Soft case .....£19.99  
PC interface kit .....£79.99

## SANGEAN ATS-909



A superb performance portable/  
base synthesized world receiver  
with true SSB and 40Hz tuning  
for ultra clean reception. The  
same radio is sold under the

Roberts name at nearly twice the price. Other features  
include RDS facility, 306 memories and "FM stereo".

OUR PRICE **£139.95** Del £10

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

## ICOM IC-R75



The short wave receiver for  
the true enthusiast. Incl's  
free PSU. ● 0.03-60MHz  
(all mode) ● Synchronous  
AM detection ● PC control  
capability.

OUR PRICE **£625.00**

Optional DSP audio filter .....£85.00  
Optional extension speaker .....£74.99  
Optional voice synthesiser .....£32.95

## REALISTIC DX-394



★ Superb performance  
SW receiver ★ 0.2-30MHz  
(all mode) ★ Selectable  
tuning steps (down to  
100Hz) ★ 240 or 12V ★

Digital S-meter ★ Attenuator ★ Key pad entry ★ 160  
memories ★ Noise blanker.

OUR PRICE **£199.95** P&P £10

**OUR BEST SELLING LOW PRICED RECEIVER**  
HD-1010 optional headphones .....£9.99

## SANGEAN QSR-1



Voice activated  
desktop recorder  
with quarter speed  
record. (Sold for  
more under

Roberts name- C-9950). Superb  
accessory for the radio enthusiast.  
Optional power unit available.

OUR PRICE **£69.95** Del £10.00

## MFJ-115



24 hour quartz  
clock. Major cities  
shown on rim.  
World map on  
face. "Know what  
time it is around  
the world"

**£29.95** P&P £5.00

## BA-888



ELECTRONIC BAROMETER/CLOCK.  
● Temp/weather/  
forecast/pressure  
barometric trend ● 24hr  
bargraph ● 12/24hr clock &  
alarm ● Humidity  
● Table/wall mount

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# Radio Basics

ROB G3XFD ENCOURAGES YOU

Continuing his v.h.f. theme Rob Mannion G3XFD looks at a classic 144MHz down-converter design. The v.h.f. down-converter was once very popular with 144/430MHz enthusiasts...and Rob's planning a 4 metre version.

Last month I was discussing the merits of becoming familiar with the multiplying oscillator chain - to provide a suitable local oscillator (l.o.) for a v.h.f. converter. The idea behind the encouragement was suggested in the full knowledge that very many modern day radio constructors have never tried the technique!

However, please don't think I'm criticising today's constructors. I'm not! Instead, the reason why constructors are unlikely to be familiar with oscillator-multiplier chains is that for many purposes nowadays - they're not strictly necessary.

Instead, quartz crystals and the appropriate techniques simplify the circuitry. An additional bonus is that the crystals are not expensive and

relatively simple equipment is required for setting up. So, the modern constructor looking for ease-of-construction doesn't have to look very far for a simplified local oscillator and (minimal) multiplier chain.

## Polite Criticism

I'm always pleased when feedback arrives (especially on technical matters) in the office from readers even when it comes in the form of very polite and helpful criticism! However, in the case I'm going to discuss I went to the critics instead of them coming to me!

The subject of local oscillators and multipliers chains surfaced during my visits to the **Oldham Radio Club (ORC)** and the **Rochdale QRP Mini Convention** in October. It was then that several readers - one in particular - gently chided

me for suggesting multiplier chains and not adopting the straightforward v.h.f. crystal techniques. In fact, we had a long and interesting discussion on the matter and I hope we went our separate ways understanding the reasons for our individual decisions. Altogether I felt that the conversations were very amicable and extremely useful.

The reader I'd met at the ORC rightly pointed out that a suitable crystal (around 42MHz) was available from a *PW* advertiser from stock. With such a crystal anyone building a 70 to 28MHz down converter (the most convenient band to use as a tuneable intermediate frequency in my opinion) only had to build a local oscillator. No oscillator multiplier chain would then be required.

Following the discussions I thought it would be a good idea to further explain the reasons behind my approach. I hope readers will then understand I'm aiming to make the pathway forward (to the eventual construction of simple transmitters and receivers) much easier rather than more difficult!

## The Recycling Approach

As I explained to my critics - one of the reasons why I try to avoid the 'buy new' approach is because Radio Amateurs (especially those keen on homebrew) are keen recyclers of radio components and equipment.

I think the following short story - often featured during my *PW* club visits - will help! It goes like this: Imagine if you will, a street somewhere, just after tea-time. It's not quite dark and the road is virtually empty. The only thing in sight on the road is a rubbish skip overflowing with builder's rubbish (wood off-cuts, copper wire, hardboard, lengths of conduit...you name it, it's there).

Very soon a man walks past, side steps carefully to avoid the

length of 30A twin core and earth trailing from the skip, glances quickly at the cornucopia of surplus material and walks on into the deepening gloom. He's not a radio enthusiast.

A few moments later another man appears - and stops. He's fascinated and soon fills boxes with off-cuts of wire, aluminium panels, wood and conduits. In fact he re-appears 20 minutes later with a wheelbarrow to complete his collection. He's the radio enthusiast - one of the breed who pioneered technical-recycling.

Incidentally, have you ever noticed all the desirable things in skips are always on top? This is done deliberately by builders so that they have fewer skips to be emptied (and paid for - don't forget that governments - always keen to earn extra income - now tax us for producing rubbish!).

The rubbish that can only be used for landfill will be always at the bottom of the skip. We then help by continually removing the top layer of 'goodies' so they can concentrate filling the skip with the real stuff! In fact, very often nowadays you'll find a 'Please Help Yourself' sign clearly displayed on or near a skip.

Fully realising that most of us who are involved in the radio hobby are natural technical recycling enthusiasts...I will always do my best to help the avid followers of Radio Basics (RB) to avoid accidentally releasing the captives moths from their wallets and purses. However, if you ever have to buy special components I've no doubt they'll be used many times for different projects!

Another important reason for encouraging RB readers to familiarise themselves with oscillator multiplier chains is that for simple transmitters - the technique is really the only viable method of generating a signal on the wanted v.h.f.

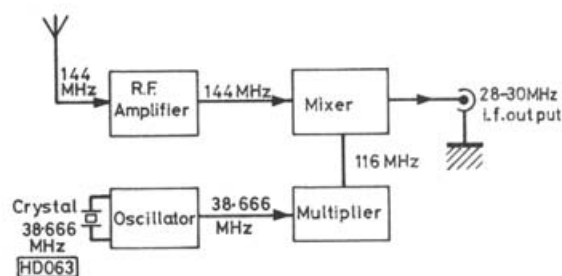


Fig. 1: Block diagram of the 144MHz. converter which is discussed this month. Note that the project employs a 38.666MHz crystal. The local oscillator output is then frequency multiplied to provide 116MHz. This signal is then 'mixed' with the incoming 144MHz signals to produce an intermediate frequency of 28MHz (see text).



## TO EXPLORE VHF CONSTRUCTION TECHNIQUES

frequency. So, if you've had some experience in building and ironing out problems with multiplier chains for receivers/converters you'll be halfway there!

### Typical Converter Design

Because the techniques I'm encouraging RB readers to use were the norm 20 or so years ago I looked back in the *PW* archives to find a suitable, typical converter design. By an extraordinary coincidence the project I eventually selected, was designed by **Tony Nailer G4CFY** in October 1978. The coincidence comes from the fact that one of Tony's modern v.h.f. products actually features

elsewhere in this issue of *PW* (pages 28 and 29).

The 144 to 28MHz converter's block diagram appears in **Fig. 1**. The accompanying circuit diagram is shown in **Fig. 2**.

The converter illustrated in the diagrams is of particular interest for purposes because of the 28MHz intermediate frequency output and the fact it uses a 38.666MHz fundamental crystal.

However, despite the fact we're mainly interested in the oscillator circuitry, I'll run through the basic circuit so that you'll be ready for the RB 70MHz converter project! Incidentally, provided you had all the active devices (40673s

are difficult to find nowadays\*) the converter would still perform exceptionally well. My own version still works after nearly 25 years!).

**\*Note:** Possible substitutes are 2N201/MFE201/BF690/961/981.

The 144MHz antenna input is to L1 via TC1 and the Tr1, a 40673, provides approximately two and a half times gain. The mixer device, another 40673, is provided with the incoming 144MHz signals and the 116MHz local oscillator signal (this is coupled into Gate 2 of Tr2 from L7 via C5).

The resultant i.f. of 28MHz is then filtered out via L4, C8 and 9 and C11.

Of particular interest to RB

readers (and the main reason for featuring it in this article) is the simple multiplier chain/circuitry which comprises mainly L5, Tr4, L6 and 7. The circuitry is not difficult to understand and in practice it's very straightforward indeed.

Incidentally, Tony G4CFY provided an excellent description of the converter's action and operation. To help readers - and to evaluate how much interest there is - I'll be pleased to provide RB readers with a free photocopy of the original article from October 1978.

To get your free photocopies - please send me an A5 envelope (A5 is half the size of this page and takes A4 pages folded in half) s.a.e. envelope, with a 50p stamp. **Please - no small letter envelopes - A5 size only. No envelope (or wrong size), or no stamp means no free photocopy!**

Mark your incoming envelope as 'Radio Basics December 2003' and send it to the editorial address in Broadstone. We'll then send the photocopied article information to you.

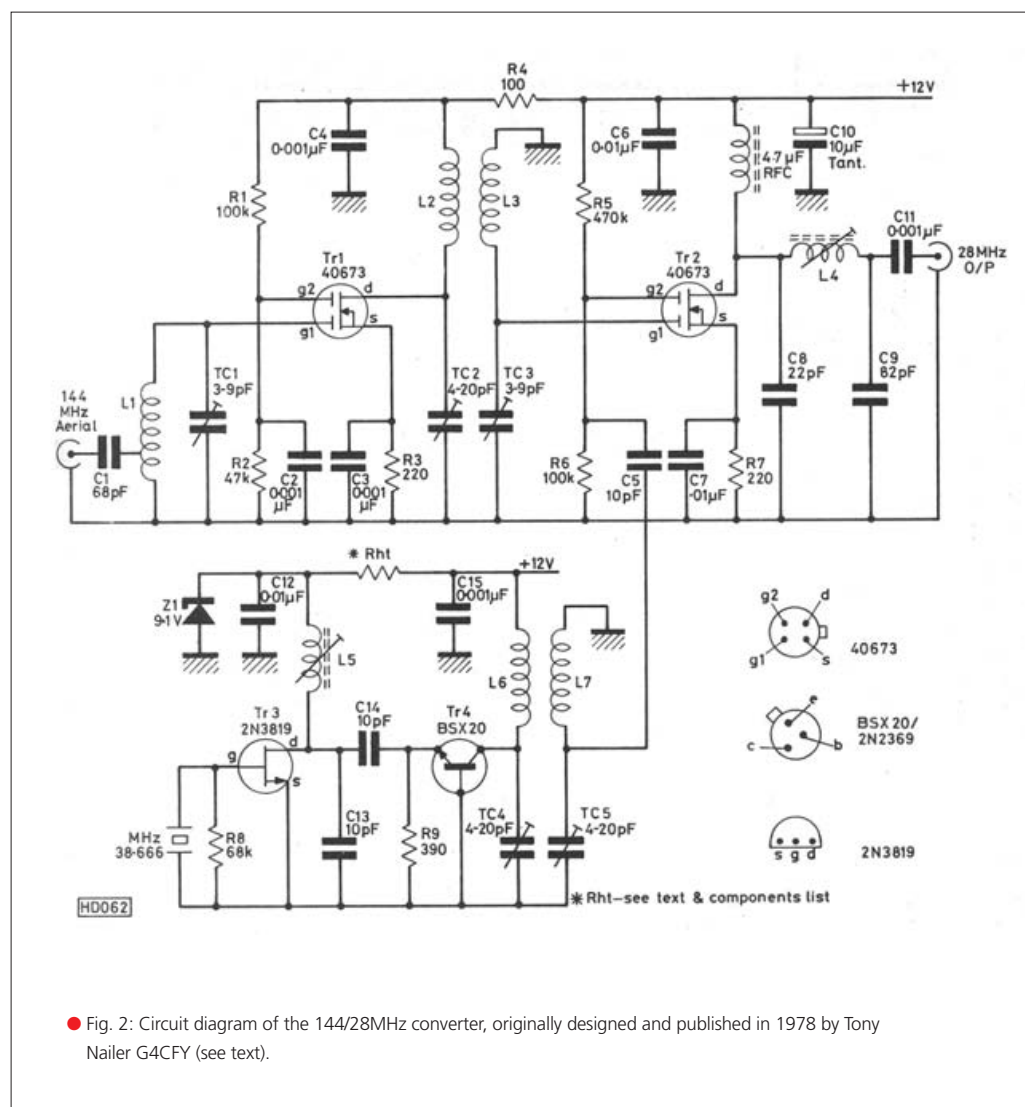
### The Next Stage

Once you have practised using crystal oscillators and multiplier stages - and have seen the 144MHz m.o.s.f.e.t. converter design featured in Fig 1 and 2, we'll be ready to start work on the RB 70 to 28MHz converter.

The 70MHz converter will use my usual simple approach and I've already built two prototypes using the Copper Island Construction system (produced by **Duncan Walters G4DFV**). The process was remarkably easy and the converters worked first time.

So, I look forward to launching you onto 'four' very soon. In the meantime...get that soldering iron out and get busy!

*PW*



● Fig. 2: Circuit diagram of the 144/28MHz converter, originally designed and published in 1978 by Tony Nailer G4CFY (see text).

# The Practical Wireless 14

It's QRP contest result time! Dr. Neill Taylor G4HLX has the news contesters have been waiting for, just how well did you do this year? Read on and find out!



● The team photographed here hope that more PW contesters will beam towards Holland next year! This photograph shows the crew behind PI4ALK/P who also enjoyed a warm and sunny day on the Dutch coast. Photographed (left to right) are Ger PA1VW, Kees PA3EEQ, Age PA0XAW with Jaap PA5JD on the microphone.



● The Clifton Country Club ARS operated M0BPQ/P from alongside the B269 near Tatsfield in Surrey in gloriously hot weather!



● Keith G4THE/P, operating from an idyllic location - near Biggin Hill, Kent - in ideal weather!

## Thank You Neill G4HLX

Once again it's my pleasure to offer a hearty "Thank you" to **Neill Taylor G4HLX** for his hard work, enthusiasm and dedication in running the *Practical Wireless* 144MHz QRP Contest. Without him, the contest he originated and has organised for 20 years would be lost! As a leisurely participant myself I share in the delightful day out but realise the event requires much work for Neill and his family throughout much of the year. Hopefully, we'll have better v.h.f. conditions next year on Sunday 20 June to make the 21st annual contest something to remember. Thanks again Neill, and here's to 2004!

**Rob Mannion G3XFD**

A bumper entry was received for the 20th PW 144MHz QRP Contest. A total of 79 individuals and groups sent in entries and another four sent check-logs. The day of the contest, 15 June, brought fine weather to practically all parts of the UK, so portable hill-top stations had a pleasant day. Propagation, while not exceptional, was certainly good enough for many stations to make contacts over very good distances.

Several stations did very well and produced impressive scores. Careful log-checking was necessary to separate the stations near the top of the results table but one emerges as the clear winner: **Tim Boon M0AFC/P**, for the second year running. From his hilltop site in the Fells of Lancashire, Tim's excellent single operator entry again wins him the PW QRP Contest Winners Cup and also a special v.h.f. orientated prize of donated by **Mike Devereux G3SED of Nevada**.

The 2003 Runner-up was **Erik Gedvilas G8XVJ/P**, of the **Warrington Contest Group**, operating in the hills above Leek, Staffordshire. Erik had been a member of this group when they won the contest in 1996. Now he returns, operating on his own, and comes close to taking the title again - another eight contacts would have done it! He wins the second prize of a Solar Panel donated by **Bob Keyes GW4IED of Key Solar Products**.

Close behind in third place is a team who call themselves the **Salisbury and District Grand International Transmitting Society**, apparently attracted by the acronym, **SADGITS!** They are **Martyn G4RLF, Martin G8OFA and Bob G3ZNH**, operating on Win Green Hill, south Wiltshire (right on the border with Dorset).

Martyn was a frequent and successful entrant to the contest, from the same site, back in its earlier years (up to 1991). In fact he was the runner-up of the very first contest in 1983, so it's good to see him back again.

## No GW In Top Three!

This is the first time for 12 years that there's no GW station in the top three positions! It's in fourth place that we find **Dave Hewitt GW8ZRE/P**, last year's overall Runner-up, again leading the Welsh entries. From Eire and Northern Ireland, the leading station is **John O'Sullivan, EI6ARB/P**, who for the second successive year wins the PW EI/GI Trophy Clock, donated by our Editor **Rob G3XFD**.

In Scotland, there's a new winner of the **Tennamast Trophy in Memoriam to Frank Hall GM8BZX**, donated by **Tennamast (Scotland) Ltd**. The winner is the **Forth Valley Contest Group (FVCG) MM0FVC/P**, which comprises **Colin GM0CLN, John MM0CCC, Robert MM0ANT and GM0FZM**.

Individually the operators of MM0FVC/P are not newcomers to the QRP Contest. But together in this

# 144MHz QRP Contest 2003

new group they put in much effort to achieve the highest score by a Scottish station since 1990!

**David GM4WLL/P**, winner of the Tennamast Trophy in the previous three contests, gives his view on how FVCG managed their win: "The mad beggars climbed a mountain the night before, carrying all their gear in backpacks and in their hands, slept in a mountain rescue booth and set up on the peak of Great Cheviot the next day. It's an honour to be passing the Tennamast Trophy on to such a dedicated group!"

Colin GM0CLN explains: "New contest group, new site and many newly aching muscles! This PW entry was great fun but also a lot of work. The idea to climb to such an elevated site came initially from the enthusiasm of John MM0CCC who had been there before".

The site, at 740 metres above sea level (a.s.l.), certainly worked well for them. After returning home they got together to consider how it had all gone "the conclusion", writes Colin..."was that we had all enjoyed it immensely. Will we do it again? Ask us that question in a few months when the memory of our aching muscles has faded a bit!"

I should add that the FVC group are not the only ones who endure a long climb to their mountain-top site. For some operators, this is what 'backpacking' radio is all about. Someone who does this year after year is **Charlie Jordan GW0PZO/P**. Again this year he was on the summit of Moel Famau, 550m a.s.l.

**Tom Harrison GW3NHQ/P**, was at the summit of Snowdon, 1085m a.s.l. But I'm not sure if he walked all the way or used the Snowdon Mountain Railway!

## Summary Tables & Results

The summary tables of results and leading stations shown here are supplemented by a full detailed results table that can be seen on the contest website, [www.contest.org.uk](http://www.contest.org.uk)

All the leading stations, including leaders in each locator square, will automatically receive a certificate. In addition, any entrant who sent in the corner flash coupon printed with the rules will be sent a certificate to recognise their efforts and record their position in the results. These certificates have been kindly sponsored by **Chris Rees G3TUX**. (Just before publication of this issue of PW - Chris G3TUX announced the closure of his Amateur Radio business. However, he still wishes to continue sponsoring the certificates and will do so until PW's next significant (75th) anniversary. Thanks for your support Chris! **Editor**).

As usual, many stations lost some points due to errors found in the logs during the cross-checking process. In most cases the number of points lost was small, as the standard of logging and the accuracy of information exchange is generally high.

However, a few entrants will find that they've lost a

substantial part of their score. I suggest that next year they take more time over confirming the information recorded for each QSO, and also check the log for errors before submitting it - one station near the top of the table contained not only a number of errors, but also two unmarked duplicate contacts, for each of which the penalty is a deduction of 10 from the number of QSOs.

Unfortunately, this station's position in the results table suffered significantly as a result.

Check logs from non-entering stations are always useful to the adjudicator. **Mark Gray G8AWO** was one of the four who provided a check

## RESULTS



● Members of the incredibly keen Forth Valley Contest Group who operated at MM0FVC/P for the 2003 contest and won the Tennamast Trophy in Memoriam to Frank Hall GM8BZX, donated by Tennamast (Scotland) Ltd. The intrepid operators are photographed a few hundred metres from their site at Auchope Cairn, 726 metres a.s.l., after the contest and on the long descent homewards! Pictured (from left) are Keith GM0FZM, Colin GM0CLN, Robert MM0ANT and John MM0CCC.

**Table 1: Overall placings in the 2003 PW 144MHz QRP Contest**

Pos	Callsign	Points	Pos	Callsign	Points
1	M0AFC/P	7099	41	G0UYC	774
2	G8XVJ/P	6864	42	G8XQS/P	765
3	G4RLF/P	6072	42	G3MAE/P	765
4	GW8ZRE/P	5824	44	G0TOO/P	756
5	M0CUS/P	5250	45	G3YJR	752
6	GW0PZO/P	4524	46	M3LNU/P	736
7	GW7LQD/P	4393	46	MX0TRG/P	736
8	G0WRS/P	4150	48	G4TJE/P	728
9	G8PNM/P	3625	49	EI6ARB/P	720
10	G7WAY/P	3575	50	G1ORC/P	704
11	M0BPO/P	3510	51	M3RNA/P	675
12	G1WOR/P	3425	52	M5PDL/P	650
13	G8NJA/P	3321	53	G3HIU/P	644
14	G0HAS/P	3219	54	G1TZC	630
15	M0WEN/P	3168	55	G1OWA/P	574
16	MM0FVC/P	3013	56	M3VAM	525
17	G2HDF/P	2583	57	2E1IOW/P	504
18	G0GDL/P	2520	57	M0BHE/P	504
19	G3BPK/P	2376	59	G8LED/P	480
20	G1WKS/P	2304	60	G4VFG/P	465
21	G0OVA/P	2254	61	EI3ENB/P	442
22	G2CP/P	2156	62	G7TUA/P	407
23	G3RIK/P	2080	63	G4IPE/P	384
23	G3XNO/P	2080	63	G4BJO	384
25	GM4WLL/P	1880	65	2E1SBF	380
26	G4BWW/P	1824	66	M3UBM	372
27	G8EAM/P	1560	67	G7NBE/P	370
28	M0UKR/P	1491	68	G4LQL/P	324
29	G4NVM/P	1330	69	PI4ALK/P	312
30	G4VRC/P	1218	70	G0LJD/P	264
31	G5ZG/P	1062	71	2E1GUA	198
32	GW3NHQ/P	1045	72	M0DCY/P	171
33	G0EYX/P	1008	73	M3JMO/P	168
34	G3VGG/P	975	74	G7SOZ/P	140
35	G0VIK/P	918	75	G6YYU/P	108
36	M0EQD/P	896	76	G0NWT	78
37	G6WIR/P	848	77	G7NZO	60
38	G7HAH	833	78	G7DSU	56
39	G0JVR/P	800	79	M3KGC	20
40	G3YNN	799			

**Table 2: Leading multi-operator stations**

Pos.	Name	Callsign	Score	QSO	Sq	Loc	Ant	asl(m)	Tx/Rx
3	Salisbury and District Grand Int'l Transmitting Soc.	G4RLF/P	6072	184	33	IO80	6Q	275	TS-770
5	Coventry Contest Group	M0CUS/P	5250	175	30	IO92	10Y	200	IC-706II
7	Mike Baguley & Peter Lowrie	GW7LQD/P	4393	191	23	IO82	2x9Y	360	IC-275E
8	Warrington ARC	G0WRS/P	4150	166	25	IO83	12Y	375	IC-706IIG
11	Clifton ARS Country Club	M0BPQ/P	3510	135	26	IO91	2x9Y	260	FT-847
12	Worthing & District ARC	G1WOR/P	3425	137	25	IO90	13Y	190	IC-275H
13	Torbay ARS	G8NJA/P	3321	123	27	IO80	2x17Y	340	FT-736
15	The DX Druids	M0WEN/P	3168	132	24	IO93	17Y	415	FT-290R
16	Forth Valley Contest Group	MM0FVC/P	3013	131	23	IO85	17Y+4Y	740	TR-751E
17	Midland Contest Group and Radio Enthusiast Soc.	G2HDF/P	2583	123	21	IO82	12Z	200	FT-290R

**Table 3: Leading single-operator stations**

Pos.	Name	Callsign	Score	QSO	Sq	Loc	Ant	asl(m)	Tx/Rx
1	Tim Boon	M0AFC/P	7099	229	31	IO84	13Y	430	FT-847
2	Erik Gedvilas (Warrington Contest Group)	G8XVJ/P	6864	208	33	IO93	3x17Y	490	TS-780
4	Dave Hewitt	GW8ZRE/P	5824	208	28	IO83	7Z+12Z	560	TR-751E
6	Charlie Jordan	GW0PZO/P	4524	174	26	IO83	9Y	550	FT-290R
9	Nick Cocking	G8PNM/P	3625	145	25	IO93	9Y	355	FT-225RD
10	Stuart Foster	G7WAY/P	3575	143	25	IO92	14Y	320	FT-847
14	Adrian Jordan	G0HAS/P	3219	111	29	IO80	13Y	300	TR-9000
18	Mervyn Rodgers	G0GDL/P	2520	126	20	IO93	9Y	360	IC-202
20	Michael Wright (West Kent ARS)	G1WKS/P	2304	96	24	JO01	2x9Y	145	FT-817
21	Tony Crake	G0OVA/P	2254	98	23	IO91	9Y	70	IC-706IIG

**Table 4: Leading stations**

Category	Name	Callsign
Overall Winner	Tim Boon	M0AFC/P
Runner Up	Warrington Contest Group	G8XVJ/P
Leading Multi Operator	Salisbury and District Grand International Transmitting Soc.	G4RLF/P
Leading Fixed Station	Finningley ARS	G7HAH
Leading English Station	Tim Boon	M0AFC/P
Leading Welsh Station	Dave Hewitt	GW8ZRE/P
Leading Scottish Station	Forth Valley Contest Group	MM0FVC/P
Leading Eire Station	John O'Sullivan	EI6ARB/P

log - he had intended to enter, but due to a computer problem, he writes..."the logging software did not record the all of the locator details so obviously I cannot put an entry in this year".

**Frank Laanen**

**PE1EWR**, frequently an entrant in previous years, was another supporter: "As conditions were not as good as I hoped for, I decided to use the amplifier and go for full power. I hope most entrants enjoyed some strong signals from PA". (I'm pleased to say that 39 stations were grateful for a QSO with Frank, to get JO11 square).

The other check logs were from the **Aviators Contest Group**, **G7JVJ/P** and our dear editor, **Rob G3XFD/P**, who seemed to enjoy himself.

## Father's Day Treat

**Mike GW7LQD/P**, who again had **Peter GI7JYK** as co-operator, refers to the day as "my usual Father's Day treat, out playing radio". When Peter is operating, Mike tries to find ways of encouraging him: "We had the benefit of a cool box full of bottles of chilled water and during Peter's operating stints, I rationed his supply of water, based on the number of contacts he made! My old favourite still worked wonders, a prod with the sharp end of a golf umbrella still helps find extra QSOs"! (In a quite separate E-mail, Peter tells me..."yes, he did poke me again"!).

Mike also mentions a worry that might trouble

many operators who regularly use the same favourite site year after year: "An arrangement I have had for years with a farmer down there ensures an off-road site and plenty of space to throw up antennas. There is, however, sufficient room to park at the edge of the road and operate. I always worry that I will arrive and find someone on the roadside. During setting up, a car with antennas on roof bars, sped up the hill past us, did a U-turn and raced back down again. So maybe it was a close thing!"

Mike's comment has highlighted the possibilities of 'site clashes' because elsewhere, this problem led to a real conflict between two stations (I'll not reveal their identities but call them **A** and **B**) and provide the facts behind the incident.

When **A** arrived at his site, which he has used many times in recent years (in other contests as well as the **PW QRP**), he found that **B** was already set up there. Despite this, **A** decided to go ahead and set up his own station just a short distance away (maybe 200m).

While he was setting up, **B** came to ask him to move to another site to

avoid de-sense. But both decided to go ahead and had to endure extreme QRM for the whole day. I have received complaints from both **A** and **B** about the other's behaviour. Both were indignant - no doubt **A** feels that it's 'his' site, whereas **B** was on site first on the day and so claims the right to it.

From the viewpoint of the Adjudicator it's hard to know who to sympathise with in this case. On the one hand, no-one owns the right to a particular site if it's public access land, so you might say whoever arrives first has the use of it.

On the other hand, it wouldn't seem fair for someone to look up the location used by a repeatedly successful contest station and take over the use of the site merely by arriving early. The only way to avoid this would be to require entrants to register their intended site with me in advance, so conflicts would become obvious. But this would be extra work and might put off some stations who decide whether and where they are taking part rather late in the day.

Instead, I continue to offer the advice that is always given within contest rule **No. 7**: "Take reasonable precautions to avoid choosing a site which another group is also planning to use. It's wise to have an alternative site available in case this problem does arise".

In the incident I've mentioned, **B** did not heed the first of these sentences, and **A** did not heed the second.

## An Interesting Topic

Another interesting topic arises from the **A&B** conflict. The two stations operated around 200m apart for all seven hours but one made more than four times as many contacts as the other!

So clearly, one of the stations had a receiver that was more tolerant of an extremely strong signal than the other. There may be other factors - perhaps one had an antenna with a cleaner radiation pattern - less side lobes to pick up the local signal when trying to beam away.

**MAKE  
SURE YOU  
JOIN IN  
THE FUN  
NEXT YEAR  
ON  
SUNDAY 20  
JUNE 2004!**

However, the results should remind us of the importance of the strong signal handling performance of a receiver used in a contest - **even a QRP contest** - as everyone is likely to encounter strong signals, even if we don't have a competitor just down the road.

Don't forget that even at a distance of some km away, a 3W signal to a high-gain antenna pointing at you over a line-of-site path will be enough to seriously challenge the receiver. **Martin G8XQS/P** suffered from this: "A disappointing day. Massive QRM for first four hours from another station only an unobstructed 5km away".

One way to seriously degrade the strong signal handling performance of your receiver is to insert a pre-amplifier in front of it. **Dave GW8ZRE/P** discovered this to his cost: "Fitted a pre-amplifier this year", he writes, "what a mistake! Overload of signals - only when I turned it off did I realise why the QSO count was down".

Signal overload was the problem for **G8XQS/P** too: "My transceiver with a permanently-on pre-amplifier were unable to cope with the strong signals".

Again from the Adjudicator's point of view I can only repeat what is always written in the contest rules: "*The use of a high-gain r.f. pre-amplifier is likely to worsen strong-signal problems, so if you do use one, it's best to be able to switch it off when necessary*".

In my opinion it's really only worth using an additional pre-amplifier if it has a significantly better noise figure than your receiver front-end, and it is essential that it adds little or no extra gain to the stage(s) before the first mixer. You should either switch off the internal r.f. stage, if possible, or have sufficient attenuation at the output of the pre-amplifier itself.

A pre-amplifier at the masthead can be valuable to overcome feeder losses, but the overall gain added to the system must be very small or zero. You have been warned (**again**)!

## Propagation Not Exceptional

Propagation during the 2003 contest was not exceptional in the most part. However, some stations in the south noticed a short spell of sporadic-E around the middle of the day. **Rob G3XFD/P** was one: "I heard several incredibly strong French, Italian and Spanish s.s.b. stations but did not work them" he said.

In fact very few stations managed to make QSOs with the DX. For others, the lift came too late including **G4VRC/P** who lamented... "15 minutes after the end of the contest we worked HB9RDE"....(at a distance of almost 700km).

"We think conditions were a little better than last year", writes **PI4ALK/P** "some signals were booming in when they turned the beam to Holland. More UK stations should do that next time and we hope they will".

## First Taste

As usual, there were a number of operators having their first taste of v.h.f. contest operating. And as always there are newcomers expressing their surprise by what they achieve with just 3W at a good site. **Keith G4TJE/P** was one: "This was my first portable contest and I enjoyed it very much. The weather was very warm, which made it even better".



● Peter G17JYK operating GW7LQD/P - photographed by GW7LQD himself. It appears that this must have been the point the Peter had to be 'prodded' awake again! (see report).



**Colin 2E1SBF** also found it a rewarding experience and writes, "I

would just like to say how much I enjoyed taking part in the contest. Although this was my first contest and I made a few mistakes at the beginning, the contacts that I made were very helpful to me. As a disabled operator I have to work from home and cannot go portable, up hills and so forth, so I was very happy with the contacts that I made, especially those across the North Sea. I had some really good contacts".

And finally, another newcomer was **Barry 2E1IOW/P**: "This is the first contest I have entered. I am a very new 2E1 having passed at the second pilot test held at the Isle of Wight Radio Society on the 31 March 2003".

Incidentally, 2E1IOW/P was a station that our Editor, Rob G3XFD/P, spent some time listening to and he was highly impressed by the standard of operating of this and other Intermediate Licensees. He comments "of particular note - I would like to single out one Novice station for mention. The Isle of Wight station was a credit - made me feel proud of being a Radio Amateur".

The Editor's comment is a fine, positive note on which to end this report. It just remains for me to announce that the next

**Practical Wireless 144MHz QRP Contest will be on Sunday 20 June 2004.**

It's **never** too early to start making your plans and looking for improvements to make to your station. Look out for the contest rules in *PW* next year, and keep an eye on the website **www.contest.org.uk** for other information.

*PW*

● Members of the Forth Valley Contest Group (MM0FVC/P) receiving the Tennamast Trophy In Memoriam to Frank Hall GM8BZX, presented by Heather Gregory of the British Heart Foundation. The presentation took place at the Cockenzie & Port Seton ARC's annual junk sale. Unfortunately, Norrie and Rose Brown of Tennamast were unable to attend the presentation this year and Heather Gregory kindly agreed to present the trophy. (The C&PSARC regularly raise money for this charity). Photograph courtesy of C&PSARC.

**Table 5: Leading station in each locator square**

Square	Name	Call	Entrants In square
IO62	Paul Norris	EI3ENB/P	1
IO63	John O'Sullivan	EI6ARB/P	1
IO64	Gerard Elliott	GI4OWA/P	1
IO70	John Rule	G0JVR/P	2
IO73	Tom Harrison	GW3NHQ/P	1
IO80	Salisbury and District Grand	G4RLF/P	6
IO62	Paul Norris	EI3ENB/P	1
IO63	John O'Sullivan	EI6ARB/P	1
IO64	Gerard Elliott	GI4OWA/P	1
IO70	John Rule	G0JVR/P	2
IO73	Tom Harrison	GW3NHQ/P	1
IO80	Salisbury and District Grand International Transmitting Soc.	G4RLF/P	6
IO81	The John Newton Memorial RC	G8EAM/P	2
IO82	Mike Baguley and Peter Lowrie	GW7LQD/P	4
IO83	Dave Hewitt	GW8ZRE/P	6
IO84	Tim Boon	MOAFC/P	4
IO85	Forth Valley Contest Group	MM0FVC/P	3
IO90	Worthing and District A.R.C.	G1WOR/P	4
IO91	Clifton A.R.S. Country Club	M0BPQ/P	6
IO92	Coventry Contest Group	M0CUS/P	6
IO93	Warrington Contest Group	G8XVJ/P	11
IO94	Scarborough A.R.S.	G2C/P	3
IO95	Martin Chapple	G8XQS/P	1
JO00	G3YNN	G3YNN	1
JO01	West Kent A.R.S.	G1WKS/P	9
JO02	Alex Rowley and Mark Tuttle	M0UKR/P	8
JO03	Eagle Radio Group	G4IPE/P	1
JO22	VERON - Alkmaar section	PI4ALK/P	1

# A 70MHz Experience

Using The Spectrum Communications 28 to 70MHz Transverter and Sandpiper 70MHz 3-element Yagi Antenna.



● The Spectrum Communications TRC4-10iL 28MHz i.f. transverter now forms the basis of G3XFD's 70MHz station. In the article Rob explains how easy the unit is in use, along with the pleasure he experienced during the purchasing process!

**A**s regular readers will be fully aware - I've been enjoying myself up on 70MHz recently. In fact, I've enjoyed the band so much that my creaky old G3 wallet has been opened and specialised equipment has been purchased!

My normal frugal approach was soon overcome by an eagerness to buy when I heard just how successful the modern transverters are. Looking on the various 70MHz chat groups and talking to friends left me in no doubt it would be best to buy a **Spectrum Communications** transverter. This company, owned and operated by **Tony Nailer G4CFY** in Dorchester, is only 20 miles or so from the *PW* offices in Broadstone, near Poole.

## No Hesitation

So, I had no hesitation ordering equipment from Spectrum and the transverter was soon ordered. Discussing the choices over the telephone with Tony G4CFY I opted (my favourite choice anyway) for his 28 to 70MHz transverter, **Model TRC4-10iL**, heading photograph and **Fig. 1**, and **2**.

The transverter specifications stated a maximum of 5W drive for a 25W output. The cost was £225 including P&P, and Tony G4CFY quoted me a two week delivery time as he would build it to order. I then sent my cheque and was

then **most impressed** when, two weeks later (to the day!) my transverter arrived at the *PW* offices.

Incidentally, I think it's very much worthwhile mentioning that my cheque for £225 **was not debited from my account until after I had received the transverter**. (There can't be many specialist equipment suppliers who operate in similar fashion. It was a truly ethical approach and I for one admired and appreciated it very much indeed).

## The Transverter

The transverter, **Fig. 1** and heading photograph, is fitted into a practical, dark grey stove-enamelled leatherette finish painted aluminium casing, with silver control knobs. It's a simple approach and provides a neat looking, hard wearing, versatile and lightweight unit.

The transverter also turned out to be deceptively efficient and a delight to use. On the air it was extremely easy to operate and did everything the designer claimed!

Once equipped with the transverter, all the operator has to do is to connect it between the 28MHz 'driving rig' and connect the 70MHz antenna. In practice you'll be tuning over the 28MHz band where 'down converted' 4 metre signals will be found. On transmit the transverter 'up converts' the outgoing transmissions

from 28 to 70MHz.

My trusty old Trio TS-120V ended up as the 28MHz i.f. unit. This was because - as a heavier rig than my /M (fitted) Alinco DX-70TH - it 'sat' better on my car dashboard. I also preferred the continually variable power output control for this mode of operation.

The individual calibration (dated 15 September 2003) on the underside of the transverter advised me that the measured output power was 35W. The receive gain had been measured as being 12dB.

On the air my new transverter proved to be an excellent performer. The receiver side coped extremely well with high field strengths from my 25W 144MHz f.m. transceiver when I was working cross-band during antenna set-up experiments.

The best DX worked so far has been to EI, with one contact to the north west. Most QSOs have been with stations in the southern half of England. Everyone I've worked has commented that the transmissions seem very 'clean' - even when I was approaching the maximum drive input levels.

While working on 70MHz I only came across one little problem and this involved the transmit-receive 'Hang Time'. I found that on some QSOs (notably those with stations not using transverters) the delay returning to receive from transmit led to the loss of the first few syllables of speech from the other station.

On enquiry, Tony G4CFY pointed me in the direction of a trimmer potentiometer (trimpot) on the interface board. It's easy to adjust and this information will now be included on the transverter documentation.

Incidentally, although he's a consummate radio engineering professional, Tony G4CFY's Amateur Radio background showed up when we discussed the transverter's active devices. He explained to me that the power amplifier driver transistors (they have unusual part number references) were sourced from a specialist supplier who didn't know exactly what they did! Tony soon proved they were excellent for v.h.f. use, he bought a large stock and they now work well in the transverter - very much to our benefit.

The p.a. on the TRC4-10iL is another bi-polar transistor - the MRF 238. The specifications provided by Spectrum state that the p.a. is "Capable of withstanding long periods of transmit into a bad s.w.r."...! And although this is reassuring I'm sure I didn't put it to the test!

Rob Mannion  
G3XFD has been  
busy on 4 metres.  
To share the  
pleasure...and to  
encourage *PW*  
readers to join him  
- Rob describes  
the equipment  
he's now using.



● Fig. 1: An inside view of the TRC4-10iL 28 to 70MHz transceiving converter (transverter). Each well made unit is made-to-order on a two week schedule. The transverter ordered by G3XFD arrived exactly 14 days after he ordered it! (see text).



● Fig. 2: Rear panel view of the 70MHz transverter showing power (top left), antenna (lower left) and transceiver (right) connections. The heat-sinking is more than adequate for the single bi-polar transistor power amplifier (p.a.). Each unit comes with an individual calibration for transmit power and receiver gain.



● Fig. 3: The Sandpiper 3-element 70MHz beam antenna arrived in a kit of parts and G3XFD recommends you "don't drop them in long grass"! (see text).



● Fig. 4: Close up view of the main element boom clamps (mid right) and the new 'Trombone' type Gamma match unit and clip (see text).

Photography kindly supplied by Philip Yates G7BZD

## Spectrum Communications

Tony Nailor G4CFY provides a wide range of specialist v.h.f./u.h.f. equipment for the Radio Amateur. Contact details:

**Spectrum Communications, 12 Weatherbury Way, Dorchester, Dorset DT1 2EF. Tel:/FAX (01305) 262250.**

**E-mail [tony@wway.screaming.net](mailto:tony@wway.screaming.net)**

**Website (comprehensive information provided):**

**<http://members.lycos.co.uk/spectrum/>**

## Sandpiper

This friendly company manufactures and sell a wide range of antennas for the Radio Amateur (h.f., v.h.f. and u.h.f.). For further details see their advert in this issue. **Tel: (01685) 870425, FAX: (01685) 876104.**

## Sandpiper 70MHz Yagi

The antenna I decided to use for my 70MHz operations is the **Sandpiper 3-element Yagi**. The reason I chose this antenna was again through personal recommendations. The advice I received from other 4m enthusiasts was that Sandpiper's 70MHz beam was well made, robust and not expensive at £45 plus £10 P&P! (Although you can save the P&P by buying it from their rally stand).

Sandpiper duly provided me with the antenna I'm now using and it arrived, **Fig. 3**, in ready-to-assemble form. The photograph, **Fig. 4**, provides a close-up view of the main boom element saddles and the 'Trombone' type gamma match with the shorting clip (bottom centre).

The whole assembly is well-made and nicely finished. In fact, the element saddles were so close tolerance I couldn't mount them in place **over** the bolt holes - instead they had to be slid on from the ends into the correct locations (I was impressed!). And once the nuts were attached - the elements were extremely secure on the boom - literally ready for any weather.

Setting up the gamma match 'trombone' (I did this with the antenna at about 4 metres above ground) was simple. Just getting the mast up and down provided the hard work! But the adjustments to achieve 1:1 s.w.r. were easy to achieve.

Sandpiper provide heat-shrink tubing so that the trombone can be set into place after adjustment.

**Note:** Take care not to drop any of the fixing nuts in long grass (as I did!). Incidentally, the adjustment notes and diagram for assembly and adjusting the new gamma

match were in note form...but have now been fully prepared by Sandpiper.

The antenna can be broken down for transport and storage very quickly. Assembling it takes a little longer but even the 'digitally comprised' G3XFD can do it in five minutes!

At this point I have to confess my photography skills let me down! My shot of the antenna in use at my /P site - was spoiled by shadow due to the bright sunshine and the autumn weather has stopped me from re-shooting the photograph.

However, even though I wasn't able to use my own photography, **Phillip G7BZD** (with help from Junior Operator **Andrew M3BDA**) based in Solihull, Warwickshire kindly responded to an E-mail request to 70MHz operators. Philip had temporarily removed his 70MHz version, but the 50MHz 3-element (slightly larger of course) was placed below the 144MHz antenna on his mast. I include the photograph to provide an idea of the **physical size** of the assembled 70MHz beam which is of the same basic design. Thanks very much indeed Phil and Andrew.

## Combination On The Air

I've thoroughly enjoyed using the Spectrum/Sandpiper combination on the air. The results have been very satisfying - particularly when operating /P.

Finally, although this 'experience' is **not intended** as a full equipment review - but I hope it will encourage anyone considering 'dipping their toes in the water' to have a go on 70MHz. I'm glad I did as it's great fun.

*pw*



● Fig. 5: Included for approximate size comparisons - Sandpiper's 50MHz version of the 3-element Yagi array in use at G7BZD's station in Solihull. (see text).

# EVERYONE'S

## Club Spotlight Magazine Results 2003

On behalf of the adjudication panel, Rob Mannion G3XFD presents the results of the 2003 PW and Kenwood Club Spotlight Magazine Competition. And it seems entry standards are extremely high and 'fizzing' with Amateur Radio activity!

- The South Dorset Radio Society have won the PW & Kenwood Club Spotlight Trophy with their *Catswhisker* club magazine. They earned 46.75 points out of a maximum of 50 (see text).

Although the Club Spotlight Competition published results aren't late this year - I'm afraid that due to circumstances beyond my control the annual presentations and accompanying photography didn't take place at the Leicester Show in September. Hopefully however, we'll be able to publish photographs of the winners - with their trophies in a future issue of PW.

Various things conspired against us this year - the first being that **Hilda Rusbridge** - sister of the late **Bert Newman G2FIX** - wasn't able to be at the Leicester Show this year.

No...this gallant octogenarian wasn't skin diving in Australia this year, instead she was off on safari to Namibia in Africa! We look forward to meeting Hilda in 2004 though, adventures permitting!

The second problem arose when unfortunately, due to pressure of his professional Meteorological Forecasting work, **Jim Bacon G3YLA** had to step down from his adjudicator's post at the last minute. Although we're sorry to lose him, I'm very grateful indeed for the support Jim gave us since the competition's inception. We hope one day you'll find time to rejoin the team of judges Jim. Thanks for your support.

Some quick footwork was necessary to find a suitable adjudicator to fill the vacancy. Fortunately, **John Goodall G0SKR** accepted - he's a PW author and a victim of

'Mannion's Monday Morse' some 10 years ago. It's unfair isn't it, when you teach someone c.w. operating and he excels at it becoming far better than his instructor! That's life though and John is a keen as mustard club instructor and a wonderful ambassador for Amateur Radio. Thanks for joining the Adjudicating Panel John.

The rest of the panel includes the 'inventor' of the competition **David Barlow G3PLE**, **Dave Wilkins G5HY** from Kenwood Electronics (UK) Ltd. and **Tex Swann G1TEX** from PW. Tex kindly stepped in to take David G3PLE's place on the National Club category as David's own club entered the National Section category.

So, let's now take a look at the results this year. To put it mildly...the club magazine scene is fizzing with activity with some superb entries.

### National Category

The standard of the 2003 entries in the National Category is embarrassingly high. I say "Embarrassingly" because the six entries were so good that the adjudicators have had to award fractions of a point to distinguish between the superb magazines. Although there's only one '**Bert's Bell**' winner (**The Bert Newman G2FIX Trophy**, presented in memory of G2FIX each year) I can say with conviction

that all the entrants are winners, serving their readers exceptionally well indeed.

Maximum score in this

category is 40 points. The bold figure in brackets indicates the score awarded by the quoted adjudicator. All entrants receive a photocopy of the complete adjudication sheet, although only there's only room for brief extracts in PW.

Winner this year by the narrowest of margins was a first time entry by the **Radio Officers' Association Radio Society (ROARS)** who scored **38.75** points out of a possible **40** with their *QSO* magazine. Dave G5HY commented: "Apart from stapled format I really liked this magazine. Wonderful stories, articles and photos". (**9.5**).

John G0SKR said: "A serious magazine with humour, I could almost taste the salt in the stories" (**9.75**).

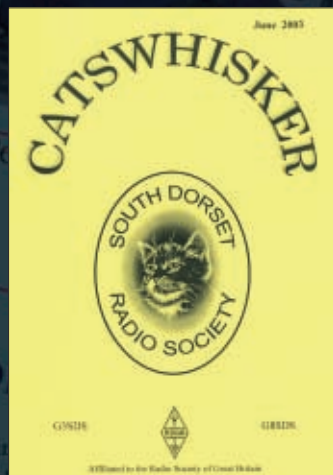
David Barlow G3PLE (a member of ROARS) did not adjudicate on the National Category - Tex Swann G1TEX took his place and commented: "I can find fault only with the single staple! A simple format hides a wealth of information within".

My comments were: "The most absorbing, enthralling specialist club magazines I've ever read. Each issue is like a novel/biography/technical magazine! Only problem is the single staple fixing. A superb winner" (**10**).

### Runner-Up

Runner-up this year was the **Benelux QRP Club** with **38.5** points for *Nieuwsbrief* (a highly respected previous years' winner). The entry drew comments from John G0SKR including: "....interesting articles, even without a Tulip in sight and the language difficulties. The standard, quality and content stand out" (**9.25**).

Tex Swann G1TEX commented "Once again filled with Amateur Radio projects,



# A WINNER!



well produced and created. I only wish my grasp of Dutch was better" (9.75).

As PW Editor, my opinion is that *Nieuwsbrief* is an encouragement to learn Dutch!

Third place was taken by **The Radio Amateurs' Old Timers' Association** magazine *OT News* which scored 38 points. Dave G5HY commented..."A first class magazine, most professionally presented. As a journal for a dispersed club it does a fine job....."

With 37.75 points *Radial*, the journal of the **Radio Amateurs' Invalid & Blind Club** drew some interesting comments. Tex G1TEX's adjudication comments included "A good easy read full of a variety of topics covering a wide range of interests within the hobby" (9.5).

Next, with 37.5 points is the **Cockenzie & Port Seton Amateur Radio Club's Newsletter**. This previous winner drew comments from John G0SKR including: "...Thoroughly enjoyed the easy-reading of this newsletter. Despite its basic A4 stapled appearance - it tells the reader what they need to know. Members are obviously important to this club" (9.5).

Earning a creditable 37.25 points, the **British Amateur Radio Teledata Group's** entry - *Datacom* - received comments from me including..."A plain and simple A4 approach...but it serves its readers well.....friendly too!" (9).

My final comment must be...remember that the maximum score is 40. The standard of all entrants is very high indeed - with the highest award being 38.75...the range in the scores was only 1.5 across the six entries. What

an amazing standard they were...well done everybody!

## Local Club Category

What a close run thing it was this year in the Local Club

category! The Winners - **The South Dorset Amateur Radio Society's** (Weymouth) A5-sized *Catswhisker* magazine scored 47.75 points (out of a possible 50 - with five adjudicators awarding a possible maximum of 10 points) - beating the runners-up by one quarter of a point! The standard is that high.

Dave G5HY commented: "Does the important bits well ...good photo production". (9).

John G0SKR commented: "...does what a club magazine should do...sell the club. Very well put together and content very interesting". (9.75).

David G3PLE commented: "...all the right ingredients...first class value...in a very class bunch of entries". (9.5).

Tex G1TEX was impressed: "Well produced easy read with articles by many different members. Very good use of clear diagrams" (9).

My own comments were: "An excellent entry! The Editor works hard - not afraid to be 'up front' with opinions. Feature introductions need looking at - but a superb little A5 magazine" (9.5).

**Congratulations South Dorset ARS!**

## Welsh Runner-Up

The runner-up this year was the **Cleddau Amateur Radio Society's** A5-sized *Newsletter* - with 46.5 points. The west Wales based club (Haverfordwest, Pembrokeshire) were literally beaten only by a 'cat's whisker'!

The judges were faced with a very difficult decision indeed. Tex Swann G1TEX commented: "Excellent and interesting layout and read. A credit to the club"! (9.5).

My own words were: "Excellent editing, layout and photos...I can't fault it...very well done indeed" (10).

Dave G5HY was impressed: "Well laid out...very clear font and good range of contents". (9).

A winner next year perhaps readers? Well done Cleddau ARS, good luck in 2004!

## Every One A Winner!

Even though only one magazine comes first...everyone wins it seems because the standard of content/production seen by the judges is so good. **Note:** although full adjudication is provided to each club's Editor, there's only space in PW for short, representative comments.

For example, placed 3rd, the **Worthing & District ARC's** (46 points) *Ragchew* drew comments from David G3PLE including..."A very enjoyable read" (9).

In 4th place, the **Oldham Amateur Radio Club's** entry *Old Hams News* (45.25 points) earned comments from myself including..."Simple A4 sheet (stapled format) but every issue is packed with information. Services its readers well". (9.5).

**Note:** The adjudication took place **before** I was awarded Honorary Lifetime Membership of the Oldham ARC. In future years, to ensure impartiality, I'll have to step down from adjudicating in this section.

Fifth place was taken by the **Radio Society of Harrow's** entry *QZZ*. (45 points). David G3PLE was impressed saying..."First time entry...and I like the title *QZZ* - the last word in radio club magazines. It really lives up to its name"! (9).

Sixth place was awarded to the **Yeovil Amateur Radio Club's** newsletter *YARCNEWS*. (44.75 points). Dave G5HY commented: "Wonderfully complete club details section. Obviously a very active club"! (9).

In seventh place comes the **Warrington Amateur Radio Club's** A5-sized *QSX WARC* newsletter. John G0SKR was impressed and commented: "A very well laid out magazine...with some tasty articles". (8.75).

Eighth place is awarded to an up-and-coming entry from the **Braintree & District**

**Amateur Radio Society** (Essex) for their newsletter *BARSCOM*. (43.5 points). Tex Swann G1TEX was particularly impressed saying: "Although it's in A5 format like many others...it has information from local and national areas. Good"! (9.5)

Ninth place but **certainly not the least for effort** is awarded to the **St. Leonards Amateur Radio Society** (Stafford) *G3SBL* newsletter (based at the old General Electric Company's (now Alstom T&D Ltd.) Stafford site. (42.5 points). It seems fitting that the last word on the entries this year goes to new adjudicator John G0SKR who commented "KISS (Keep It Simple Stupid!) springs to mind - a magazine for a club that's going forward"! (8).

Good luck everyone, the Adjudicators look forward to seeing the 2004 entries!

PW



● Bert's Bell (The Bert Newman G2FIX Trophy) has been awarded to the Radio Officers' Association Radio Society for their superb entry in the National Club Category (see text).

# THE IC-E90 - YOUR NEW GO-ANYWHERE POCKET-PAL

*Introducing the new IC-E90 multiband handheld transceiver from Icom. Covering 50MHz, 144MHz and 430MHz bands the IC-E90 is equipped with a wide-band receiver, which covers 0.495-999.990MHz in AM/FM and WFM modes.*

*If that isn't enough, the IC-E90 comes as standard with a 1300mAh Li-Ion battery, ideal for long operating periods and providing 5W output in all bands!*

*All of these great features are built into an ultra compact body, measuring only 58x87x29mm - just look at the list..!*

- 50MHz, 144MHz and 430MHz multiband with 0.495-000.990MHz wideband receiver.
- 5W output on 50MHz, 144MHz and 430MHz.
- High-power capacity, long-life Li-Ion battery pack supplied as standard.
- Compact and rugged construction.
- Water-resistant construction equivalent to JIS4.
- a total of 550 memory channels.
- Adjustable 12 tuning steps and automatic tuning.
- Auto-squelch and squelch monitor functions.
- Highly functional keypad provides simple and intuitive operation.
- DTCSS, CTCSS tone and pocket beep.
- Automatic power-saver function.
- DTMF encoder with 10 (16 digits) DTMF memories.
- LCD and keypad backlighting with timer.
- 2 VFO (A/B) for split frequency operation.
- FM narrow mode available.
- $\pm 5$ kHz fully adjustable RIT and 10dB attenuator.
- Dial speed adaptive tuning.
- 5.5-11.5V DC is acceptable as an optional external power supply.
- Tip-replaceable antenna (FA-S6270D) available for wideband operation.

# A Standard Signal Level Source

Gerald Stancey G3MCK shows you that an expensive and complicated signal generator is not needed to check the sensitivity of your receiver, or its S-meter. Try it for yourself!

A useful adjunct in any shack is a means of producing a signal at a known level. Such a signal can be used for calibrating an S-meter or simply for checking the health of your receiver. However, it's not necessary to acquire a 'pukka' signal generator as the oscillator shown in **Fig. 1** will do the job and is both easy and cheap to construct.

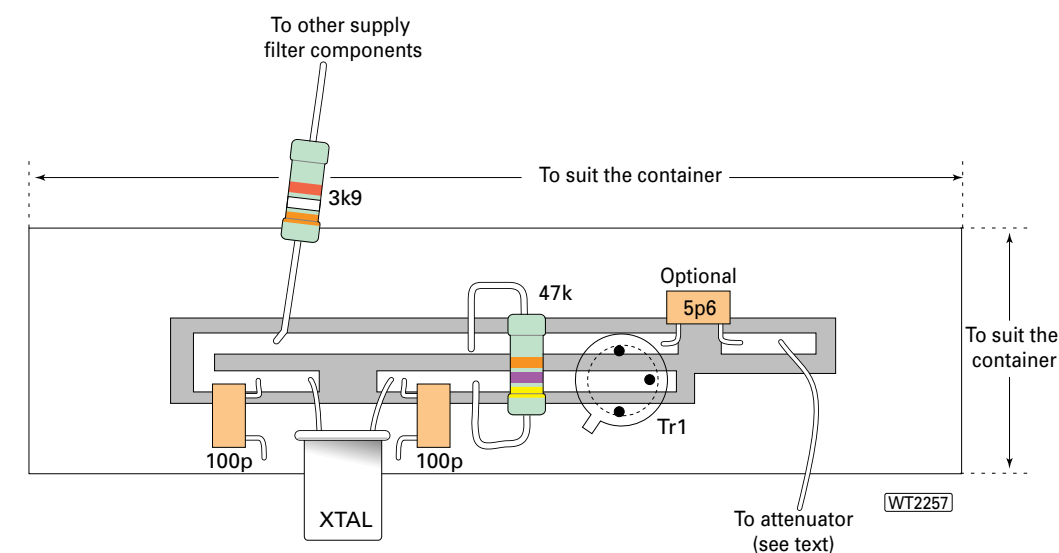
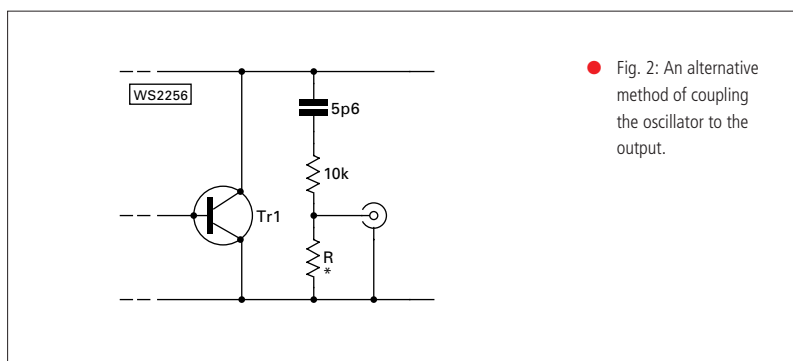
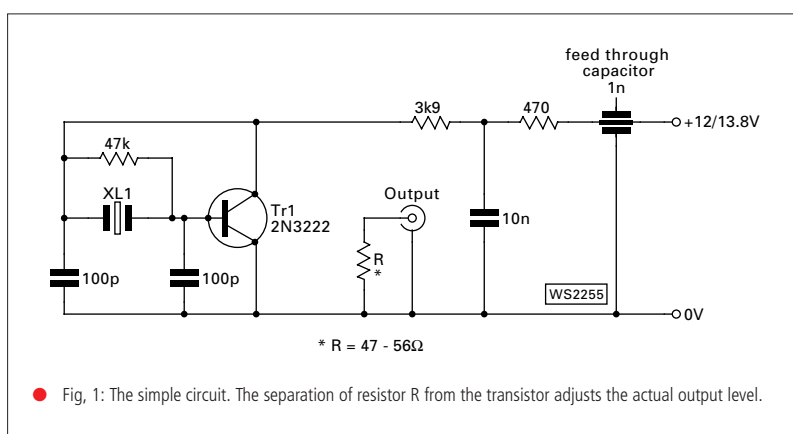
Any suitable crystal can be used within each band. But for the 3.5MHz band the cheaply available 3.5794MHz TV crystal is ideally suitable. Ideally R should be 50Ω but for a gadget like this anything in the range 47-56Ω is satisfactory.

The output of the signal source depends on how much attenuation you build into the unit. For most uses a signal somewhere in the range 5-500μV, which should give an S-meter reading of around S7 to S9+20dB, will be good enough.

## Need To Experiment

However, you will need to experiment - by changing the value of the resistor labelled 'R', to set the output at the level which suits your needs. For your guidance only - the attenuator circuit of Fig. 1, gives me an S9 signal (approximately 50μV across 50Ω). The other circuit shown in **Fig. 2** gives a reading of about S9+40dB.

The oscillator is built on a piece of printed circuit board (p.c.b.) material using the 'scratch' technique. This simple 'no-etch' method of producing means that



Continued on page 34



- A selection of easily available tins that are suitable for small projects. (Photograph courtesy of George Dobbs G3RJV).

you simply scratch off some of the copper to leave isolated 'islands' on which the components can be mounted.

Technically this 'island' method is very good for r.f. work and is less messy than etching the board in the traditional way. The layout shown in Fig. 3 is the layout that I used, but of course you may have better ideas.

I find that tobacco tins are ideal for housing the completed unit and a suggested layout is shown in Fig. 4. Although you could also use the Altoids mint tins to good effect too.

The screening given by either type of tin is remarkably good. Even with such simple construction it's possible to attenuate the generator's signal to inaudibility on my receiver.

## S-meter Calibration

With the unit as it stands and an attenuator you can calibrate your S-meter to show changes in

signal strength accurately. However, if you want to put an absolute calibration on your S-meter you will need to know the exact output of your oscillator.

To check the absolute output of your signal source, you'll need the help of a friend who has access to an accurately calibrated signal generator or spectrum analyser. Ask around at your club and I am sure that you will find somebody who can help you.

Let's face it, if you don't want to go to scientific levels of checking, a Standard Signal Source is an ideal piece of test equipment that should be in every workshop. So, why not get building?

PW

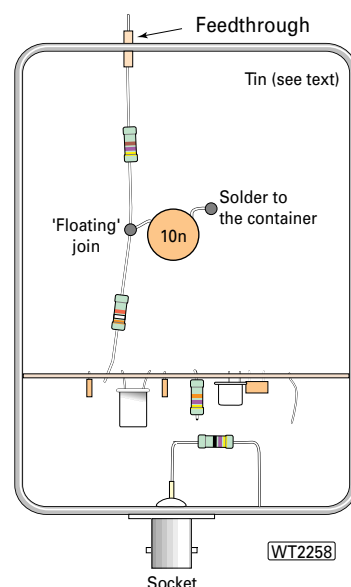


Fig. 4: It all fits within a simple easily available tin.

# Kit Radio Company

Unit 11, Marlborough Court, Westerham, Kent TN16 1EU

Tel: 01959 563023

**KRC-1** A four band superhet receiver built in five easy stages. Each completed stage is a working receiver in its own right. The kit comes complete with case, hardware, batteries and pre-assembled coil pack. No alignment is required. MW 160, 80 and 40 metres. AM, CW and SSB.

**£59.99 + P&P**

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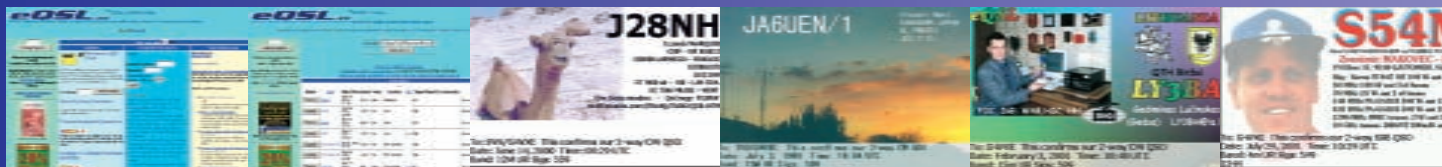
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As use of the Internet has developed, what better way to confirm a contact than by an electronic

# Electronic QSLing

Since the very first radio contact was made, Radio Amateurs have wanted to confirm their contacts in a tangible way. Until recently, QSL cards have been the usual method of confirmation.

My own feeling, which I know is not shared by all, is that QSL cards are a marvellous way of recording 'special or historical' contacts. However, sending a QSL card for each and every contact that you make seems excessive, both in the strain it puts on the QSL bureaus around the world and also in the use of materials and the cost involved.

## The History Of Electronic QSLs

Historically, as use of the Internet has developed and become more commonplace there have been initial attempts to develop electronic QSLs. Three or four years ago some DXpeditions tried to issue electronic confirmations.

Stations who worked the expedition E-mailed the contact details in. The details were then checked against the log and a computer generated QSL card was sent back to the station who could print it out.

Unfortunately, there were a number of difficulties with this approach. The major issue was that some people who printed the 'card' out then submitted it for DXCC credit to the Amateur Radio Relay League (ARRL). The ARRL are adamant that this is not acceptable because it is too easy to forge a computer-generated card. This is undoubtedly true, but overlooks the fact that printed cards, too, are easy to forge! Therefore, electronic QSLs, then, did not start off with a good reputation.

## Electronic QSLs & Awards

To this day the ARRL and Radio Society of Great Britain (RSGB) do not accept electronic confirmations for their awards. This is enough to put some people off and they suggest that electronic QSLing is pointless!

My contention though is that this is not true. I feel many people are not particularly interested in awards such as DXCC and IOTA, but enjoy keeping a tally of how many countries, counties, prefixes or locator squares they've worked.

I know when I was first licensed, I had numerous pieces of paper which did this. Now I can do it within my logging program on my computer. I think it adds to the fun to make a quick electronic confirmation of the contact and it can be fast!

About a month ago I worked **F6CBL** on 14MHz MFSK. Within 20 minutes we had, without prompting on either side, exchanged eQSLs! The RSGB QSL Bureau does a wonderful job but it cannot compete with that! The focus of this article is for licensed Amateurs, but the method that I will describe applies well to short wave listeners and to CB users.

## Sending & Receiving Electronic QSLs

To send and receive electronic QSLs you need access to the Internet. You'll need a computer capable of running a web browser, such as Microsoft Internet Explorer or Netscape Navigator (version 4 upward for both).

If you are going to be sending a lot of electronic QSLs then you probably won't want to type in the details of each contact into the website one-by-one. To avoid this, if you have a computer logging program you can use this to generate the details that you need to upload.

Most logging programs these days have the ability to generate an Amateur Data Interchange File (ADIF). If yours doesn't, don't worry. There are a number of free utilities that will enable you to convert a simple text file containing details of your contacts into ADIF format. So, prepare an ADIF file containing the details of the contacts that you wish to confirm electronically.

There are several electronic QSL sites on the Internet. The most popular one by far is eQSL which is run by **Dave Morris N5UP**. Exact numbers of users are not released, but Dave says (at the time of writing) that there are over 6.6 million 'cards' on line, from stations in 212 countries! Suffice to say, if you





## Electronic QSL? However, there are pros and cons as Tim Kirby G4VXE explains.

are active you will almost certainly find some cards waiting for you at the site.

So, why not check right now by visiting <http://www.eqsl.cc> and follow the option to retrieve cards? Enter your callsign into the box provided and you will see a list of stations that have sent you an electronic card and how many cards they have sent you.

The first time you visit the site to 'post' cards, you will need to register. The reason for this is that it enables some verification to take place proving that you really are who you say you are! Ensuring the integrity of QSO information entered into the system is key to the whole process.

Registration does not cost you anything and Dave undertakes that no personal data that you enter will be passed to another person or organisation. In any case, you don't need to enter any confidential data.

The registration process is simple, enter your callsign into the box provided and click the Register button. A screen will then be displayed allowing you to enter information such as your name, E-mail address and details that will be shown on the eQSLs that you send. Make sure you change the country field, as it's defaulted to USA!

Once you have entered all the required information you can sit back and wait for the sign-up code to be sent to the E-mail address that you specified. Once this arrives you can finish your registration by entering the sign-up code into the website.

During the registration process you will have the option to choose how your eQSLs will look. There are various 'stock' graphics that you can use, or if you wish, you can upload your own for a small charge. I've included some examples to illustrate this article.

My favourite so far is the one from **J28NH**! You can change the look of your 'card' later on, so don't worry about getting it right first time.

From the main page, click the 'In Box' link to see the list of people that have sent you eQSLs. You can view the card by clicking on the Display button.

Now you've got this far, you'll want to upload some QSO data into the system. Having logged into the site, follow the link to 'Upload ADIF'. You'll see on this page you have the opportunity to upload the

ADIF file that you created earlier from your logging program.

Make sure that the file that you are uploading does not exceed around 1000 records. If it does, split it up into chunks. You can either do that manually or download a special program from the eQSL site.

Once you have uploaded your QSO data into the system, come back to the website every few days and take a look at your In Box. You will find that new confirmations come in quite quickly and the number of countries you have confirmed (on the 'My Stats' screen) will quickly rise. Remember, every few days too, to upload your latest QSO data into the system.

You may wish to read up on the Authenticity Guaranteed scheme. The idea behind this, is that you can upload a scan of your licence document to the site, which can be reviewed by the site administrator.

It is intended that this, in combination with the username and password that are allocated, guarantees that the user uploading QSL data is who they say they are. Only Authenticity Guaranteed users will be eligible for the eQSL awards that are planned in the future.

### The Future

I mentioned earlier that the ARRL do not currently accept eQSLs for DXCC and other awards. They are working on an ambitious project called 'Logbook of the World' which will work in a similar way. Work has just started, but this promises to be a very interesting development and it is hoped that there will be ways that the existing and new systems will talk to each other.

If you are permanently online to the Internet, your logging program will soon be able to automatically upload QSO data as it is logged into the eQSL or other servers. Commercially, one software vendor in Japan has already built this and other people are working on it.

In any event, I hope you will give the electronic QSL method a try! It's fun to get going and to use. I'm sure you will be impressed how quickly the confirmations come back and it means you can save your real QSL cards for special occasions!

PW



# The Sidcot 3.5MHz CW Transceiver Part 2

This month Tim Walford G3PCJ describes the transmitter section of the simple (but with innovative ideas) 3.5MHz transceiver. He's looking forward to hearing your signal on the band!



● The completed Sidcot 3.5MHz c.w. transceiver. This month the author and designer Tim Walford G3PCJ describes the transmitter section and the completion of the project. And if you want to make your project a little easier - Tim has prepared a kit which provides a transceiver in the style illustrated.

**I**xpect you'll have read about the receiver aspects of the Sidcot in last month's *PW*. If not, it will be a good idea to look back at that issue because this article is mainly about the transmitter. However, because the project is a transceiver, there are of course inevitably several connections between the transmitter and receiver so you might want to have last month's *PW* to hand.

The block diagram of the transmitter is shown in **Fig. 1.1** with the circuit diagram in **Fig. 1.2**. **Note:** as before, the part numbering and sequencing use those of the kit.

## Transmitter Design

The transmitter makes use of high speed digital signals and complimentary metal oxide silicon (c.m.o.s.) logic gates to perform many of the functions. As explained last month, (Fig. 3) the variable frequency oscillator (v.f.o.) uses a 2 input NOR gate with a feedback loop incorporating the ceramic resonator X100 which determines operating frequency.

Apart from the receive mixer, the v.f.o. drives a further 2 input NOR gate, IC1c, which performs the 'keying' of the radio frequency (r.f.) drive signal to the output transistors. The control input of this gate is connected, via a delaying capacitor/resistance

combination, to the key line so that, when the key is closed, it allows the v.f.o. digital logic signal through to the output stage.

Just as for the receiver's mixer, the 5V logic signals are ideal for directly driving the gates of a pair of BS170 metal oxide semiconductor field effect transistors (m.o.s.f.e.t.s.) used for the transmitter output stage. However, this time the drain load is the output to the antenna. (I know it's confusing, but the word 'gate' is used both for the control element of all f.e.t. semiconductors and for the various standard circuit blocks of digital logic!).

Because of the square-wave drive to the output transistors, it is essential to remove the harmonics by filtering the r.f. output. A Chebychev low-pass filter design is used, and provides over 40dB of attenuation to the most important third harmonic. Since the attenuation of this filter starts just above the operating frequency range, it's placed in the antenna lead to also reduce the strong 4MHz broadcast stations on reception.

Another logic gate of IC1 is used for transmit/receive control purposes. Here the key input is inverted by IC1a so that when the key is closed, point B rises very quickly and drags the gates of m.o.s.f.e.t.s Tr1 and 5 positive to nearly 5V through D4. When the key is open, point B reverts to 0V but D4 is then reverse biased, so the voltage on C32

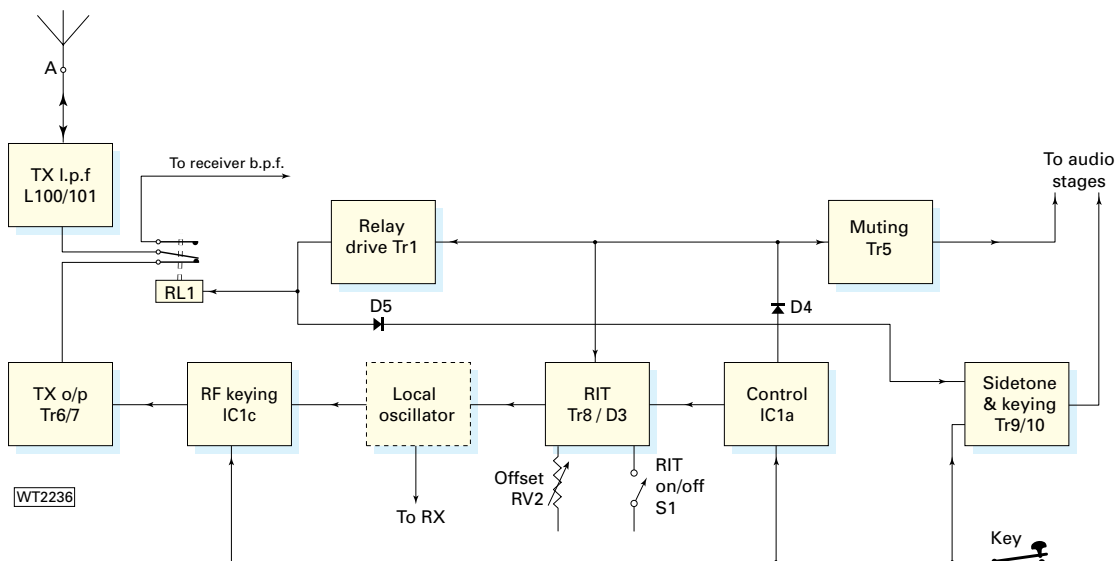


Fig. 1.1: Block diagram of the Sidcot transmitter section (see text).

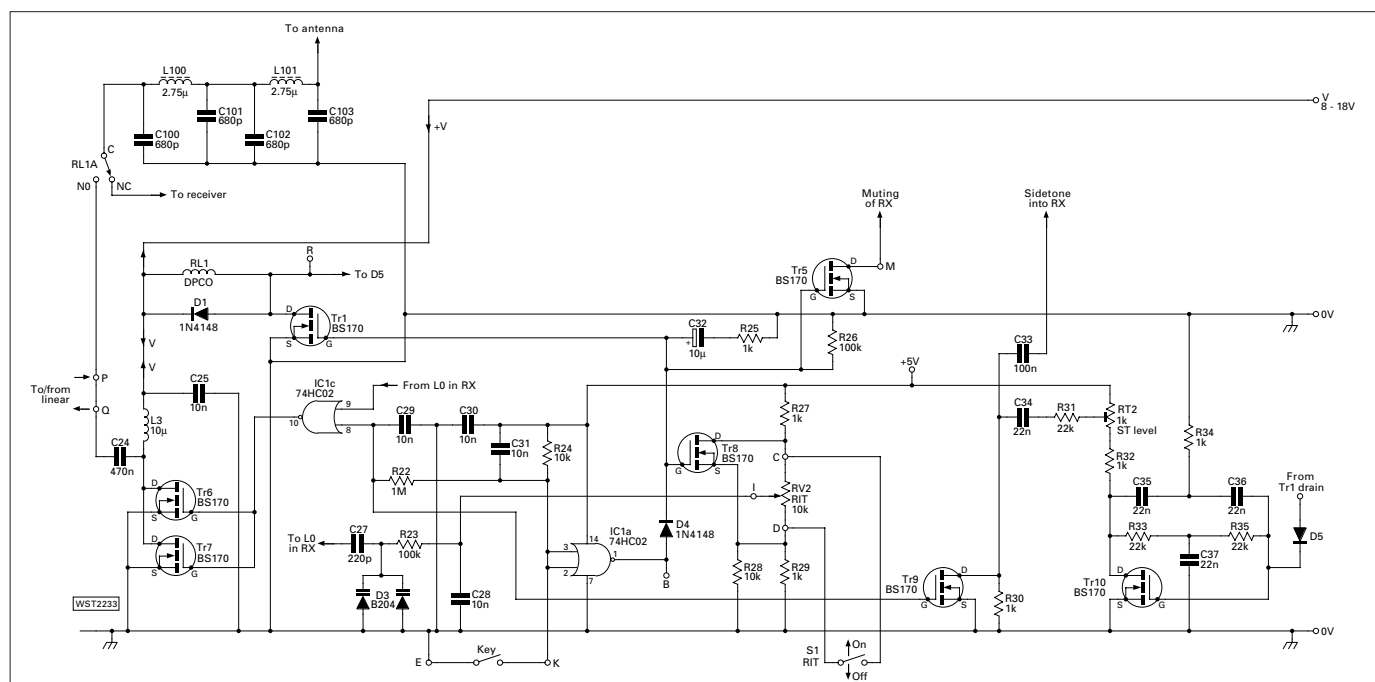


Fig. 1.2: The Sidcot transmitter section circuit diagram. Note: as before, the part numbering and sequencing uses those of the kit (see text and the November issue of *PW*).

decays very slowly due to the high value R26.

The circuitry just described makes the rig stay in transmit for about half a second after the key is released, to cover the gaps in Morse characters and short pauses. This delay can be made adjustable by substituting a 100kΩ pot in series with an extra 47kΩ in place of R26. (Tr1 drives the transmit/receive relay, which although a 12V type, will work down to around 9V.

Muting is applied to the receiver by Tr5 during transmission by grounding the output of the audio frequency (a.f.) gain control. **Note:** If an automatic gain control (a.g.c.) system is to be fitted - such as that in the optional Meter kit which is connected before the a.f. gain pot - the muting is instead applied to the a.g.c. circuits.

By applying the muting to just one of the inputs of the audio output stage, the other is still available for

the sidetone from the transmitter when the key is closed. Because the muting transistor, Tr5, turns on very quickly when the key is first pressed, the inevitable transients from the relay operation are masked which prevents transmit-receive thumps in the audio! Similarly, when transmission is over, the relay reverts to reception before the muting is fully removed, so that this transient is also masked.

## Side Tone Circuits

Side tone circuits can also be a source of unwanted thumps. This often happens because the side tone oscillator is actually started/stopped by the key. And this then causes big changes in d.c. voltages - the resultant thumps are especially uncomfortable when headphones are used!

In this project's design, the sinusoidal side tone

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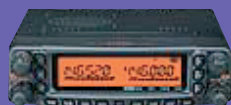


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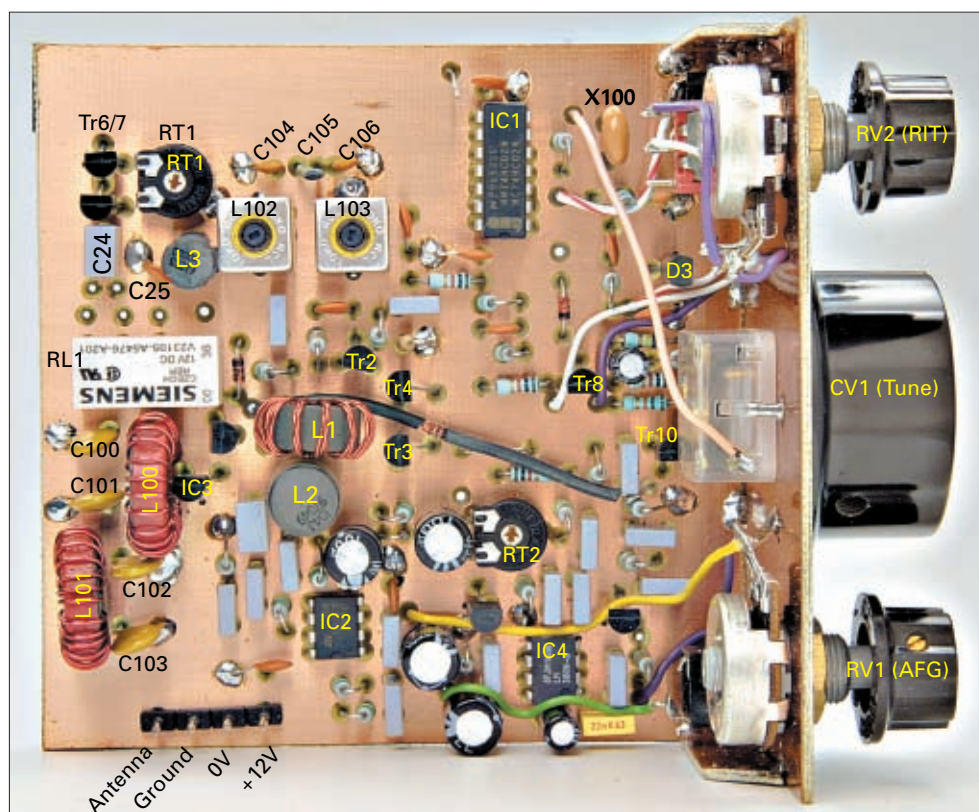
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● Fig. 1.3: Annotated photograph showing major components and placing on the p.c.b.

oscillator runs (almost) all the time with the output to the audio stage being keyed or stopped by another BS170 Tr9 when the key is up.

**Note:** The oscillator runs 'almost' all the time because the inclusion of D5 turns the side tone oscillator off during reception. This is a precaution against possible continuous breakthrough of the sidetone oscillator into the early stages of receiver - due to the compact nature of the rig coupled with lots of audio gain at the sidetone frequency!

The side tone oscillator is a twin T circuit using another BS170, Tr10. The frequency is a nominal 725Hz with the audio output level being set by the preset RT2. (This preset can be changed to a front panel control if you prefer).

## Incremental Tuning

The last aspect under the transmit-receive control is the receiver's incremental tuning offset (r.i.t.), set by the RIT pot RV2 when S1 is open during reception. The small frequency offset is generated by the varactor tuning diode, D3, altering the capacitance across the ceramic resonator X100.

With S1 open and Tr8 off, the d.c. tuning voltage is dependent on the proportion of the 5V supply picked off by the slider of RV2 in its resistive chain with R27 and R28/9. When S1 is closed there's no voltage across the pot, so the slider voltage is determined only by R27 and R28/9 **irrespective of the slider position**. (R27 and R28/9 are nearly equal so the voltage is just under 2.5V when S1 is closed).

During transmission, Tr8 is turned hard on by the transmit-receive control voltage on C32. This is the second method of applying a short-circuit across RV2 and always removes any RIT offset set by RV2 during transmission. This scheme makes the tuning voltage the same for the mid-slider position and RIT off (by S1 or Tr8); hence the same v.f.o. frequency is

provided when the RIT control is centred or...when the RIT is switched off by either S1 or by the action of going to transmit.

**Note:** R28 is included to ensure that Tr8 is fully on during transmission. It does not matter that the RIT off tuning voltage is not exactly mid-supply...as long as it is always the same. (So that it causes the same capacitance and hence same frequency).

## Building The Transmitter

In the same way adopted for the receiver, a few components are fitted at each stage of the transmitter construction...followed by some tests before progressing to the next section. The photograph, **Fig. 1.3** shows a close up of the completed printed circuit board (p.c.b.) with a few prominent parts kindly labelled by **Tex Swan G1TEX**, the *PW* Technical Sub-editor and illustrator!

In practice I suggest it's easiest to start with the transmit-receive control circuits including IC1a which will have been fitted as part of the

receiver work. You can connect your key and check that the voltage on point B is 0V with the key up and that it changes to 5V when the key is closed.

If you next add the RIT parts associated with S1, RV2 and D3, you can check that altering RV2 permits tuning a few kHz either side of zero beat on an incoming signal. (Closing S1 should remove any offset).

If you now add the transmit-receive delay parts associated with D4 and Tr8, then closing the key should also remove any RIT offset. Of course, the rig will not yet go into transmit without the relay and its driver Tr1 - these are the next step!

After adding relay and driver you'll be able to hear the relay click on when the key is closed, and also the fainter click off about 0.5 second after key up. (Adding Tr5 should mute the receiver when the relay is on).

The next job is to fit the side tone oscillator parts associated with Tr10. Without D5 and Tr9, there should be side tone all the time with the level in the loudspeaker set by RT2. Adding Tr9 should only allow the sidetone through when the key is closed. Finally, adding D5 (which has long leads stretching across the p.c.b.) will stop the sidetone oscillator during reception.

## Winding The Toroids

Next we have to wind the toroids L100/1 for the transmitter low-pass filter. Don't worry unduly, these are easy and much simpler than the receiver's r.f. transformer!

Each toroid has a single 22 turn winding occupying about 75% of the circumference of the red T68-2 powdered iron toroid. The ground connections of the four low-pass filter (l.p.f.) capacitors C100 - 103 are soldered both top and bottom of the p.c.b. (like most other ground points) to ensure that the unwanted harmonics are properly filtered out.

The last few parts are for the output stage; the two m.o.s.f.e.t.s. Tr6 and 7 are connected directly in parallel without any inherent risk of one hogging all the current. Normally they will not need any form of heat sink but they do run warm, so it's best to get used to them on 9 to 12V before upping the supply for higher output!

There are no protection circuits since they would cost many times that of the devices being protected! Take a little care around this section of the p.c.b. as it has some extra holes for connection to the optional 10W r.f. amplifier.

## On The Air

The only thing to set-up in the transmitter ready for use on the air is the side tone level. It's simple, just set RT2 for a comfortable output level and no r.f. adjustments are required.

On a nominal 12V supply the transmitter should produce over 1.5W into a 50Ω load. However, the output does vary directly with supply voltage - decreasing to about a 1W on 9V.

The operating technique is to switch off the RIT with S1 and then tune in the wanted station to zero beat with the main tuning control. (This is mid-way between the two tuning points where the wanted signal is heard). Then switch the RIT on with S1 and tune in either sideband with RV2; you can use whichever has least interference from unwanted stations.

When you press the key, the RIT offset is automatically removed so the rig transmits on the same frequency as the other station. That's all there is to it!

There are no facilities to alter r.f. output level. So if you want to reduce power while adjusting your antenna matching unit (a.m.u.), then the only thing you can do is reduce the supply voltage.

## Choice Of Styles

The photograph in last month's (Part 1) article showed the Sidcot project built 'open style', one of the

choices open to the constructor and fine for use in your shack. The open style makes assembly and testing very easy; it also gives plenty of ventilation.

However, if you are going to work portable, etc., the transceiver will need better protection. You can easily install the main p.c.b. in your own metal case (perhaps with other essential accessories) **but do ensure there's plenty of ventilation.**

Instead of the normal rubber feet you could drill the main p.c.b. in the corners and fit mounting pillars. The controls should be reasonably close to the front of the main p.c.b., with good solid ground connections and short leads, especially for the tuning capacitor.

If you have an air variable capacitor of about 100pF, perhaps with a slow motion drive, you might prefer this combination instead of the polyvaricon. If you are using the polyvaricon in your own choice of case, take a little care since the mounting bolts **must not project too far into its body**, otherwise they will damage the capacitor vanes.

You can also experiment with other tuning arrangements, perhaps introducing two sub-bands with a toggle switch and trimmers. This will achieve a lower tuning rate and operation down to 3.5MHz with extra tuning capacity.

Another approach (for mechanical protection) is to make a simple U-shaped cover similar to that produced by **Andy Howgate G7WHM** shown in **Fig. 1.4**. I emphasise however, this is **NOT** part of the standard kit...but you can easily make it from sheet aluminium and cover with Fablon, etc. The cover is held in place by self-tapping screws drilled into the normal front panel side braces. With a couple of extra p.c.b. off-cuts soldered to the main board - for the rear screws - it's all very simple and neat!

I wish all builders success and will be glad to hear how you get on. Hopefully you'll tell me on the air when we work each other!

*pw*

## Complete Sidcot Kit Available

A complete kit for the Sidcot transceiver is available from Walford Electronics. This includes the fully detailed instructions, all electronic components, knobs, sockets, switches, the main 100mm square double-sided p.c.b., together with a p.c.b. front panel which will permit the style of construction shown in this month's heading photograph. The price is £44 plus £1 for UK P&P. Please send your orders with a cheque for £45 direct to: **Walford Electronics, Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ**. Tim Walford G3PCJ's website and details of the optional kits can be seen at

[www.users.globalnet.co.uk/~walford](http://www.users.globalnet.co.uk/~walford)

● Fig. 1.4: The Sidcot on the left has a simple 'U'-shaped cover. My thanks go to Andy Howgate G7WHM for the loan of his Sidcot for this shot.



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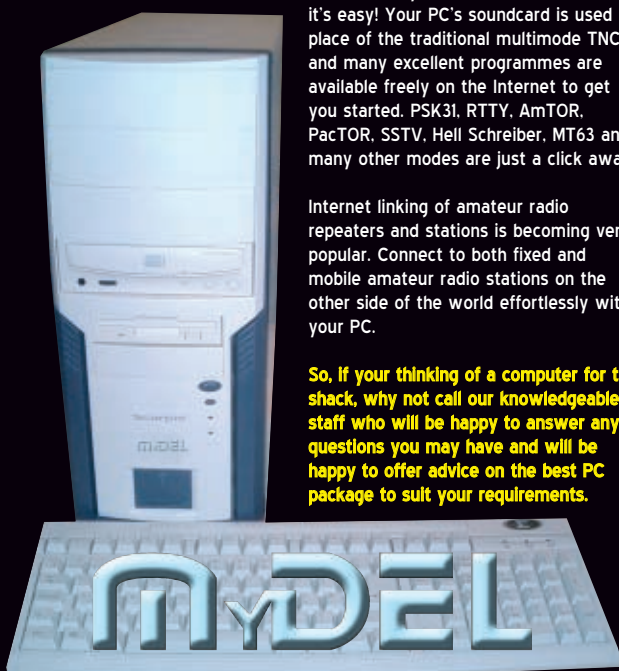
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70 cm - 5.5 dBi  
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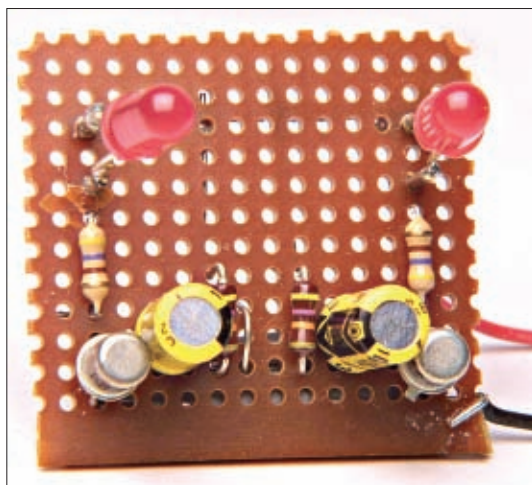
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# Carrying On The Practical Way

The Rev. George Dobbs G3RJV reminds us "It's Christmas Day in the Workshop" again. And after you've read the quotation you'll discover that George has had some more 'flashes' of inspiration.

"Millions long for immortality who do not know what to do with themselves on a rainy Sunday afternoon". Susan Ertz



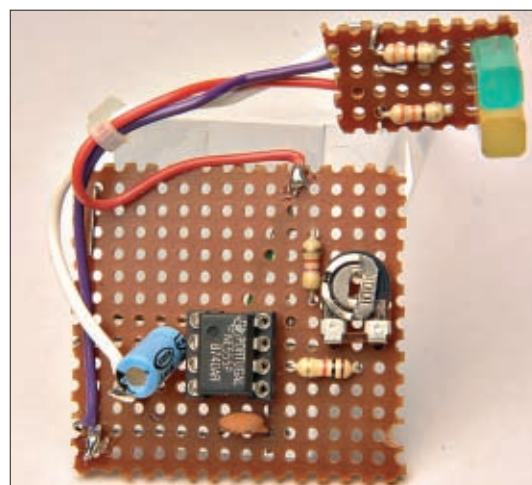
Over the years I've been writing this column, a Christmas tradition (not quite as old as the turkey!) has become established in that the December edition of Carrying On the Practical Way (COTPW) describes projects that might be made on the workbench on the afternoon or evening of Christmas Day. The scenario is that eating, present opening and (hopefully) church-going has all occurred and all that may be left is watching old films or television specials.

In other words, I consider it to be an ideal time to slip out to the workshop and heat up the soldering iron. A good justification can be to produce something for the children or grandchildren, perhaps while they watch and learn. So, most years the December projects have been suitable for building with, or building for the younger members of the family.

However, when I was musing over what ideas to use for this year's Christmas project, a PW reader rang me to bemoan the loss of the LM3909 chip. He'd used the chip in the past to make little light emitting diode (l.e.d.) flasher circuits, I think for younger members of his family. His question was "could I suggest a simple circuit to do the same job"?

## The LM3909

The diagram, **Fig. 1**, is a reminder of the LM3909. It's about the simplest circuit I've ever included in this column. The chip will cause an l.e.d. to flash when connected across pins 1 and 8, the rate of flashing being determined by a capacitor (C1) across pins 1 and 2.



● A simple flashing circuit can provide amusement, curiosity and help improve road safety. By building one you could even spark an interest in electronics for someone in your family says G3RJV!

What's more the whole circuit may be powered by a single 1.5V cell. Incidentally, I used this circuit for years to provide a flashing l.e.d. on the dashboard of one of my older cars to simulate the burglar alarm I didn't have!

The LM3909 is now obsolete and difficult to find on sale. But if you have one - or manage to find one - a value of 100µF for C1 will produce a medium rate flash and 220µF a slow rate flash.

So, without the simplicity of the LM3909, how could I make an l.e.d. flasher for an educational/electronic amusement idea for a younger family member? However, if I was making an l.e.d. flasher for a young person, I would begin by telling them of the wonders of the l.e.d. itself.

The l.e.d. is such a common electronic component, that we forget how wonderful it is. Almost every electronic device and household appliance seems to have one or more of them. I've just looked around my study as I type this and currently six l.e.d.s are glowing in the room on various items of equipment. They really are part of everyday life.

I enjoy explaining how in 1907 Henry J. Round, an early experimenter with electricity, touched a crystal of silicon carbide with two wires connected to a battery and noticed that the crystal gave a yellowish light. This was the first ever light emitting diode.

The visible light was not caused by heating a filament but by the movement of electrons in a crystal. Heated filament lights have a very limited life but if Mr. Round had left the wires connected to his piece of crystal, it would still be glowing now. The l.e.d. is a source of cold light with a life expectancy of over 100 years!

## Connecting Into Circuit

The diagram, **Fig. 2**, is a reminder of how to connect an l.e.d. into a circuit. There are two ways to check the polarity, with shorter of the two leads indicating the cathode lead, while the longer lead is the anode.

The outer casing of the l.e.d. usually has a flat side on the side nearest to the cathode lead. The cathode lead connects to the negative side of the circuit and the anode to the positive. The 'bar' on

the circuit symbol indicates the cathode.

A good starter circuit for a couple of flashing l.e.d.s is shown in **Fig. 3**. It's a multivibrator circuit using two bipolar transistors and almost any common small signal npn transistor would work in this application. My extensive stock of 2N2222A transistors came to the rescue again!

The base of each transistor is coupled to the collector of the other transistor via a capacitor (100µF in this case). The rate that each transistor switches on and off, in turn, is set by the value of this capacitor and R1 or R2.

A constructor can choose the value of R1/2 to suit the purpose. Roughly speaking 47kΩ provides blinking lights and 100kΩ flashing lights.

## The 555 Timer

Mention flasher circuits - or any timing circuits for that matter! - to many electronic constructors and they'll immediately think of the 555 timer chip. It's a piece of electronic history.

The 555 timer i.c. was first introduced around 1971 by the Signetics Corporation as the SE555/NE555 and was called "The IC Time Machine". At that time it was the first and only commercial timer chip on the market. It provided circuit designers and hobby constructors with a relatively cheap, stable and user-friendly integrated circuit for both monostable and astable timing applications.

Signetics have ceased making the device. Despite this, its usefulness meant that several other manufacturers began to produce, and still make the 555 timer.

The circuit, **Fig. 4**, shows a 555 timer chip set up in the simple astable multivibrator function driving a single l.e.d. The capacitor and resistors around pins 2, 6, 7 and 8 set the flash rate (which also depends upon the supply voltage).

In the Fig. 4 version a 100kΩ pre-set potentiometer has been added to vary the rate of flashing. Here it varies between about half a second and almost continuous illumination. Making the 10µF capacitor a higher value would slow down the rate.

## Double Flashes!

It's also possible to make the circuit flash two l.e.d.s alternately and the additional l.e.d. and resistor in **Fig. 4** shows how to add a second l.e.d. between the supply and pin 3. The arrangement results in the l.e.d.s being alternatively on and off. Placing them together and getting the timing set correctly can produce an interesting 'jumping' light effect...which can really start the questions coming from a young admirer!

Because the 555 supplies up to about 200mA of current, several l.e.d.s - with limiting resistors - can be connected in

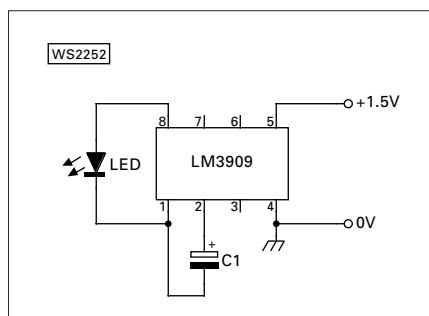


Fig. 1: A reminder of the application circuit for the LM3909 (see text).

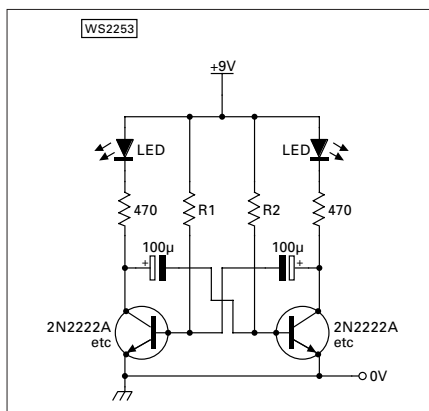


Fig 3: George G3RJV recommends this as "A good starter circuit" for a couple of flashing l.e.d.s. It's a multivibrator circuit using two bipolar transistors and almost any common small signal npn transistor would work in this application (see text).

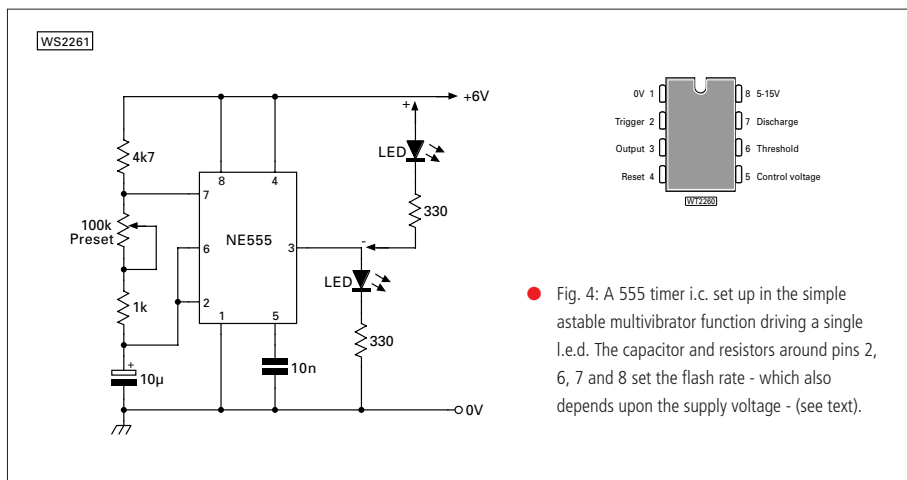


Fig. 4: A 555 timer i.c. set up in the simple astable multivibrator function driving a single l.e.d. The capacitor and resistors around pins 2, 6, 7 and 8 set the flash rate - which also depends upon the supply voltage - (see text).

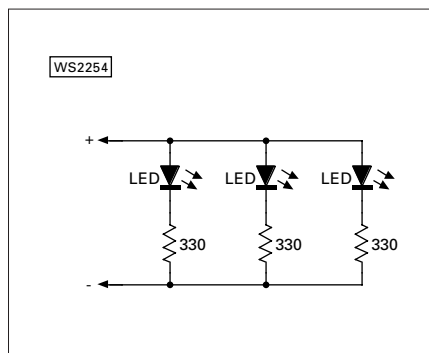


Fig. 5: Several l.e.d.s, each with their own limiting resistor can be wired in parallel with either, or both of the l.e.d.s. in Fig. 4. The total current should not exceed 200mA!

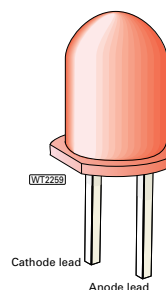


Fig. 2: Diagram illustrating how to connect an l.e.d. into a circuit. There are two ways to check the polarity, with the shorter of the two leads indicating the cathode lead, while the longer lead is the anode.

parallel to either (or both) of the existing l.e.d.s in the circuit. It should be possible to add up to about 15 on each side, which would produce quite an impressive flasher!

If you want to impress the family with your expertise, it's possible to make up flashing dog and cat collars - ideal so pets can be seen on dark evenings. Such items aren't cheap to buy in pet shops, so your skills may even impress anyone who isn't normally very appreciative of our hobby.

My mention of the simple 'spoof' car alarm I made many years ago reminded me in turn that the idea could be incorporated into an impressive looking 'Burglar Alarm' box mounted high up on the side of a house. In reality, all that's needed is a good

capacity battery and the flashing l.e.d.s will work for many months without needing attention deterring possible thieves at the same time.

Finally, there's also the possibility of making a bike look expensively 'customised' while at the same time helping to ensure the rider's safety on a dark evening. There can't be many drivers who have not had a 'near miss' with a shadowy, unlit cyclist can there? And you never know, with their bikes illuminated in spectacular fashion, a simple idea may spark off a life long interest in electronics and radio in someone who has used one of your flashing l.e.d. systems!

# Creating A Good Earth System

**down to earth**

**Terry Brown GONSA took advantage of holes created - when he had extensions added to his house and garden to create a good earth system. Read on to see how he did it.**

The builders arrived and work started on the new extension at the back of my house. As the foundations were dug out, I was amazed at how deep they had to be.

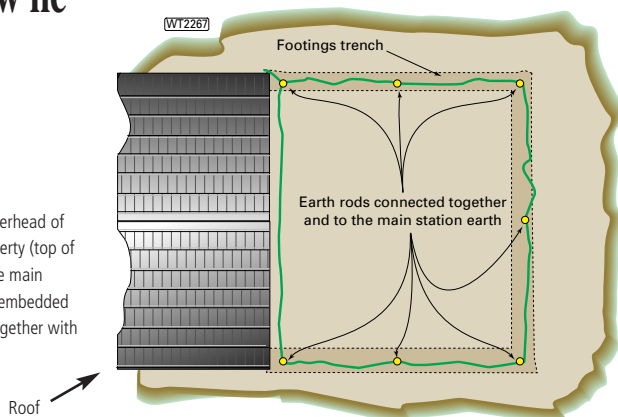
As I gazed down into the hole it occurred to me that an earth rod placed down the hole might not be a bad idea!

The builder couldn't understand why I would want to put anything into his footings ... but didn't object.

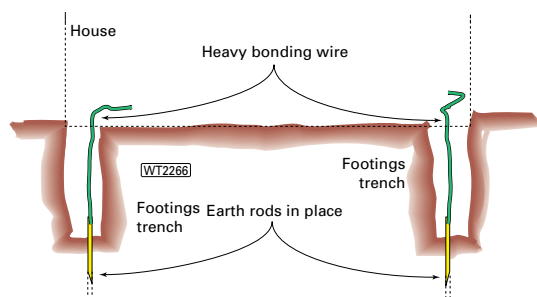
That's how I started to lay down my earth system. Several five foot (1.5m) rods were hammered into the corners of the footings and connected together with stout copper wire which was carefully bought to ground level and laid to one side. The outline idea is shown in the diagrams, **Fig. 1** and **Fig. 2**.

## Concrete Filled

The footings were filled with the required amount of concrete and my new system earth rods were lost from sight for ever. Whilst this was being done, another stout cable was laid from the shack through the fabric of the main building and attached to the new earth cable.



● Fig. 1: The view from overhead of the rear-half of the property (top of roof on left) showing the main footings trench with its embedded earth rods all bonded together with a thick wire.



● Fig. 2: Looking at the system from behind, the footings really do 'go down to earth'. I was surprised at just how deep they really were.

The rest of the building work was completed in the normal way that builders do these things. And in due course, I was left with what can only be described as a disaster area that was once my nice back garden.

Additionally, to allow the builder to manoeuvre around and do his job, all the wooden fencing had to be taken down.

To put the fences back once the work had been completed on the house, I used long metal spikes with a socket on the top (the type that holds fence posts). It occurred to me that these would also make nice earth spikes so, they were also connected into my earth system too. Cutting a long story short, they were then

all joined to my earth system by yet more stout wire.

At the bottom of the garden a new summer house and paved area were to be put in place. So, as not to miss another chance, I laid down an earth mat of chicken wire under the slabs and summer house. And yes, you've guessed it - that was also connected into the main earth system in its turn.

## Full Stretch

Over the next few weeks of summer, the garden recovered and life returned to normal. The radio was at full stretch all the following winter with contacts being made both far and near as the band conditions allowed. All told, I was very pleased with the set-up as it stood, but every time I went into the summer house, the sight of all the left over earth wire made me feel that more could be done.

Shortly after the start of the following spring, circumstances once more lent a hand and it became obvious that mowing the lawns was going to become difficult due to health problems. We decided to replace the lawns and make both the front and rear gardens more 'disabled friendly'.

The small front garden was levelled and covered with a layer of gravel and large potted plants put on top. At the rear of the house we elected to have raised flower beds with small retaining walls and what had been lawn would also be replaced with gravel.

Out came the chicken wire again and strips were fitted into the area that was grass. All overlapping joints were soldered together, then this new earth mat joined the old system. So, now all the areas of the garden were connected to the earth cable that ran around the metal fence post holders.

## Giant System

Having joined all the various earth wires into one giant system the lawn was covered with a membrane to inhibit the growth of weeds and grass. The whole lot was then covered with one and a half tonnes of gravel. To look pretty and to hold things in place, various pots with plants were placed around on the gravel area and hey presto, one disabled friendly garden and very happy Radio Amateur.

Since then the job has been extended by joining the large metal car-port at the side of the house and the wire supports down one side of the garden for a climbing plants, into the system. What this all amounts to - is that the whole of the rear garden and extension, together with the side of the house, has become one huge earth mat with my mast and h.f. antenna situated about in its centre!

As this work has been done over a period of two years, adding bits to the system as circumstances allowed, the improvement has not been very obvious. However, looking back through the logbook and allowing for the decline in band conditions at this stage of the sunspot cycle, I am still able to notice an overall improvement to my station.

As you may have guessed, I'm pleased with the final result - mind you I still have some wire left!

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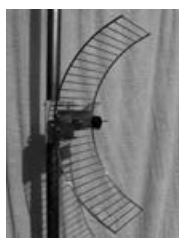
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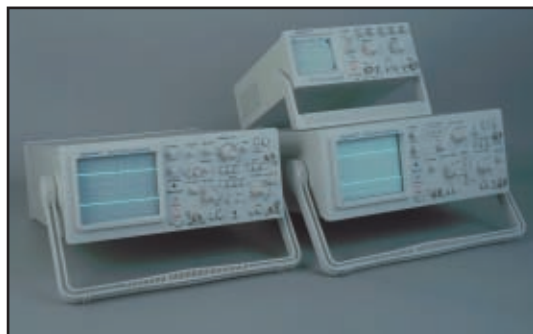
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# Value & Vintage

With his brown dust coat pockets bulging with Christmas fairy lights....it's Phil Cadman G4JCP who's in charge of the PW 'wireless' shop this month. One of his topics involves finding a job for all those old TV valves lurking in your spare box!

Compliments of the season to one and all! And a very warm welcome to my final column of 2003. This time I thought I'd feature a **YARR\*** project. Something to entertain you once the Christmas festivities are over, or if you're impatient before they start! First though, a query has arrived from **Colin Waldron**, who recently came across his old **H.A.C.** ('Hear All Continents') **'DX'** one-valve receiver. Colin would like to get the set going again but he's lost the original valve. I was surprised when he told me that his H.A.C. was the **DX MkII**, and that the valve had an Octal base and a top cap. (It seems my own H.A.C. model DX is the MkI version, which uses a B4-based 2V triode).

I found an advertisement for the DX MkII in a copy of *Practical Wireless* from 1971, but there was no mention of what valve it used. So, can anyone say what the valve was? Even better, does anyone still have a complete DX MkII?

\*YARR: Yet Another Regenerative Receiver!

## Television Valves

Last time I manned the 'shop' I mentioned why valves designed for use in television receivers are well worth investigating. There are still lots of them around and they're often sold quite cheaply.

Television valves are probably cheap because few are needed for spares these days and their 300mA heaters will often put people off using them in projects. But in fact 300mA heaters are no real problem; a low-voltage transformer - and maybe a series resistor - is all you need to get them glowing.

Some TV valves have characteristics identical to valves with 6.3V heaters. One example is the PCL86; an audio triode-pentode. Apart from the valve's 300mA heater, it's identical to the ECL86. The same is true for the UCL83 (100mA heater) and the ECL83 (6.3V heater).

The PCL83 should also be considered. But while the pentode section is the same in all three valve types, the triode section of the PCL83 is **quite different**. However, this is actually good news for us as the triode section is equivalent to a 6C4/ECC90, otherwise known as half a 12AU7/ECC82.

I know from experience that the 6C4 works extremely well as a regenerative detector in circuits designed for old battery triodes. So, I thought, why not design a set using a PCL83 as both regenerative detector and audio amplifier?

Valves manufactured for television receivers were designed to work from lower voltage h.t. supplies. So a 12-0-12V (or 0-24V) transformer, rated 6VA or more, followed by a voltage quadrupler - see **Fig. 1** - will provide sufficient voltage.

In fact, even a 9-0-9V (or 0-18V) transformer for T1 would probably be perfectly adequate. If you happen to have a 24-0-24V (or similar) transformer, then use a voltage doubler. Referring to **Fig. 1**, you can do that by simply removing D1 and D2 and replace C1 and C2 with a short circuit.

If you find 'hum' to be a problem, a single extra capacitive/resistive smoothing stage should do the

trick. In practice I've found a 330Ω resistor followed by a 100 or 220μF electrolytic capacitor reduces any ripple to a negligible amount.

The PCL83 has a 300mA heater and the **nominal** voltage drop - according to the data sheet - is 12.6V. Despite this I've found some valves deviate significantly from the quoted figure. Consequently, I find it best to put the chosen valve on a d.c. supply, wind up the voltage (gently!) until the valve heater is passing a steady 300mA and then measure the voltage across the heater.

Transformer T2 must provide at least the measured 'across the heater' voltage. But usually, you'll end up with more voltage than the valve needs, so use a series resistor to drop the extra volts.

**Note:** I've only shown basic circuits. If you build this receiver, please do fit an on/off switch and a fuse (and maybe a pilot lamp) and always remember to take appropriate safety precautions.

## The Circuit

The circuit of the receiver is shown in **Fig. 2**. However, I have to warn you that **I have not yet tried this circuit**. It ought to work; the question is, how well? There's only one way to find out - build it! So, I'll quickly run through the circuit and tell you what points to watch for.

Ideally, the coil should be an old commercial type, wound for a regenerative detector. If you haven't got one, then winding your own is quite easy. Rather than stick to medium waves, why not try short wave. After all, it is Christmas!

The 49m band is always a good choice, so assuming the tuning capacitor is set to around 200pF, you'll need a 3.5μH coil (L1) in the grid circuit to obtain resonance at 6MHz. Using a plastic 35mm-film canister - 32mm (1.25in) outside diameter - as a former, 10 turns (close wound) of insulated 0.6mm hook-up wire (1.2mm outside diameter) should produce the required inductance.

Wind L2, the reaction winding, at the 'hot' end of L1, and use around 30 to 50% of the number of turns on L1. The antenna coupling winding, L3, can be wound over (or adjacent to) the 'cold' end of L1. Use 20 to 30% of the turns on L1. By the way (when you've completed the project) if you can't get any reaction at all...just reverse the connections to the reaction winding.

The diagram, **Fig. 3**, shows my prototype coil. The grid winding is green (10 turns), the reaction winding red (4 turns), and the antenna coupling winding is white (3 turns).

The reaction capacitor, C5, can be either an air-spaced or solid dielectric type, but I always use an air-spaced type for the tuning capacitor C6. Accurate tuning on the short waves is critical, so use a reduction drive on C6 if you have one. Alternatively, wire a 15pF to 30pF variable capacitor in parallel with C6 to give a bandspread control.

Remember to take the 'earthy' ends of all the components associated with V1a **direct to chassis**; don't daisy-chain. If you build the circuit on a wood base board, use a **star earth** connection.

Don't worry if you haven't got a proper radio frequency choke (r.f.c.). A few dozen turns of enamelled copper wire, scramble-wound on a bit of ferrite rod will do.

**Alternative transformers:** For T3, you can use a 240V to 9V (3VA or more) mains transformer if you don't have a 25:1 output transformer in the junk box. I'm assuming an 8Ω loudspeaker here. To save on h.t. current, the output stage is slightly over-biased with R6 set at 330Ω. If you want maximum power output, reduce R6 to 220Ω.

## Other Valves

If you'd like to build the set, but haven't got a PCL83, there are other valves which could be used. Both the PCL86 and the PCL82 should work, although their triode sections - intended for audio/l.f. oscillator use - don't make particularly good regenerative detectors.

Even the PCL84, which was designed for use in video circuits, might work acceptably well. But please don't forget that all these valves have different base connections and need different cathode bias resistors, so do check the relevant data.

Another valve you could try is the PCL85 and while on the subject, I've got a couple of queries about this valve. They arise because, like us, TV manufacturers sometimes used a valve for other than its intended purpose.

The 'video output' PCL84 valve is a case in point; several manufacturers used it as an audio amplifier and output valve. Even 'our' PCL83 is described in Mullard literature as intended for use in TV field stages.

Yet the PCL85, which was also designed as a field oscillator/output valve was never, as far as I know, used for audio. Does anyone know why? And the PCL85 was superseded by the PCL805/85. Does anyone know what the difference is between the two versions?

While I was preparing the circuits for the V&V column, I realised that I hadn't any new PCL83 valves. Deciding to get hold of some, I took the opportunity to replenish part of my valve collection. Most of the valves I subsequently received were fine, but there were a couple of surprises.

Firstly, most of the PCL83s I received **weren't actually PCL83s at all!** Although they were clearly (but recently) labelled PCL83, the valve code was 'kU', and not code '28', the code I was expecting. After checking, I found that 'kU' was the code for the **HN309**, a triode-pentode made by **Mullard** for **M-OV**.

At first I thought there was a misprint in the codes, as the **HN309** is indeed the M-OV equivalent of the Mullard PCL83. But the list was correct! The HN309 is similar to the PCL83 but the triode section is **not the same**; the  $\mu$  is four times greater.

I informed the supplier, and I hope action was taken. But I am concerned, how often are valves being mislabelled? And what if someone purchased one for an old television? (It probably wouldn't have worked properly).

So, from now on, I shall check the valve code on all the valves I receive - providing the valve has a code. I suggest you do the same.

There is a recent list of codes at:

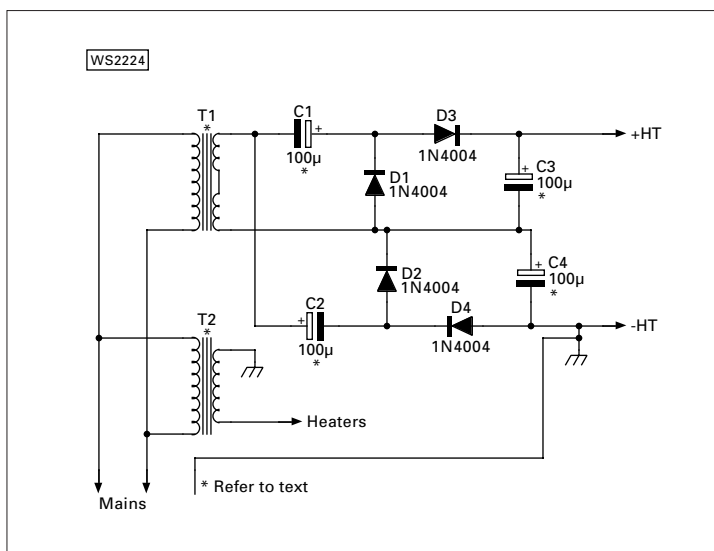


Fig. 1: Valves manufactured for television receivers were designed to work with low h.t. supplies. A 12-0-12V (or 0-24V) transformer, rated 6VA or more, followed by a voltage quadrupler will provide sufficient voltage (see text).

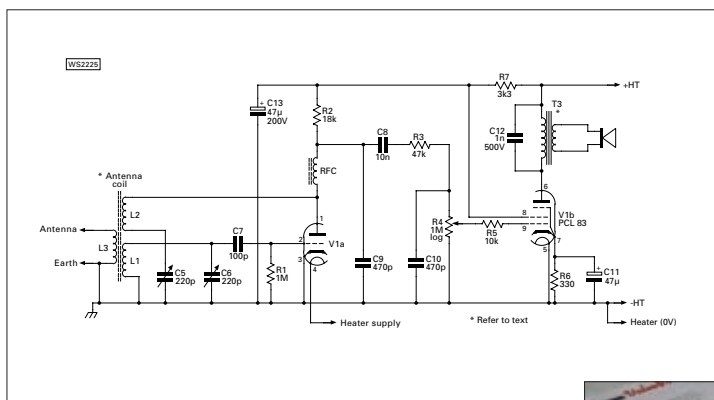


Fig. 2: Circuit of the simple regenerative receiver using valves originally designed for television receivers (see text).

<http://frank.pocnet.net/other/Philips/PhilipsCodeListAB.pdf>

For those without Internet access, I can supply a printed copy. Send a large s.a.s.e. (34p stamp please) to my address at the end of the column (**not** to the PW offices).



Fig. 3: Photograph showing G4JCP's prototype coil. The grid winding is green (10 turns), the reaction winding red (4 turns) and the antenna coupling winding is white (3 turns).

## Military Versions

When ordering new, old-stock (n.o.s.) valves, the supplier sometimes sends ex-military (CV-numbered) versions of the commercial type. This is quite in order; the military version is at least as good as the commercial version and is frequently better. But recently, some ex-military valves I've received have not been made in the UK (or Western Europe) and have not been up to the standard of earlier, 'home grown' valves.

Maybe it's just as well military gear no longer uses valves, judging by the state of some 'military' valves I've seen! So, I wonder, just when did the major valve manufacturers stop producing valves in the UK; does anyone know? From now on, I'm keeping every new or used valve I have (or can get my hands on) that was made in the UK or Western Europe!

One last thing, before you scurry off to the junk box, here's a suggestion for a Christmas stocking-filler. The 3rd edition of **Morgan Jones's** book **Valve Amplifiers** is now available (ISBN 0-7506-5694-8). At 617 pages, it's 60% bigger than the first edition. It's well worth a look if you're interested in valve audio amplifiers.

With that, have a very merry Christmas and a happy New Year. Do please send your comments and letters to me at: **21 Scotts Green Close, Scotts Green, Dudley, West Midlands DY1 2DX**. See you in 2004!

PW

# VHF DXER

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REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

**T**he 50MHz band's propagation during September was fairly uninspiring. It consisted of a handful of weak Sporadic-E (Sp-E) openings, some tentative trans-equatorial propagation (t.e.p.) into West Africa and a few days of auroral (Au) activity.

Your reports show that only countries situated to the south of the UK were worked and included the Balearic Islands (EH6), Ceuta and Melilla (EH9), Croatia (9A), Italy (I), Malta (9H), Morocco (CN), Spain (EH) and Yugoslavia (YU). One station CT1HZE (IM57) in southern Portugal was consistently heard putting in a very strong signal into central UK on many occasions.

At times the Sp-E propagation linked into the more southerly t.e.p. path enabling a few contacts to be made into Africa. Among the stations reported were TU2OJ (Ivory Coast), ZS6WB (South Africa) and the beacon station TR0A (Gabon) on 50.048MHz. Auroral backscatter openings were reported on September 16, 17, 18, 19, 24 but all were weak events with only local traffic (G to GM) being reported.

Some of the best DX contacts to be made in September occurred on the 144 and 430MHz bands. For days at a time, high pressure weather systems extended from the UK to Scandinavia and simultaneously to southern Europe, enabling some very good tropo contacts to be made on the v.h.f. and u.h.f. bands.

The period between September 13-19 was particularly good with c.w. and s.s.b. contacts being made from much of the UK into the Czech Republic (OK), Denmark (OZ), Finland (OH), France (F), Germany (DL), Italy (I), Norway (LA), Poland (SP), Spain (EA), Sweden (SM) and Switzerland (HB9). **John Quarmby G3XDY** (Suffolk JO02) is very active on the 430MHz band and reports working many stations throughout Europe.

On September 15 at 0630UTC John was fortunate to work YL3AG (Latvia) with s.s.b. signals peaking 56. An hour later the Estonian beacon ES0UHF (432.475MHz) provided 559 signals.

Activity was very high on the 144MHz band with Scandinavian stations such as LA2PHA (JO38), LA3BO (JO59), OH1NOR (KP00), OZ1BEF (JO46), SM0LQB (JO89), SM1LPU (JO97), SM3SJD (JP80), SK4BX

(JO79), SK6DK (JO67) and SK7MW (JO65) being worked during the morning and evening periods.

Stations such as OK1DCT/P, OK1KT, OK2BFH and SP6IWQ in central Europe were also contacted, as were IK2YXK, IV3DXW (JN65), I6BQI (JN72) further to the south-east. Many Spanish stations were worked in the EA1, EA2 and EA3 call areas.

Amongst these Spanish stations were the s.s.b. stations of EA1BXX/M (IN73), EA1TA (IN53), EB1EHO (IN73), EA2CMY (IN93), EA2KP (IN83) and EB3EXL/P (JN02). On

However most QSOs will be in the range between 1200 to 1600km. Normally the shower is fairly diffuse with very little activity being noted.

Previous observations of the *Leonid* meteor shower have shown that approximately every 33 years the event can reach storm proportions. A major peak occurred in 1966 and very recently in 1998 and 2001 the reflections from the *Leonid* meteors have been excellent.

I've been active during the *Leonids* meteor shower for over 20 years and my records show

## DAVID G4ASR TAKES A LOOK AT YOUR ACTIVITY REPORTS AND PROVIDES DETAILS OF THE LEONIDS METEOR SHOWER

September 16, 17 and 18 the 3000km path to the Canary Islands (EA8) opened up yet again on both the 144 and 430MHz bands. (Particularly amazing, as I only reported last month that this path was open for seven days in July and August).

Around the last week of July and first week of August, there are a very few days when a 3000km marine-duct extends between the Canary Islands and the UK. It was excellent this year with ten days of real DX on the v.h.f. and u.h.f. bands. During September the stations of EA8BPX and EA8TJ (both in IL18) made many c.w. and s.s.b. contacts with stations in EI, G, GI and GW at distances in excess of 3000km.

### LEONIDS METEOR SHOWER

The Earth is soon to pass through a belt of interplanetary debris called the *Leonids* meteor shower. This occurs every year in the period November 14-21 and in 2003 the maximum shower activity will occur on **Tuesday November 18**.

It's possible to make use of a meteor shower **Fig. 1**, by beaming towards the ionised trails and scattering their signals well beyond the horizon. (Meteor trails ionise at a height of around 90-110km in an area of the ionosphere designated the E-layer).

With ionisation occurring at this height it's possible to scatter signals up to 2000km away.

that conditions in the last six years (with one exception) have been very good. During the *Leonids* shower in 1997 I made 27 s.s.b. contacts on the 144MHz band with stations in 11 European countries.

It was difficult to assess when the peak occurred but certainly conditions appeared to be excellent between 0700-0800UTC and 0915-1000UTC. My longest distances contacted included the stations of YU7EW (1859km), I8MPO (1829km) and I8TWK (1827km).

Conditions in 1998 were absolutely fantastic with the 144MHz band open all over Europe for hours at a time. My longest distance contacts included the stations of RW1AW (2231km), LY2WR (1884km) and I8MPO (1829km).

Signals were reasonably strong during the *Leonids* shower in 1999 but nothing like that experienced in the previous year. Between 0130-0430UTC I made 14 s.s.b. contacts with stations in eight countries, EA, HA, I, OK, SM, S5, TK (Corsica) and YU.

Best DX, but not the furthest, was the station of TK5EP who I contacted at 0308UTC. In 2000 the meteor activity was very disappointing with only three contacts, CT1FAK, EA3TI and I3JTQ, being completed between 0300-0400UTC.

Meteor activity during the *Leonids* shower in 2001 was excellent with 81 s.s.b. contacts

made on the 144MHz band between 0400-1130UTC. The shower was exceptional between 0630-0830UTC and during this period many bursts lasting minutes at a time were heard giving the impression that a Sporadic-E opening was in progress.

My tally in 2001 included stations in 17 countries, DL, EA, F, HA, I, LA, LY, OE, OK, OM, SM, S5, TK, T9 (Bosnia), US (Ukraine), YU and 9A. Best DX during this shower were the stations of US5WU (1900km), YU1LA (1898km) and YU7VA (1852km).

In 2002, between 0300-1130UTC I made 56 s.s.b. contacts with stations in 17 countries. The top three s.s.b. contacts were with IK7UXY (2092km), OH7HDU (2133km) and my longest distance ever via meteor scatter RX1AS (KO59) at 2234km.

The *Leonids* shower is certainly a favourite of mine because in just six operating periods amounting to 36 hours I've made a total of 235 s.s.b. meteor scatter contacts with stations in 26 DXCC countries. There's no other propagation mode where contacts can be predicted with such certainty.

## PEAK ACTIVITY

So, what could happen this year and when will the peak activity occur? Much of the uncertainty in predicting *Leonid* storms in the past has been due to the assumption that the cometary dust was more or less constant in density, varying from the most dense near the comet and becoming less and less dense farther away from its orbit and the comet's position in orbit. However this did not take into account the possibility of stable dust trails in a similar orbit, trails that could after several revolutions become quite narrow and dense.

The *Leonids* have been in a cycle of strong activity up to 2002. Although no storm level activity is predicted during the next few years, it's always possible that above-normal reflections may be present through to 2006.

Some predictions calculate that the Earth may encounter an old dust trail on Thursday November 13 but it's possible that the 'miss' distance is large enough to negate any observed outburst. Because unpredicted events may happen, dedicated v.h.f. operators should try to monitor the *Leonids* activity between November 13-20 just in case.

Remember that 2003 is likely to be the last time for another 30 years that the *Leonids* meteor shower will put on a show. So get on the v.h.f. bands and make some noise!

## TIME TO RISE

Most (but not all) showers rise and set just like the Moon or Sun. With moonbounce communication you need to see the Moon to reflect signals to the other side of the world and it's exactly the same with meteor scatter contacts.



● It's possible to make use of a meteor shower by beaming towards the ionised trails and scattering their signals well beyond the horizon (see text).

Each shower has different rise and set times and the meteor stream needs to be well above the horizon for communication purposes. In Europe the shower rises above the horizon around 2330UTC and sets the following day around 1230UTC.

The best times from the UK for maximum communication efficiency are between 0200 to 1100UTC. For newcomers I suggest listening between 0500 to 0800UTC as this is the time when many Amateurs try the band before going to work. For the best results, I suggest that you go into your shack around 0200UTC on Tuesday November 18 and continue operating for the next nine hours.

Meteor scatter contacts are normally accomplished using a narrow band mode such as c.w. or s.s.b. Many stations are now using machine generated modulation (m.g.m.) such as FSK441 and this digital mode can enable a low power station to produce some quite remarkable results. However, during the peak of the shower when bursts of signals are very strong and last for many seconds the s.s.b. speech is infinitely more efficient.

With FSK441 you are forced to use one minute periods and the minimum time required to complete a contact will be five minutes if everything runs to plan. High speed Morse contacts with standardised 2.5 minute periods are even worse and the minimum time to complete is 12.5 minutes.

On the other hand, an s.s.b. contact using the correct break procedure may be completed within 15 seconds. It's possible to make four or five contacts in one minute during a good burst. In my opinion, it's best to follow the laid down IARU Region 1 meteor scatter procedures and these can be found in various

v.h.f. handbooks or on the Internet. However, if the shower is really good it may be possible to dispense with convention and make quick s.s.b. exchanges using traditional signal reporting methods.

I recommend operating on the 144MHz band as this is where all the 'real' DX activity is located. Medium power 50-100W will give good results, especially if coupled with a good antenna and low-loss feeder cable (contacts with low power are possible...but it can be a bit frustrating).

A horizontally mounted Yagi antenna of between 8 to 16-elements will be sufficient. But it will be useful to be able to rotate it towards selected activity areas throughout Europe.

Tune your receiver to the s.s.b. meteor scatter calling frequency of 144.200MHz. Listen to the operating practices of the more experienced stations before you get going...but don't stay on 144.200MHz all the time. Spread out around the s.s.b. sub-band where other stations will find you. You may even hear activity on the national calling frequency 144.300MHz. Use clear unambiguous phonetics (callsigns and reports are all you need).

Try to keep individual exchanges to around five seconds and a complete QSO in less than 15 seconds. Good luck and let me know how you got on.

## DEADLINES

Thank you for your reports. Please keep sending them in to the address and by the date given at the top of the column. Good luck with the DX and see you again next month.

*73 David G4ASR*

# HF HIGHLIGHTS

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

**T**his month I begin with a request for help from *PW* reader **Godfrey Manning G4GLM** who lives in Edgware, Middlesex. Now Godfrey was reading the DX

News in September's issue and noticed the surname of Polish scientist **Ignany Lukasiewicz** and the two special event call signs **HF150IL** and **HF8IL** being operated to commemorate his work.

Godfrey is trying to trace the relatives of his girlfriend **Chris Mlynec** who had a Polish father whose sister married a Lukasiewicz. Godfrey says "Sadly both have now passed away and if any of your readers can help with any information I would be most grateful".

high at around \$50 per band and 100W transmitter. He is trying to concentrate on US contacts, as he knows it is a difficult area for US Amateurs to work, but will work other stations as conditions allow.

Nepal is one of the world's least developed countries, landlocked between China and India on the flanks of the Eastern Himalayas with Everest, the highest mountain in the world, on its Northern border. Because of the location, Janusz is looking for any advice on what bands and at what times he should operate from during this time of the year. Suggestions are welcome via E-mail to

Wide DX Contest over the weekend of 29-30 November. Many operations are planned and some of these include operators **David K3LP** (leader), **Larry N7DD** and **Clint W3ARS** who will be heading to the West Indies and the French island of St. Martin (NA-105) arriving on 14 November.

They plan to install their antennas and operate in this year's contest as **FS/K3LP** as a Multi-Single Entry. Outside the contest you will find them operating as FS/Homecall. They will all return home in December and you can QSL via **Benson Owens K5KV, 16242 Cortez Ave, Prairieville, LA 70769, USA.**

## OLD LOGBOOKS FOUND

How often have you lost something only to discover it again years later! Well **Ron Lago AC7DX** has found the following 'old' logbooks and will be happy to try and confirm all requests for QSL cards. They include VK0HM Heard Island, 3D2WM, 4B9CQ, C21BD, HL9KLT, HL9MM, JT1AN 1978-80, KC6HA, KC6VE 1995, KP4AM 1979-81, T30AC, T30W 1994, V31UN, VQ9CQ, VQ9SS, VR1BD 1979, VP8AWU 1994, VR1AY 1979, VR1PK 1979, VU2ACD, XB9Z 1992, XH9Z 1993, XW8FA and ZK2VE Niue.

You should know that some of these are only partial logs, some of them barely readable, are hand written or in some disarray. Not all the 'blank' QSL cards for these operations have been found but Ron will reprint the ones that he does not have.

If you send in a request for a card Ron will have to search through the logs by hand to find your call so allow him plenty of time! Requests to confirm a contact can be made direct to **AC7DX, POB 25426, Eugene, Oregon 97402, USA** and remember to include a return envelope and postage.

## DX NEWS

**Janusz SP9FIH** is expected to be in Nepal (9N) between 15 November and 5 December and expects to be active on the 14, 18, 21 and 24MHz bands only. This is because the cost of the Amateur Radio licence is rather

## CARL MASON GW0VSW ROUNDS-UP THE LATEST NEWS FROM THE HF BANDS

**sp9fih@poczta.onet.pl**

The Y11BGD (Iraq) operation by **Mike OM2DX** has now finally been approved for DXCC credit. This operation was on hold for credit from March 18 this year and anyone who had their card rejected should now contact DXCC at **dxcc@arrl.org** to have their records updated.

**Johan PA3EXX** will operate as VK4WWI/9 from two new IOTAs in early December. He will be operating from Cato Reef (Coral Sea Islands Territory South) between the 2 and 4 December and from Marion Reef (Coral Sea Islands Territory North) between the 6 and 8 December. Please QSL via **Johan Willemsen PA3EXX, Belmolendijk 12, 1693 DJ Wervershoof, The Netherlands.**

If you need to work the Southeast Asian state of Cambodia, which is situated on the Gulf of Thailand, listen out for **Hubert XU7ACI** who is currently working as a missionary there based in Phnom Penh. He can sometimes be found on 14 and 21MHz s.s.b. between 1300-1500UTC. He will be there for the next two years and you can QSL via **Kevin Sherd KB8TJP, POB 601, Cedarville, OH 45314, USA.**

## THE CQ WW CW CONTEST

For the c.w. operators amongst you there will be plenty of activity in this year's CQ World-

Still in the West Indies but on the island of Antigua (NA-100) will be **Bud AA3B** who will use the call sign **V26K**. He will operate from the 26 November for four days including the contest using c.w. only and QSLs can go via the homecall.

Another operation to look out for will be from the island of Hawaii (OC-019) where **Bob KE0UI** will be active as **KH6/KE0UI** in the Single-Op/All Band/Low Power category. He may also be working a day before and after the contest from Kauai and a QSL can be sent for via Bob's homecall. Full details of this and all other CQ contests and awards can be found at **[www.cq-amateur-radio.com/awards.html](http://www.cq-amateur-radio.com/awards.html)**

## NEW CLUB STATION IN AFGHANISTAN

In Southern Asia now there's news of a new club station in Afghanistan, which is operating and uses the call sign **YA0J** from the capital city Kabul. Japanese Amateur **Sada JG1AHF** is also in the country and has just received his licence and can be heard signing **YA1D**. He will be on all bands from 3.5-28MHz after 1230UTC using mainly s.s.b. along with some slow c.w.

Digital modes will be used in the near future. This mountainous country can be difficult to operate from at the best of times as

it has great extremes of temperature and considerable snowfalls in winter. So, there are two stations to look out for and QSLs for both callsigns can be sent for via JG1OWV.

## DXPEDITION VIDEO

Many of us cannot take part in an exotic DXpedition. However, there are ways of seeing what goes on! The **K8T/K8O** video is now available and tells the story of their last DXpedition to American Samoa when they operated from Tutuila Island (OC-045) as K8T on all bands using c.w., s.s.b., RTTY, SSTV and PSK31 and Ofu Island



(OC-077) as K8O on 7-28MHz using c.w. and s.s.b. only.

The interesting 50 minute video not only shows Amateurs operating but also gives an interesting glimpse of the beauty of these islands and its people. The video is available for £15 or EU20 from **Glynn Jones GW0ANA, Nirvana, Castle Precinct, Llandough, Cowbridge CF71 7LX**. Further information can be found at [www.ukdxers.co.uk](http://www.ukdxers.co.uk) and any surplus funds from the sale of the video will go towards their next operation.

## YOUR REPORTS

The first of three new reporters start us off this month. **Gordon Mcleman MM3AWA**, Peterhead, Aberdeen, says "I live in a three storey building that overlooks the North Sea and I have worked many countries since I gained my licence in June 2002. My equipment includes a Kenwood TS-570DG and a nest of dipoles that are installed inside my attic. These all work well, although it can be difficult to operate at times as my 16 year old son Scott is also licensed and holds the callsign MM3AWD".

On 3.5MHz Gordon logged GM0OTS/MM (Scotland) onboard an oil rig in Ross Field at 1000UTC followed by 7MHz contacts with LX1KC (Luxembourg) 1730 and LA0HK (Norway) at 1745UTC.

Also on 7MHz was all c.w. man **Ted Trowell G2HKU** on the Isle of Sheppy, Kent,

who worked A61AR (United Arab Emirates), V63SXW (Micronesia), PY3CQ (Brazil), VO8AA (Canada) and JW/DJ3KR (Svalbard) around 1900UTC using his Ten-Tec Omni V and G5RV.

Mobile once again was **Mark Taylor G0LGJ** in Dereham

who was pleased to work ZL4IR (New Zealand) at 0526UTC using his Yaesu FT-100 and 100W s.s.b. to a Pro-Am whip antenna.

Operating as **2E1RAF** on 10MHz was **Roy Walker G0TAK** in Kendall, Cumbria, who was enjoying the new h.f. privileges working OH6NIR (Finland) 1550, OK1DXO (Czech Republic) 1823, LZ2ZR (Bulgaria) 1900, SP3PL (Poland) 1940, US8IX (Ukraine)

1945, ES0NW on Hilumaa Island (Estonia) EU-034 at 2042 and EA5FGJ (Spain) at 2323UTC using a Kenwood TS-570DG and G5IJ multi-band loop antenna.

There was also some good DX on this band for **Ted G2HKU** who operated around 2100UTC and found JA6LCJ/6 (Japan) and V63TXF (Micronesia).

## THE 14MHz BAND

A Kenwood TS-940 and inverted full-size G5RV are the chosen equipment for the second of our new reporters **Steve Gillespie MI3ATK** in Derry City (Londonderry), Northern Ireland. On 14MHz s.s.b. Steve's contacts this month included CT3MD (Madeira Island) AF-014 at 1503, DL1JGJ (Germany) 1512, IK2YVI (Italy) 1545, UA6UDV (European Russia) 1624, HA8RJ at 2055UTC.

Gordon MM3AWA logged FH/G4IRN (Mayotte) AF-027 at 1848, Z22JE (Zimbabwe) 1855, JH4UYB (Japan) 2000, HS0/IK4MRH (Thailand) 2107 and TT1AA (Chad) at 2115 showing just how well those indoor dipoles are working!

The third of our new reporters is **David Bates M0DFT** in New Milton, Hampshire, who used a Yaesu FT-107M, MFJ-971 portable tuner and inverted 'V' dipole to work PSK stations PT7AZ (Brazil) 1030, 4K5D

(Azerbaijan) 1807, TA2ES (Turkey) 2000, VE2WP (Canada) 2110, KG4PAP (USA) in Asheville, North Carolina 2215 and finally LU8NK (Argentina) at 2221UTC.

The mobile log of **Mark G0LGJ** included HK70AXY (Columbia) at 2256 followed slightly later by HI3TEJ (Dominican Republic) at 2307UTC.

**Mike Baker G3SUK** in Stowmarket, Suffolk, had a very active month judging by the size of his logbook. Stations worked here included HA8CZ (Hungary) 0900, RA9LI/P (Asiatic Russia) 0938, EA6/OE1JIS (Balearic Islands) 1237, HB9FAX (Switzerland) 1312, RA3NN/1 (European Russia) 1343, YZ3CAO (Yugoslavia) 1539, UN77EY/P7 (Kazakhstan) 1819, Z28ZL (Zimbabwe) 1825 and ES1BA (Estonia) at 1909UTC.

## THE 18 AND 21MHz BANDS

On to 18MHz now where Mike made just one contact working VP5VAC (Turks & Caicos Islands) NA-002 at 2028UTC. All contacts were made using his Icom IC-746, Carolina Windom and 80W s.s.b.

The frequency 21MHz had some 'reasonable' conditions according to **Martyn Medcalf M3VAM** in Chelmsford, Essex, who uses an IC-746 connected to a SGC237 tuner and 8.2m of wire as the antenna logging EC5AMK 1012, RG9A 1213, UA9MA 1231 and RU9WX (Asiatic Russia) at 1213UTC. Incidentally, UA9MA was worked using Martyn's new Buddipole antenna that he had only received the day before from W3FF. This is shortly to be imported by Waters & Stanton and appears to be working well so far!

## THE 24MHz BAND

There was just one report for the 24MHz band and that was from **Ted G2HKU** who managed to contact JY9QJ (Jordan) 1500 and PY2XB (Brazil) 1510 followed later at 2000UTC by TZ6RD (Mali) 'on the key'.

## SIGNING OFF

Well, that's about it for another month. There's no excuse for not working any DX according to our reporter's logbooks. Hopefully conditions will continue to improve slightly during the winter months especially on the lower bands. Now is the time to switch on and see just what you can work and don't forget, let us all know how you are getting on!

My thanks once again to **Tedd Mirgliotta KB8NW**, editor of the *OPDX Bulletin* for all the latest DX information. Have a good DX filled month

*73, Carl GW0VSW*

# DATA BURST

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**B**ack in the early 1980s packet radio was new, exciting and completely different from anything else in Amateur Radio. This excitement caught the imagination of an exploding number of Amateurs keen to be involved with this technology. The only way to receive packet transmissions in those days was to use a TNC and as there were no commercial models available a p.c.b. had to be purchased from the USA, plus a number of essential parts that were unobtainable here in the UK, to make our own. This was known as the TNC-1 and I still have mine to this day!

I can still remember my first 'Connected To' message coming up on the screen. I thought packet really was a mode of the future and I could see auto-start RTTY being confined to history. It was difficult to work auto-start RTTY with the technology we had then, but this provided the means to have mail delivered to the screen on a non-real-time basis. This caused a huge development of commercial TNCs and there were queues at exhibitions with dealers selling TNCs like hot cakes.

My TNC-1 cost £250, which now (20 years later) would be considered extortionate. However, such was our enthusiasm to become involved that it didn't matter.

The computer I used was also brought in from the USA and it was an old CPM machine, by Xerox. In fact it was just a board with a load of connections. I had to obtain two 8in disk drives to run my first BBS. I always found it strange that such a large disk could only hold 250k of data per side!

The CPM computer ran on h.f. and I had a link with W3TMZ in Maryland. We forwarded mail using that system for some time. Since then, and several desktop computers TNCs and DRSI cards later, the software has become mainly FBB and the platform used now is Windows variants with some Linux as well.

However, the passage of time has seen the peak of the packet network and we are now witnessing the fall from grace of what could have been a radio-based network but with limitations. Since the Internet has overtaken packet radio in respect of speed and use, the migration to a telephone based system has grown to the detriment of the radio-based network and is still growing.

In fact there are more BBS each day turning over to Telnet and poaching users and forwarding partners from the radio network.

The gradual destruction of the radio network is killing innovation, de-populating the v.h.f. and u.h.f. bands of the packet signals and turning us into a telephone based hobby.

I can see the attraction of the Internet. It's faster, so more and more users are migrating there, E-mails take seconds to reach their destinations and the protocol allows pictures, diagrams and interesting layouts to be used. Packet, by comparison, is slow, not always 100% reliable, text only and not as attractive -

passing to just about anywhere, so designators are history. Intercontinental arguments are on going and there is a deluge of hate mail!

The DX Cluster is mainly Internet based, so you can now choose a Cluster in ZS, W6 or VK and log in. Chatrooms are common and a poll at my local Radio Club showed that 24 out of 26 people were on the Internet and two were on packet. What hobby are we in? Taking all this to the extreme, do we really need callsigns any more?

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## ROGER COOKE G3LDI LOOKS AT PACKET RADIO, PAST, PRESENT AND FUTURE

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I did say it had limitations. However, there's no spam on packet (real spam, not just the 'debating') very few viruses and bugs. In my opinion there's a lot more satisfaction in achieving the objective.

It looks like we now have an Internet based network plus the occasional radio link with BBSs doing their thing on the Internet rather than on the air. This old Luddite has to accept this as a fact and get used to it, even though I disapprove!

It's not that I am anti modern technology, it's just that I think the telephone has no place in our hobby as far as communications is concerned. I use the Internet as a reference and for E-mail, but I like to keep all Amateur Radio 'traffic' on the Amateur bands.

As far as technology is concerned, I ran a Satgate until a couple of months ago, when UO-22 went into eclipse and that network effectively closed. It wasn't missed though, as all that traffic we used to handle now goes via the Internet. Similarly my h.f. packet port has been closed for the last year, but was not missed as all that traffic is now on the Internet.

Here in Norfolk, the user base has dropped dramatically. I had over 70 users a few years ago, now it's less than 15. Internet broadband connected BBS GB7VLS has less than five users, on the radio links, and GB7TDG in Thetford and GB7CFB in Huntingfield both have none at all! They are considering closure, effectively cutting off Norfolk altogether.

Looking at the sysop mail on my BBS, the accusations and frustrations are becoming apparent. The GBR mail is fair game now for

You don't need an Amateur licence to operate on the Internet. Anybody could obtain the software and together with a computer and modem, set up and become part of a new network on the Internet, with users logging in, as and where they pleased. This would free up the v.h.f./u.h.f. bands completely from data signals and even 'phone, because with VOIP, the end user could also have instant access to anywhere in the world.

The access already exists with Echolink and the Internet connected repeaters, so there's no need to buy or make Amateur equipment. There is no propagation concerns or QRM, QSB, no expensive antennas are needed and you can chat for the price of a local telephone call.

I have seen no comments from the DCC, in fact I tried four times to send packet mail and got no response at all and I've not had a reply to my E-mail either! It would be interesting to know just how the DCC view the situation.

When I think of the money I could have saved, the frustrations I need not have had, the hard work putting my station together, life could have been so much easier. Just one thought though, the Internet ain't Amateur Radio however you paint it!

### WRITELOG AND RTTY CONTESTS

Several of the main RTTY contests will be over by the time you read this and hopefully you've had some fun taking part. Assuming you have downloaded the software and set it all up with Windows, it's worth taking some time out to learn more about the program before using it

in anger! If you don't you will only generate anger when you try to use it on air and I speak from experience.

There are several nice features about *Writelog* and setting up your screen is very important. Sample screens are available for you to download. If you go to [www.writelog.com](http://www.writelog.com) log on and then click on 'Product Info Arrow' down until you see 'Click here to view a sample logging screen' in red letters. The first two are for RTTY and the third one is for c.w./s.s.b.

You can set up DX Cluster access over radio or Telnet and if the packet spot contains a QSX and should you be running transceiver control, automatically set the transceiver up split. The RTTY Mode AFC or Auto tune you won't need to use your RIT to tune in stations off frequency as Autotune will do it for you. It scans 60Hz either side of your CQ frequency for calling stations. However, be wary of this and remember to check it out of automatic frequency control (a.f.c.) when you are in search and pounce mode or **you** will be off frequency!

## MIX2W PROGRAM

*Mix2W* is another program that has gained a lot of popularity lately. This is a program that you have to register and pay for, but it has a very attractive layout on-screen and will cover all the data modes.

Written by **UT2UZ** and **UU9JDR** *Mix2W* has a very similar set-up procedure to *Writelog*. You can set lots of different options, windows and macros and although it's not designed specifically as a contest program, it can be used as such. It covers all data modes, including the new PSK63 and also SSTV, FAX, s.s.b. and c.w., not to mention some of the rarer ones like Throb and MT63. The screen layout is shown in **Fig. 1**.

The program is not designed specifically for contest operation but is being developed so a later version will be quite capable. In fact the version I have does export a log to Cabrillo format, so at least that will be suitable for most of the major RTTY contests, as this appears to be the standard format used.

## CREED TELEPRINTER REMEMBERED

Something dear to my heart is shown in **Fig. 2**, a Creed 7B Teleprinter. This is the machine on which I 'cut my teeth' in many a RTTY contest in the 1960s. Not many people run such a beast these days.

The noise of the Creed was horrific over a lengthy contest period, especially if you operated it as seen in **Fig. 2**. I was lucky, I managed to acquire a 'silence cover' to make it tolerable. However, there was no such thing to put over the auto-sender for sending 'brag-tapes' as they were called.

Being confined to a shed in the garden was probably the best thing for an RTTYer of that

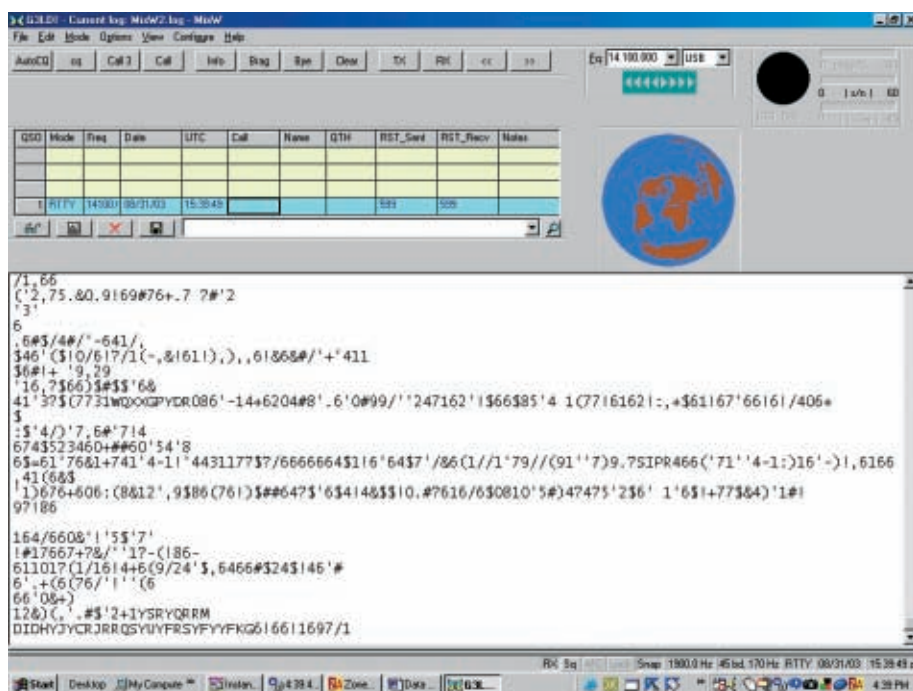


Fig. 1: Screen layout of *Writelog* (see text).

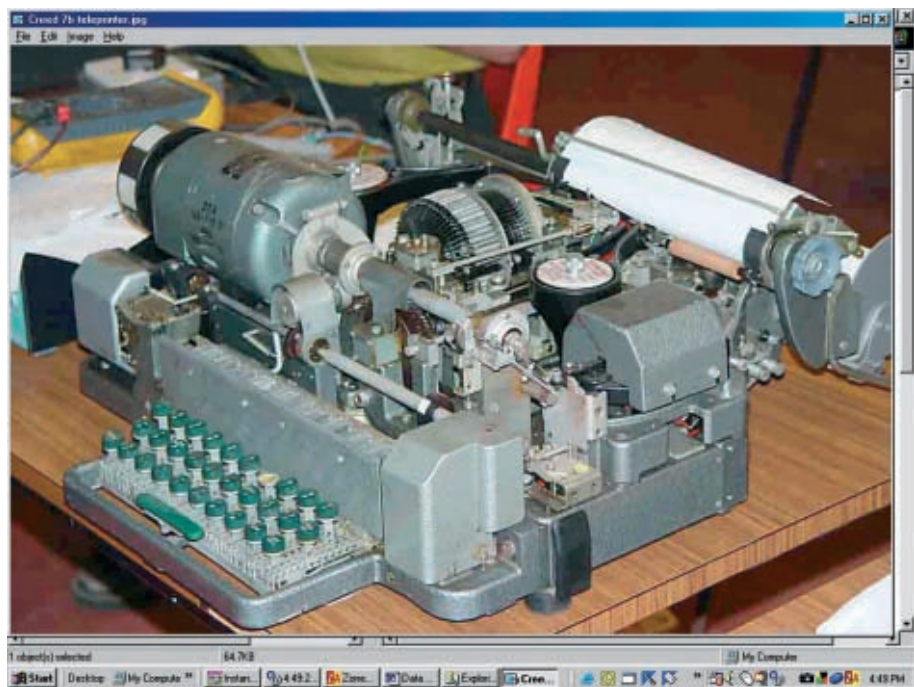


Fig. 2: Roger G3LDI fondly remembers his long since retired Creed 7B Teleprinter.

era! In those days I used to wear a necktie and that was a very dangerous item of clothing to wear when servicing the teleprinter! You can imagine the consequences! The preparation of the machine and oiling it, adjusting the gaps and checking paper were all part of the pre-contest work that had to be carried out.

I still look at that picture of the Creed teleprinter with affection. I can take satisfaction from knowing that I was instrumental in encouraging quite a number of other Amateurs to join in the fun!

I knew the teleprinter era had come to an end when I took two model 32ASR teleprinters, on plinths, with RS-232 interfaces, fully working to the local club sale. They both ended up in the skip, not even a 10p bid. To think that 40 years prior to that I would have given my right arm for one! Such is progress I guess.

That's all for this time so until my next column in the March issue - keep my mailbox bursting with all your Data news. Cheerio for now.

*Roger G3LDI*

# IN VISION

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The North London Television Group (NLTG), which runs the 1270MHz (24cm) ATV repeater **GB3EN** at Enfield is the latest club to consider adding extra facilities to its repeater. The ideas are for two additional input bands, remote control and possibly even digital transmission. All the new facilities are intended to be implemented as a completely new installation up to the input to the transmitter to enable off-site testing and a neater installation. Obviously, 2.4GHz (13cm) and 10GHz (3cm) are the proposed extra inputs, with 430MHz (70cm) as a digital output an "interesting possibility".

An information sheet for the proposed upgrades to GB3EN has been prepared by the

gateway box with a permanent connection to the Internet, enabling 144MHz voice contacts to anywhere in the world. Steve knows that there is plenty of ATV interest in the city and is already making enquiries at a few likely sites, one is at the technical college where he is a student.

First though, Steve needs to know that there is adequate local support: "I have started the ball rolling by setting up a newsgroup to gather information and share it for all who are interested, so that we can log the progress. I will be seeing **Peter G4KQU** to see if I can put a link to this on the GB3DX web page – which gets over 500 hits a day!"

Steve adds: "Graham - many thanks for the chat at Donington, it's nice to see that



● The BATC Chairman Trevor Brown G8CJS attempts to readjust a vintage studio camera at the Telford rally.

for everyone to meet many of the committee and see the club's services. Chairman **Trevor Brown G8CJS** handed out back issues of the BATC's magazine, *CQ-TV* and club treasurer **Brian Summers G8GQS** set up and aligned a broadcast TV camera which, standing on the grass outside in the sun, delivered excellent pictures and attracted great interest.

**Peter Delaney G8KZG** displayed the components available through the Membership Services, member **Howard Parker** displayed his camera restoration, while *CQTV* Editor **Ian Pawson** and **Brian Kelly** staffed the membership and publications table. Club Liaison officer **Graham Shirville G3VZV** displayed wall charts showing some of the many ATV repeaters available around the country.

Thanks to the **Shrewsbury ARS** for offering the facilities, without which the BATC would not have been able to hold any sizeable event in 2003.

## BIENNIEL GENERAL MEETING

Expect to see details of the BATC's Biennial General Meeting (BGM) during 2004. This will be the third year since the previous BGM, notionally held every two years but the club's rules do allow some flexibility!

The club usually places the BGM as the concluding event of its ATV Convention. Last time it was held at Shuttleworth College, Old Warden near Bedford.

The BGM is an important meeting and it's something that members should want to attend, perhaps particularly with some of the Amateur Radio issues affecting the ATV scene at the moment. So, rest assured that *In Vision* will be keeping its readers (and I was delighted to meet some of you in person at rallies this year!) fully informed as the BATC committee decides on a date and venue.

Until next time, keep 'in vision' and don't forget to let me know your ATV news.

*Graham G8EMX*

## GRAHAM G8EMX ROUNDS-UP THE LATEST NEWS FROM THE AMATEUR TELEVISION SCENE

NLTG in which the group considers possible input frequencies by listing those currently used by other repeaters. On 13cm, these range from 2.326GHz (GB3FV, Wisbech) up to 2.3465GHz (GB3CZ, Clacton).

The NLTG would prefer to use 2.330GHz but as current information suggests that primary users are restricting Amateur use of the lower portion of 13cm, the group may have to reconsider. Of the nine ATV repeaters listed on 10GHz, six use an input at 10.425GHz.

### FRESH INITIATIVE

Birmingham has never enjoyed the presence of an Amateur TV repeater. But there's now a fresh initiative to re-start this very long standing project which has been 'in the background' of the Amateur TV scene for many years.

The provision of a 24cm (1.3GHz) ATV repeater was originally started under the 'banner' of the Beacons Repeater Group (BRG), which has achieved a 10GHz unit in Sedgley, but the 24cm project never really progressed beyond the hardware stage (which still exists). Path loss predictions to Clee Hill radar were always a concern and in recent years the impetus within the BRG has lessened. But now, a very keen ATV operator who is already associated with a new 144MHz box in the city is determined to give the project a fresh approach.

**Steven Homer M1KQU** of the Birmingham Online Repeater Group helped to put v.h.f. repeater **GB3DX** (Rx: 145.7125; Tx: 145.1125, Yardley, Birmingham) on air. This is an Internet

someone else has a passion to have an ATV repeater here in Birmingham".

To find out more, go to <http://groups.yahoo.com/group/birminghamatv/>

Even with local support, there seems to be a continuing problem with the licencing of new repeaters on most of the bands. It's still unclear why this (suddenly) should be. If the situation persists it will become a significant constraint on Amateur Radio development, innovation and worse than these, enthusiasm for the hobby. It has even been suggested that, as a protest, all Amateur transmitters could be turned on for 24 hours at full power!

### ON THE ROAD WITH BATC

The Leicester Amateur Radio Show at Donington more than compensated for the disappointments of Stevenage and Northampton with the British Amateur Television Club (BATC) making its final rally appearance for 2003. Their stand was spread across two tables, so the publications were laid out across one, with an information board and live 24cm ATV taking most of the other table.

There were two possibilities for TV demonstrations. The first was a two-way set-up with the RSGB publicity vehicle **GB4FUN** outside the hall and the second was a very short 'hop' across the tables. On this occasion, GB4FUN was using a licence-free 'hatcam', so a 'line of sight' path across the BATC stand assured perfect P5 pictures!

The BATC was really 'in vision' at the Telford Rally in September. The club filled one of the conference rooms with an opportunity

# TUNE-IN

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I don't want to dampen your festive cheer but broadcasters just don't seem to be able to leave funding alone do they? In my previous column the Australian government were the culprits and earlier this year it was the Austrians and the Israelis. Now it's the turn of the Swiss!

**Swiss Radio International**, now more properly known as **Swissinfo/SRI**, could lose all its government funding by 2006. Why? Same old reason - the government has decided that it's got to cut back on spending.

So up come the proposals, in this case

should allow satellite direct to car reception, something no other satellite system can manage in Europe, Africa and beyond.

With **DAB** and **DRM** having recently got together to blend their skills towards creating effective digital international broadcasting, it's good news to hear that dramatically cheaper chips may soon be available for DAB radios. German company **Sonarics Labs** has unveiled a high-performance DAB radio reference design that may be a significant step towards more affordable digital radio receivers. The design breaks the DAB module cost barrier of

and nearly all of Latin America. Satellite receivers now on the island can be easily tuned to receive the signal. So that's all right!

Spanish is of course one of the world's major languages, with the Spaniards in times gone by having captured substantial bits of the world map. Don't forget that Spain itself has an international service in Arabic, English, French, German, Russian and Sefardic (a Hebrew language for Africa and the Middle East). The summer schedule of **Radio Exterior de España** was America 0000-0059; Africa 2000-2059 (Mon-Fri) and 2100-2159 on 9.570 (Sat-Sun); Europe 2000-2059 on 15.290 (Mon-Fri) and 2100-2159 on 9.940MHz (Sat-Sun). Their website is [www.rtve.es/rne/ree](http://www.rtve.es/rne/ree)

**Radio New Zealand International** had a bit of a problem at the end of August when their short wave transmitter suffered a series of major faults following a lightning strike. Happily, Radio Australia rode to the rescue, transmitting the RNZI breakfast session each morning on **9580kHz**. At the time of writing, RNZI were continuing to do this until replacement parts reached New Zealand. The station continued to broadcast on the Internet on [www.rnzi.com](http://www.rnzi.com)

## TOM HAS NEWS THAT MERLIN COMMUNICATIONS HAVE UNVEILED THE UK'S FIRST MEDIUM WAVE DIGITAL TRANSMITTER

hoping to save some £1.8 billion over the next few years. This tidy sum and the resulting cuts have apparently proved controversial in Switzerland. But if the Swiss government decides to give up paying for an international radio service, the burden of running it would then bounce straight back to the parent, the **Swiss Broadcasting Corporation**.

(This sort of scheme didn't work at all well in Austria, which can now only offer a very limited service, so we have to hope that someone in the Swiss Broadcasting Corporation believes fervently enough in external broadcasting).

Swiss Radio International set its face against short wave some years ago, being set to go all-Internet. However, some short wave remains with frequencies listed rather obscurely on the website [www.swissinfo.org](http://www.swissinfo.org) - look under 'Multimedia'.

For the summer schedule, this being written in early October, the schedule was: Middle East & Africa: 0600-0700 on 13.660, 16.446, 21.750; 0830-1030 on 21.770; 1630-1815 on 13.750, 16.615, 17.870; 1830-2130 on 11.815, 13.645, 13.796 and 15.230 and South America: 2200-0000 on 9.885 and 11.906MHz which at least contains a lot more frequencies than recently.

There are some further digital developments to report. Firstly **WorldSpace** (which is still active in spite of gloomy prognostications) is fitting a new kind of antenna to its receivers. They will be omni-directional, as opposed to narrow-beam. The antennas will be made by Bluedelta and

\$25, using the CSM1 chip from the Analog Devices BlackfinT DSP family which sells for less than US \$5. The design should enable quick production and low-cost receivers.

### MERLIN COMMUNICATIONS

There's dramatic news from VT Merlin Communications, who now run the BBC World Service transmitter network. Merlin has unveiled the UK's first medium wave digital transmitter at its Orfordness site in East Anglia. This is the home of the very powerful **648kHz** analogue transmitter.

The £500,000 transmitter will allow high-quality reception of BBC World Service in the Netherlands, much of Belgium, Luxembourg and Northern France. During the night-time the **1296kHz** signal may also reach Germany. Over the next year, engineers will accurately evaluate the coverage parameters.

The USA continues to 'hammer away' at getting its message into **Cuba**. This is mainly done by means of **Radio Marti** and **TV Marti**. The US Broadcasting Board of Governors is now going to see if TV Marti can be sent to the Cuban people by satellite. They've discovered that many Cubans use satellite dishes so the idea is to allow viewers in Cuba to receive the TV Marti signal via free-to-air reception.

The TV Marti service could then be viewed by anyone with a dish and an ordinary digital receiver. Radio Marti's signal would also be included in the transmission.

Satellite power will be provided by Hispasat, with a footprint covering all of Cuba



For all your short wave listening needs, the *Global Broadcasting Guide* from the **Association for International Broadcasting (AIB)** is a comprehensive listing of all the frequencies used for English transmissions by the international radio broadcasters. You can now order this well-established publication online at [www.aib.org.uk](http://www.aib.org.uk) or from the *PW Book Store* priced at £2.75 plus P&P.

A one-year, two-edition subscription to the *Global Broadcasting Guide* costs just £7.50 and in addition to the frequencies, now brings you a wide-ranging information source about international broadcasting. Well worth a look.

*Bye for now, Tom*

# Practical Wireless

Index of Antenna, Features, Practical  
Projects, Reviews & Theory articles

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Yaesu FT-2800M VHF FM Transceiver by John Goodall G0SKR .....	24 Oct
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## AT-1000 £499.95

1kW Automatic ATU.  
Covers 1.8 - 54MHz.  
1kW SSB. 750W CW.  
500W Digital. 100W 6m.  
Tunes antenna in 1 - 8 seconds.  
Approximate SWR Rating of 10:1.



## AT-11MP £199.95

Automatic ATU.  
Covers 1.8 - 30MHz.  
Cross needle meter measures,  
forward & reflected, power & SWR.  
Tunes in antenna in 0.1 - 5 seconds.  
Inter-connecting radio cables available.



## AT-897 £199.95

Automatic ATU for use with FT-897.  
Covers 1.8 - 54MHz.  
HF Power Rating: 0.01 - 100W.  
Approximate SWR Rating of 10:1.  
Tunes antenna in 1 - 7 seconds.  
CAT can also be used at the same time.



## RT-11 £179.95

Waterproof Automatic ATU.  
Covers 1.8 - 54MHz.  
5 - 125W of RF Power.  
Tunes antenna in 0.1 - 5 seconds.  
SWR Ratio 10:1 or less, 3:1 on 6m.



## Z-11 £129.95

Portable Automatic ATU.  
Covers 1.8 - 30MHz.  
Tunes in antenna in 0.1 - 3 seconds.  
Power rating 0.1 - 60W.



## Z-100 £129.95

Automatic Antenna Tuner.  
Covers 1.8 - 54MHz.  
0.1 - 125 Watts.  
Tunes antenna in 0.5 - 6 seconds.  
SWR Rating of 10:1.

**COMING SOON**



## RT-11RC £39.95

Remote control for RT-11.  
Manual tune control.



## RBA-1 £29.95

4:1 Balun.  
Covers 1.8 - 30MHz.  
Takes upto 200W.



## K-OTT £49.95

Kenwood One Touch Tune.  
Interface module from Kenwood  
to AT-11MP or RT-11.  
Compatible with most Kenwood radios.

...America's Best!




RX340  
best professional receiver  
award 2003

Ten-Tec products held in UK stock for immediate despatch, CE approved, 12 month warranty. Short wave DSP receivers, kits and HF transceiver available, see the web for details or request the kit catalogue and leaflets.

UK mainland carriage £10 on main items, typically £5 on smaller items.

UK sales & support office operated by AOR UK LTD. E&OE.

**MADE IN  
USA**

## JUPITER 538 'DSP' HF TRANSCEIVER

Now available from UK stock for immediate despatch. Coverage is 160 - 10m, 100W output, general coverage RX, 34 DSP IF bandwidths on RX, notch filter, noise reduction, DSP TX. 12V DC operation. Many options available including 963PS mains power supply, microphones etc



**538 JUPITER** HF DSP transceiver 160 - 10m with gen cov RX 100W ..... **1159.00**

**538AT JUPITER** HF DSP transceiver with internal auto ATU 160 - 10m with gen cov RX 100W ..... **1439.00**

**302J** Optional remote keypad & encoder..... **129.00**

**307C** Optional external speaker..... **89.00**

**310** Optional fan (only required for long TX) ..... **39.00**

**701** Hand microphone ..... **27.00**

**706** Stand microphone ..... **90.00**

**963PS** Switching mains PSU 25A ..... **159.00**

**R9624** Studio-One mic by Heil ..... **129.00**

**R9625** CC1 cable for Heil Studio-One mic ..... **24.00**

**R9626** TB1 table stand for Studio-One mic ..... **24.00**



**ORION 565** The preparation has begun to bring the 'twin receiver equipped' Orion transceiver to the UK market. Please keep an eye out for TenTec advertising and the TenTec DIRECT UK web site for further details.

**TEN-TEC DIRECT** Tel: 01773 880788 Fax: 01773 880780

4E East Mill, Bridgefoot, Belper, Derbyshire, DE56 2UA England

tentec@aoruk.com www.aoruk.com/tentec

TEN-TEC USA, 1185 Dolly Parton Parkway, Sevierville, TN 37862, USA

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bhi

Have yourself a noise free Christmas.

Say goodbye to interference with a  
bhi noise eliminating speaker or module.

- Dramatically reduce interference and unwanted background noise
- Listen clearly on SSB, HF, UHF, VHF and FM
- Superb voice quality - with virtually no distortion
- Enables you to upgrade your existing equipment to DSP
- Significantly reduces heterodyne tones



### NES10-2 & NES5

- ◆ Speaker with bhi's unique fully adaptive built-in DSP noise cancelling 9-35dB ◆ 8 filter settings and input sensitivity control (NES10-2) ◆ Preset DSP filter setting for "plug and go" operation (NES5)
- ◆ Earphone socket (NES10-2) ◆ Plugs directly into 3.5mm speaker socket ◆ Handles up to 5 watts input and 2.5 watts max output ◆ Requires 12-24 V DC 500mA ◆ Includes fused DC power lead

"Very effective and helpful on the H.F. broadcast and amateur bands", PW Sept '03

### NEIM1031

- ◆ Flexible in-line unit ◆ bhi's unique fully adaptive DSP noise cancelling 9-35dB ◆ 8 filter levels ◆ Input sensitivity control with LEDs ◆ Audio output 2.5W RMS max (8 ohms) ◆ On/off switch with bypass facility ◆ Audio connections: Line level in/out (RCA Phono), Audio in/out 3.5mm mono jack ◆ Headphone socket ◆ Power 12-24 V DC 500mA ◆ Supplied with a fused DC power lead and a 3.5mm - 3.5mm audio lead for immediate operation

### NES10-2

DSP Noise eliminating speaker.....£99.95

### NES5

Basic (plug and go) DSP noise eliminating speaker.....£79.95

### 1042 Switch Box

Allows connection of up to 6 pieces of equipment to one speaker. Includes 2 free audio leads .....£29.95 + £2.75 P&P.

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IC-7400 .....£1249  
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IC-706 MkII G .....£799  
IC-703 .....£579  
IC-2725E .....£305  
IC-910H .....£1129  
IC-E90 .....£269  
IC-R8500 .....£1149  
IC-R3 .....£389  
IC-R5 .....£169

YAESU

FT-1000MP MkV .....£2399  
FT-1000MP Field .....£1799  
FT-847 .....£1129  
FT-857 .....£789  
FT-897 .....£969  
FT-817 .....£549  
FT-8900 .....£359  
FT-8800 .....£319  
VX-7R .....£299  
VX-2E .....£169  
VR-5000 .....£569  
VR-500 .....£199

KENWOOD

TS-2000 .....£1539  
TS-570DGE .....£853  
TM-D700E .....£439  
TM-G707E .....£279  
TH-F7E .....£249

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AR-8600 Mk2 .....£649.00  
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At: \_\_\_\_\_ UTC QRG: \_\_\_\_\_ MHz

Wrg/Clg: \_\_\_\_\_ RST \_\_\_\_\_

Wrg/Clg: \_\_\_\_\_ RST \_\_\_\_\_ At: \_\_\_\_\_ UTC

QRM: \_\_\_\_\_ QRN: \_\_\_\_\_ QSB: \_\_\_\_\_

Remarks: \_\_\_\_\_

My RX: \_\_\_\_\_ Ant: \_\_\_\_\_

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# Trader's Table

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## THE SHORTWAVE SHOP

01202 490099

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ICOM IC746 HF/6/2mtr TRANSCEIVER.....	£395
ICOM IC 706 MK2G HF/VHF/ UHF TCVR.....	£625
ICOM IC471E UHF MULTIMODE TCVR.....	£495
YAESU FT290R MK1 VHF TRANSCEIVER.....	£145
YAESU FT847 HF/VHF/ UHF TCVR.....	£349
YAESU FT747 HF TRANSCEIVER.....	£195
YAESU FT1000 TCVR+SPKR+MC100 MIC.....	£1395
YAESU FT690R MK2 50MHz MULTIMODE.....	£255
YAESU FT817 HF TRANSCEIVER.....	£395
ICOM IC Q7E VHF/UHF TRANSCEIVER.....	£135
ICOM IC275H V F MULTIMODE TCVR.....	£450
ICOM IC 706 MK1 HF/VHF/ UHF TCVR.....	£455
KENWOOD TS2008B HF/50/144/430 TCVR.....	£325
KENWOOD TR751E VHF MULTIMODE.....	£199
YAESU FT 726 50/144/433 TCVR.....	£425
YAESU FT1500M VHF MOBILE TCVR.....	£120
YAESU FT 736 50/144/433MHz TCVR.....	£595

### RECEIVERS

ICOM IC71E HF RECEIVER.....	£395
ICOM PCR1000 HF/ VHF/UHF RECEIVER.....	£249
FAIRHAVEN RD500 WITH KEYBOARD.....	£525
ICOM IC-R2 H/H RECEIVER.....	£99
KENWOOD R5000 HF+VHF RECEIVER.....	£475
KENWOOD R5000 HF RECEIVER.....	£395
KENWOOD R600 HF RECEIVER.....	£165
LOWE HF225 HF RCVR with KEYPAD.....	£250
AKD HF3 HF RECEIVER.....	£95
AOR AR8600 HF VHF UHF RECEIVER.....	£525
AOR AR8200 WIDE BAND H/H RCVR.....	£225
AOR AR1000 WIDE BAND H/H RCVR.....	£385
YUPITERU MV77300 H/H RCVR.....	£185
YUPITERU MV77100 H/H RECEIVER.....	£145
YAESU FRG100 RECEIVER inc PSU.....	£295
YAESU VR5000 WIDE BAND RCVR.....	£399
YAESU FRG8800 HF RECEIVER.....	£225
YAESU FRG 7 HF RECEIVER.....	£95
REALISTIC DX394 HF RECEIVER.....	£85
BEARCAT 278XLT BASE SCANNER.....	£95
BEARCAT UBC120XLT. H/H SCANNER.....	£95

### ACCESSORIES

KENWOOD BC15A CHARGER/TH28/78.....	£39
KENWOOD SP31 SPEAKER 850/870.....	£75
KENWOOD PS31 PSU 850/870.....	£135
GLOBAL 2000 SWL ANTENNA TUNER.....	£69
MFJ 931 ARTIFICIAL EARTH UNIT.....	£89
YAESU FP1030A 30A POWER SUPPLY.....	£139
YAESU FP707 POWER SUPPLY.....	£85
WATSON SUPER SEARCHER COUNTER.....	£65
DRAE SLOW SCAN TV UNIT.....	£35
TIMEWAVE DSP59PLUS DSP UNIT.....	£89
KANTRONICS KP4C TNC.....	£95
YAESU FT100 FM UNIT.....	£20
TINY 2 PACKET TNC.....	£95
HF MODULE FOR FT726.....	£125
RTTY BOARD FOR NRD 525/535.....	£95
RTTY TUNING INDICATOR UNIT.....	£35
DAIWA PS30 25A POWER SUPPLY.....	£70

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## NEVADA

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ALINCO DRMO6 6M FM TRANSCEIVER.....	£129
ICOM IC-207H TWINBAND MOBILE TRANSCEIVER.....	£225
ICOM IC-2725E 2M/70CM MOBILE TRANSCEIVER.....	£259
ICOM IC-275E 2M MULTIMODE BASE TRANSCEIVER.....	£399
ICOM IC-T8E 6M/2M/70CM HANDI.....	£225
KENWOOD TM702 TWINBAND TRANSCEIVER.....	£175
YAESU FT-680R2 6M MULTIMODE MOBILE TRANSCEIVER.....	£229
YAESU FT-8100R 2M/70CM MOBILE TRANSCEIVER.....	£249
YAESU FT12014 VHF PMR TRANSCEIVER.....	£75
YAESU VX-5R+ACC 6M-70CM HANDI + VC25 CASE MIC.....	£249

### RECEIVERS & SCANNERS

ALINCO DJX-2000 HANDHELD SCANNER + EDH16.....	£375
ALINCO DJX3 HANDHELD SCANNER C/W ACC & BOOK.....	£159
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ICOM ICR-71E HF RECEIVER.....	£425
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ICOM IC-R8500 WIDEBAND RECEIVER.....	£849
ICOM PCR-1000+UT106 COMPUTER BASED RECEIVER+DSP.....	£275
JRC NRD345 HF RECEIVER.....	£350
KENWOOD R 5000 HF RECEIVER.....	£399
SANGEAM ATS-909 SHORTWAVE RECEIVER.....	£119
SONY ST-SE200 FM/AM TUNER.....	£59
YAESU FRG-8800V HF RECEIVER + VHF CONVERTER.....	£325

### HF TRANSCEIVERS

ALINCO DR-M03 10M FM MOBILE.....	£149
ALINCO DX-70TH HF/6M 100W TRANSCEIVER.....	£459
ICOM IC-575H 10M/6M BASE TRANSCEIVER 100/50W.....	£475
ICOM IC-737A 100W HF TRANSCEIVER.....	£289
ICOM IC-7400 HF/6M/2M100W TRANSCEIVER.....	£1095
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### ACCESSORIES

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MICROSET PRI45A MAST HEAD AMPLIFIER 100W.....	£79
TONO Q-550 DATA TERMINAL.....	£99
YAESU MD-200A8X YAESU DESK MIC.....	£179
YAESU MH-35 SPEAKER/MIC.....	£19
YAESU MH-36EJ DTMF MICROPHONE.....	£30
YAESU YSK-100 REMOTE KIT FOR FT-100/D.....	£39
ZETAGI 1220 25AMP POWER SUPPLY.....	£69
ZETAGI HP-1000 ANTENNA TUNER/METER 26-28MHz.....	£45

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MFJ 956 SWL ATU.....	£49
Icom SM-20 deluxe desk mic 600ohm.....	£99
Icom SP-20 deluxe filtered speaker,new.....	£185
Global AT2000 SWL ATU.....	£79
Paccomm Spirit2 9600 baud TNC.....	£99
Kenwood MC60A desk mic for TS850 etc.....	£89
Yaesu SP-5 filtered matching speaker.....	£89
Watson 30-35amp PSU with meters.....	£89
Datong FL-3 multimode filter.....	£99
Yaesu FL2100Z 1 KW amp.....	£499
Uniden all band laser radar detector.....	£199
Yaesu FC-10 matching auto ATU for FT840 etc.....	£199
Manson twin meter 25amp power supply.....	£69
Kenwood MC-90 DSP desk mic for TS570/870.....	£129
Heil HM-10 dual insert studio quality mic.....	£99
Watson WMM-3 multimode data decoder.....	£45
Yaesu MD-1 desk mic,boxed.....	£79

### VHF/UHF TRANSCEIVERS

Icom IC229 50watt 2m mobile.....	£149
Icom IC2725 2m/70cm 50 watt.....	£269
Kenwood TMG 707E 2m,70cm 50 watt.....	£199
Yaesu VX5R 6M,2M,70CM handi, last new unit.....	£249
Kenwood THD7E version 2 2m/70cm built in TNC.....	£199
Alinco DR150E 50watt mobile,wide RX, airband.....	£199
Kenwood TR751E 2m 25watt multimode mobile.....	£349
Yaesu FT736R, 2m,70cm,6m all fitted.....	£799
Alinco DJG5 2m/70cm handheld charger etc.....	£199
Icom IC78E 6m,2m,70cm tri-band handi,nicads.....	£229

### HF TRANSCEIVERS

Kenwood TS850S 0-30mhz 100watt and mint.....	£699
President Lincoln 10m Amateur transceiver new.....	£199
Kenwood TS570D top class, DSP,auto ATU.....	£599
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Yaesu FT-900AT 100watt all mode detachable head.....	£549
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Alinco DX70TH HF-6M 100watt all mode.....	£499
Yaesu FT990DC auto ATU.....	£799
Yaesu FT840 all mode 100watt 0-30mhz.....	£449
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Sony SW555 portable receiver all mode 0-30mhz.....	£199

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Uniden Bearcat 220XLT 66-956mhz.....	£99
AOR3000A 0-2036mhz all mode,boxed and mint.....	£549
Icom ICR-10 full coverage,all mode,alpha tag.....	£199
Yaesu VR5000 0-2600mhz all mode.....	£499
Bearcat 3000XLT 25-1300mhz nicads, as new.....	£149
Bearcat 780XLT 25-1300mhz trunk tracker.....	£249
Icom ICR7000 25-2000mhz.....	£399
AOR 8600 0-2040mhz.....	£455
Yupiteru MV77100 0-1650mhz nicads etc.....	£169
Realistic Pro2006 Hyperscan 400mhzs 25-1300mhz.....	£199

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Kenwood TS-505 HF Mobile/Base Transceiver with Gen.Cov.....	£429
SGC SG-2020 QRP Transceiver SSB,CW 20W 12V.....	£449
Yaesu FT-920AF HF,6m All Mode Base with Gen.Cov.12v.....	£899

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ADI AR-147 2m FM Mobile 50W CTCSS 40ch.....	£159
AKD 6001 6m FM Mobile Channelised 25W.....	£39
AKD 7003 2 70cm FM Mobile Channelised 3W.....	£99
Alinco DR-M06TH 2 6m FM Mobile 10W CTCSS.....	£165
Alinco DR-130E 2m Mobile, 35W, 20Memories.....	£39
Alinco DR-610E 2m, 70cm FM Mobile 50W, 35W (Remote Head).....	£325
Icom IC-207H 2m,70cm FM Mobile 50W,35W (Remote Head).....	£199
Kenwood TM-451E 2 70cm FM Mobile 35W 2m RX, Full Duplex.....	£249
Kenwood TR-751E 2 2m All Mode Mobile/Base 25W.....	£329
Yaesu FT-2600M 2m FM Mobile 60W.....	£169

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ADI AR-600 2m,70cm FM H/Held,Wide RX,Full Duplex.....	£179
Alinco DJ-190 2m FM H/Held.....	£99
Alinco DJ-G5 2 2m/70cm FM with wide RX.....	£169
Yaesu FT-50R 2m/70cm FM H/Held with 4 Nicads.....	£149

### SHORTWAVE RECEIVERS

Grundig YB-500 0.15-30MHz Portable with SSB + FM Stereo, RDS.....	£699
Icom IC-R71E 100kHz-30MHz All Mode Receiver Mains.....	£329
Icom IC-R75 2 30kHz-60MHz All Mode Receiver with psu.....	£529
Lowe HF-150 30kHz-30MHz All Mode Receiver 12V.....	£225
Lowe HF-225 30kHz-30MHz All Mode Receiver 12V.....	£249
Lowe HF-250 30kHz-30MHz Receiver 12V PC Compatible.....	£329
Sony ICF-SW100E Pocket Receiver with FM stereo and SSB.....	£115
Roberts R-827 Portable 0-30MHz with BF0.....	£99
Yaesu FRG-8800 150kHz-30MHz All Mode + 118-174MHz mains.....	£325

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AOR AR-8000 500kHz-1300MHz All Mode 1000Ch.....	£199
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Win-Radio WR-1550e 150kHz-1500MHz All Mode PC Controlled Receiver 12V.....	£329

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Opto R-10 30MHz-2GHz FM Interceptor.....	£129
Uniden UBC-220XLT 2 66-956MHz (with gaps) AM,FM 200Ch.....	£79
Uniden UBC-3000XLT 25-1300MHz AM,FM 400Ch.....	£149
Yaesu VR-500 100kHz-1300MHz All Mode Receiver 1000Ch.....	£179
Yupiteru MV7-3000 66-1000MHz (with gaps) AM,FM 200Ch.....	£89
Yupiteru MV7-5000 25-550.800-1300MHz AM,FM 100Ch.....	£89
Yupiteru MV7-2000 200kHz-1300MHz AM,FM,WFM 200Ch.....	£125
Yupiteru MV7-7100 100kHz-1650MHz All Mode 1000Ch.....	£149
Yupiteru MV7-7300 2 521kHz-1320MHz All Mode + 8.3kHz step.....	£229

### STATION ACCESSORIES

Datong ASP Auto Speech Processor.....	£95
Global AT-2000 150kHz-30MHz SWL ATU with Q selector.....	£69
ICS FAX-1 Weather Fax, NAVTEX, RTTY Decoder.....	£99
JPS NIR-10 Noise / Interference Reduction Unit.....	£199
JPS NTR-1 DSP Noise Reducer.....	£99
Kantronics KAM Plus 2 Multimode Data Controller with Pactor, Dual Port.....	£199
Kantronics KPC-9612 2 Dual port Dual speed Packet TNC Controller.....	£229
Linear Amp Explorer 1200 HF Linear 10-130W in, 100-1300W out (RMS).....	£995
MFJ MFJ-422BX Compact Electronic Paddle Keyer (fit your own key).....	£49
MFJ MFJ-948 1.8-30MHz ATU 300W.....	£39
MFJ MFJ-1214PC Multimode Interface for IBM FAX,CW,RTTY,ASCII.....	£119
MFJ MFJ-1278 Multimode 10 mode Data Controller.....	£175
MFJ MFJ-1289M IBM Multimode Control Software.....	£49
MFJ MFJ-8621 2m Packet Transceiver only.....	£129
M.Modules MML-144-30 LS 2m 1-3W in, 30W out Linear with Preamp.....	£69
M.Modules MML-432-30 L 70cm 1-3W in, 30W out Linear with Preamp.....	£120
Mirage B-34G 2m 0.2-8W in, 35W out Linear with Preamp.....	£89
Opto 3000A + 10Hz-30Hz Frequency Counter.....	£289
Oregon Oasis-8 PalmTop PDA with 8mb memory + EPIC PC software.....	£129
PacComm TNC-220 HF/VHF Dual Port 96k Packet TNC.....	£69
SGC SG-230 1.8-30MHz Microprocessor controlled ATU 150W.....	£259
SGC SG-237 1.8-80MHz Microprocessor controlled ATU 100W.....	£249
Tokyo HX-240 HF Transverter 2m 40W.....	£169
Watson WAT-2 500kHz-30MHz SWL ATU.....	£39
Watson Super Searcher 10MHz-30Hz RF Finder + Frequency Counter.....	£69
Win-Radio WR-T0 Optional Trunked Radio Tracking System for WR radios.....	£49

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### FOR SALE

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**vertical antenna**, five bands, unused, still in the box, £150, price includes carriage. Tel: Paignton (01803) 529788 after 1800 please.

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**DX-394 RX**, 150kHz to 30MHz, digital dial, memories, timers, s.s.b., a.m., c.w., a.c. or 12V d.c., mint, manual, will deliver London suburban area, £100. Carriage UK, £10. E-mail: esquire@fsmail.net

**Eddystone 1650/9 installation notes**, operating instructions and service data book, brand new, £20. Marconi 19in heavy duty case, four position tilt adjustment, black stove finish, new £75. 1154 TX meter, covers (perspex), new, £10 each. Tel: (01483) 861293.

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Kenwood LF30A LPF, Ferromagnetics choke balun 50Ω, PTT foot switch, HS1 PTT hand switch, Delta 3010 lightning arrester, all at £10 each + P&P. Ken on (01992) 632434.

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**Icom 751 h.f. TX/RX**, good condition, built-in mains p.s.u., ex WO mic., manuals, no box, £300. Bob G0JTD on (01793) 823973 after 1800.

**Icom 3220E dual-band mobile**, £166. BNOS 12/10E 10A p.s.u., £60. Diamond X50 dual-band 2m/70cm (144/430MHz) antenna, £30. MFJ-493 Super Memory Keyer, £47. Icom R71E receiver, £250. All excellent

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**Icom dual-band TH-F7 hand-held**, new and boxed, £175. JVC cordless headphones, new and unused, £25. Voltage converter 12V/240V, £12. Tel: London 0208-785 7314.

**Kenwood AT-130 antenna tuner**, £100 plus P&P. M0AOH, Carlisle. Tel: (01228) 526436 or E-mail: mickbarber@zetnet.co.uk

**Lowe HF-225**, case, active antenna, ext. speaker, f.m./a.m.s., manuals, £220 o.n.o. Woods of Aberdeen ship's receiver, curio! £30 o.n.o. Box of 27/81 CBs and accessories, £40 o.n.o. Box of p.m.r. transceiver, £30 o.n.o. Tel: Kent (01892) 533071.

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£65. Kent Paddle key, £25. Lake PM20 power meter, £20. All in good/as new condition, all plus carriage. GW3FSW on (01745) 570538 or E-mail: ian.ticket@virgin.net

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**Signal R535 civil and military airbands scanner**, the best, complete with carry case, batteries, charger and instructions, all mint condition, £200. Tel: Surrey 0208-391 1145.

**Silent key:** Yaesu FT-DX401, Marconi frequency counter, frequency meter, voltmeter, valve CT54. YA2431 with manual, ex WD. Genuine offers please and buyer collects. Ken, Ellesmere Port. Tel: 0151-201 5245.

**Strumech 30ft lattice tower**, two winches, ground post and plates, down and ready to go, £250. Fred G4VDZ, Wigan. Tel: (01942) 510094.

**Syncal 30A main PCBS**, g.w.o., complete with wiring loom, £45 each. KW E-Zee Z-Match a.t.u., £25. Heathkit s.w.r./power meter, £25. G5RV balun, £15. Tel: Lincs (01775) 766398 after 1900.

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**Yaesu FT-75**, why have I still got it? (see last month's Bargain Basement) - was Rob Mannion wrong that you would grab it if offered?



# Practical Wireless

# BO

## Buy of the Month

### NEW & IN STOCK NOW!

#### RSGB Yearbook UK & Ireland Callbook

Published annually by the Radio Society of Great Britain, the *Yearbook* lists all registered Radio Amateurs in the UK & Ireland by callsign, surname and location, providing a useful reference source despite the growing numbers of Details Withheld entries. The *Yearbook* is more than just a directory as it also contains details on local Clubs, Licensing, Operating, a Foreword by Peter Kirby G0TWW and an introduction to the

RSGB and the work they do. (Our Editor finds his copy indispensable!)

The *RSGB Yearbook UK & Ireland Callbook* is available from the *PW Book Store* for **£16.95 plus £1.50 P&P UK, £2.75 P&P overseas**. To order call **0870 224 7830** or post your order using the order form on **page 73** to: **Book Store, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW**. Remember to include your payment (in Sterling, cash not accepted), name, address and telephone number with your order.

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