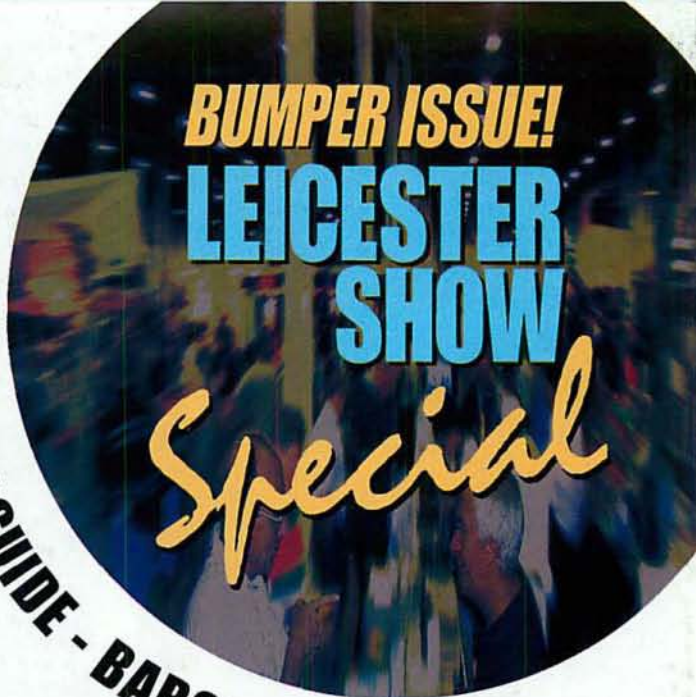


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8-PAGE SHOW GUIDE - BARGAINS GALORE



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**Icom IC-910H**

**A Joy To Operate**

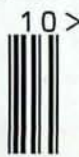


**Patcomm**  
**PC-500**

**QRP Fun**



October 2001 £2.75



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President Lincoln 28MHz Multi-  
mode Transceiver donated by  
Nevada - Worth £225

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# FT-817

**Z-11 Auto ATU for FT-817**  
160m - 10m

**£199.95**

Plus £6.00 Carr.



**£799.95**  
Plus £8.00 Carr.

FT-817 is an incredible design feat by Yaesu, and world reviews agree that there has never been anything like it. It's not expensive either. So why not get out in the fresh air, or put one in the car, and put the fun back into your radio. Check out the exciting AT & ATX portable antennas elsewhere in our add.

## MFJ-Micro Key

**FT-817 Micro Paddle**  
This tiny paddle really is a masterful idea. It's simple, yet very effective. Built from phosphorous bronze, it comes with 1m lead and 3.5mm stereo plug.

**£24.95**

Plus £2.00 Carr.



## OTT-1 One Touch Tune



Plugs into rear of FT-817 and gives immediate carrier for adjusting ATU or checking VSWR

**£59.95**

## NEW 25 Amp Switch-Mode Power Supply. W-25SM



**£69**

This product available September.

UK Carriage £8

Switched 230 / 115V AC input and fixed 13.8V output at 22 Amps continuous and 25 Amps peak. Over voltage and over current protected and fan cooled. Measures 180mm (W), 75mm (H) and 190mm (D) excluding terminals. Provided with detachable 13 Amp plug and cable.

## YAESU FT-1000MP Mk-V

200W HF All Mode Transceiver



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

FT-1000MP AC 160-10m 100W Transceiver £1699 C

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FTV-1000 6m (MKV)	£799 B
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SP-8 Speaker	£139 B
DVS-2 Vce message	£199 B
YF-114SN Fil SSB	£84 B
YF-114CN CW	£84 B
YF-110SN SSB	£95 B
YF-110CN CW	£106 B
YF-115C Collins	£99 B
TXCO-6 Ref Osc	£128 B
YH-77STA Phones	£56 B

## KENWOOD TS-2000

160m - 70cms Plus 23cms option



**£1695**  
Plus £8.00 Carr.

### TS-2000 Accessories

FTV-1000 6m (MKV)	£799 B	YF-114CN CW	£84 B
MD-100ABX Mic	£110 B	YF-110SN SSB	£95 B
SP-8 Speaker	£139 B	YF-110CN CW	£106 B
DVS-2 Vce message	£199 B	YF-115C Collins	£99 B
YF-114SN Fil SSB	£84 B	TXCO-6 Ref Osc	£128 B
		YH-77STA Phones	£56 B

## ICOM IC-756PRO

1.8 - 52MHz 100W



**£1895**  
Plus £8.00 Carr.

### IC-756PRO Accessories

CT-17 RS-232	£99 B	SP-20 Speaker	£164 B
SM-8 Base mic	£129 B	SP-21 Speaker	£74 B
SM-20 Base mic	£144 B	UT-102 Voice synth	£32 A
		PS-85 Power supply	£266 B

## ICOM IC-775 DSP 200W HF

Last of The Many



**£2099**  
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## YAESU FT-847

160m - 70cm All Mode



**£1199**  
Plus £8.00 Carr.

Accessories for FT-847			
FC-20 ATU	£219 B	MD-100ABX Mic	£110 B
SP-8 Speaker	£139 B	YF-115C Collins	£99 B
FVS-1A Vce synth	£38 B	YF-115S Collins	£99 B

## ICOM IC-746

160m - 2m All-mode



**£1395**  
Plus £8.00 Carr.

FL-100 CW	£59 B	RS-746 Software	£44 A
FL-101 CW	£84 B	SM-8 Mic	£129 B
FL-103 SSB	£59 B	SM-20 Mic	£149 B
FL-223 SSB	£59 B	SP-21 Speaker	£74 B
		UT-102 Vce Synth	£32 B

## YAESU FT-100D

160 - 70cm All Mode



**£1249**  
Plus £8.00 Carr.

Yaesu's latest version is now available and includes 500Hz CW filter, high stab. osc. and CTCSS decoder.

## KENWOOD TS-570DB

160 - 10m All Mode



**£849**  
Plus £8.00 Carr.

### TS-570 Accessories

VS-3 Voice synth	£45 A	MC-80 Desk mic	£72 B
DRU-3A Recording	£99 B	PS-33 Power supply	£199 C
HS-5 H'phones	£52 B	SP-23 Speaker	£68 B
MC-90 Desk mic	£187 B	CW filters each	£61 B
		SSB 1.8kHz	£61.95

## 10M WHIP

100W 10m Mobile Whip with mag mount  
Built-in impedance transformer.

Just over 1m long, complete with magnetic base, shock spring, 5m coax cable with PL-259 and built-in impedance transformer for 1:1 VSWR. Centred on 28.5MHz, this is an absolute bargain! Get ready for the Autumn and Winter DX



**£19.95**  
Plus £2.00 Carr.

## ICOM IC-706IIG

160m - 70cm All Mode



**£999**  
Plus £8.00 Carr.

## New Heil Hands-Free Headset.

This single piece headphone with boom microphone, from Heil USA, allows true hands-free operation using VOX. Wired for IC-706 (all models) it includes PTT switch. Built-in amplifier means no more low audio from older IC-706 models! All this for just £59.96 B

## HS-706

IC-706IIG Accessories			
AT-180 Auto ATU	£379 B	FL-223 SSB 1.8kHz	£59 B
FL-100 500Hz CW	£59 B	DC Lead (spare)	£16 A
FL-232 350Hz CW	£59 B	3.5m sep cable	£33 A
FL-103 SSB 2.8kHz	£59 B	5m sep. cable	£49 A
		Others: please phone	

## KENWOOD TS-50S HF 100W



**£599**  
Plus £8.00 Carr.

Kenwoods TS-50S has stood the test of time. 100W from 160m to 10m makes this a great value rig. Ideal for mobile or portable.

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GB4FUN 400W MOBILE SHACK!

ICOM

IC-910 2 & 70cm All Mode



£1299

Plus £8.00 Carr.

Icom's new dual band all-mode base station radio with 23cms option.

KENWOOD

TM-6707E 2 & 70cm FM

£289

Plus £8.00 Carr.

If you are looking for simplicity and low cost, here's the answer.



ICOM

IC-T81E 6m, 2m, 70cm & 23cm FM



£299

Plus £8.00 Carr.

Four bands in one very compact handheld. This enables you to take advantage of the UK's complete repeater network right up to 23cms. Also makes an ideal travel companion. AM air receive.

IC-207H 2 & 70cm FM



£279

Plus £8.00 Carr.

A great budget class radio for VHF & UHF use.

TM-V7E 2 & 70cm FM



£359

Plus £8.00 Carr.

A lovely cool blue display, easy to read and with 50/35W output. A great choice for kenwood fans.

IC-2800H 2 & 70cm FM



£419

Plus £8.00 Carr.

Large full colour screen with video input option

YAESU FT-90R 2 & 70cm FM

They don't get much smaller than this! Dual band and 50/35W with detachable head. A really great performer.

£309

Plus £8.00 Carr.



IC-T8E 6m, 2m, & 70cm

Very similar in design to the IC-T81E, but without the 23cms band. And again, like its brother, it offers AM air-band receive.

£199

Plus £8.00 Carr.



KENWOOD TH-D7E 2m, & 70cm

Data Communicator



One of the most successful handhelds over the past few years, it even has a built-in TNC for Packet use. You can also use it for APRS operation in conjunction with an external GPS unit.

£299

Plus £8.00 Carr.

FT-1500M 2M FM Mobile



£159

Plus £8.00 Carr.

Small, compact yet built like a Battleship! Should last for years. Look at the Price!

KENWOOD TM-D700E 2 & 70cm FM



£449

Plus £8.00 Carr.

Large detached screen and APRS, make this a firm favourite. One of our best selling dual band mobile radios.

YAESU Yaesu Handhelds

VX-1R	2m/70cm handy	£165 B
VX-5R	6m/2m/70cm	£269 B
FT-11R	2m	£119 B
FT-41R	70cm	£119 B
FT-51R	2m/70cms	£315 B

### Carriage Charge Codes: Prices

A £2, B £6, C £8, E £14  
D (N.Ireland and off-shore) £12

Prices are may be subject to change and are current only until the appearance of next month's advert.

Consumer Protection (Distance Selling). You may return goods within 10 days for a refund. Goods must be in unmarked condition with original packing, handbooks and warranty cards etc. Customers must bear the cost of returning goods unless the goods were faulty on arrival. Please phone prior to sending.



### MASPRO VHF/UHF YAGIS



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

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144-WH8	2m 8 el. 8.6dBd 1.79m	£37.95 (€6)
144-WH10	2m 10 el 9.7dBd 2.3m	£41.95 (€6)
435-WH8	70cms 8 el. 8.6dBd 0.8m	£29.95 (€6)
435-WH12	70cms 12 el. 12.8dBd 1.51m	£35.95 (€6)
435-WH15	70cms 15 el. 14.2dBd 2.19m	£41.95 (€6)

To compare with dBi figures, add 2.4dB

### WMM-3 Data Modem

**£69.95**  
Carr. £6.00



This modem permits a wide range of data to be sent and received. Starterdisc for SSTV, CW, RTTY, Pactor, 1200baud Packet etc. included. The unit is powered from the PC serial socket.

### WSA-1 PSK-31 Adaptor

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

**£39.95**  
Carr. £2.00



### Get in Front with HUSTLER



#### BASE STATION ANTENNAS

Spec	5BTV	4-BTV
Bands	5	4
Coverage	80m-10m	40m-10m
Bandwidth 10-40m	Full	Full
Bandwidth 80m	100kHz	N/A
Resonance	1.15:1	1.15:1
Power	1kW CW	1kW CW
Traps	1" forms	1" forms
Tubing	1.25"	1.25"
Bracket size	1.75"	1.75"
Height	25ft 1" (7.64m)	21ft 5" (6.52m)
Weight	17lbs. (7.7kg)	15lbs (6.8kg)
Wind (112kph)	13kg	-

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



### HF Horizontal Beams & Dipoles

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



MA5B	10-20m (5 band) 3 el 2.7m radius 1.2kW	£299.95 (€8)
X-7	10-20m 7 el. 12.5 - 13dBi 2kW 6.09m radius	£669.95 (€12)
X-740	40m add on kit for X-7	£269.95 (€8)
A4-S	10-20m 4 el. 8.9dBi 2kW 5.49m radius	£529.95 (€12)
A-744	Gives 40m or 30m operation from A-4S	£149.95 (€8)
A3-S	10-20m 3 el. 8dBi 2kW 4.72m radius	£459.95 (€12)
A-743	Gives 40m or 30m operation from A3-S	£149.95 (€8)
A3-WS	12 & 17m 3 el. 8dBi 2kW 4.4m radius	£349.95 (€12)
A-103	Gives 30m operation from A3-WS	£149.95 (€8)
D-3	10-20m dipole element 7.86m 2kW	£219.95 (€8)
D-3W	12, 17, 30m 17m dipole element 10.37m 2kW	£219.95 (€8)
D-4	10-40m dipole element 10.92m 2kW	£299.95 (€8)
D-40	40m dipole element 12.88m 2kW	£259.95 (€8)
XM-240	40m 2 el. 6dBi 7.3m radius 2kW	£699.95 (€8)
Ten-3	10m 3 el 8dBi 3m radius 2kW	£189.95 (€8)
ASL-2010	13.5-32MHz 8 el. log periodic 6.4dBd 5.86m radius	£749.95 (€12)



### The Mini-Beam For Small Gardens

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



### QS-112 Speaker Mic



Models for Yaesu, Kenwood, Icom, Alinco and Motorola.

**£16.95**  
Carr. £2.00

Earpiece with combined lapel hanging mic and PTT. Models to suit most radios.



### WCT-321 Lapel Talker

**£19.95**  
Carr. £2.00

### WMM-308 Base Mic

The perfect answer for a high quality base microphone. Built-in pre-amp powered from rig or 2 x AA, electronic PTT and FM/SSB response switch. Includes lead with 8-pin plug.

**£59.95**  
Carr. £6.00

### W-6MV Deluxe Key

A high quality Morse key made of brass with wood base. Full set of adjustments

**£39.95**  
Carr. £2.00

### SPM-102 Speaker Mic

Incredible value! Has 4-way 3.5mm plug for VX-1, VX-5, FT-50 and IQ-7E

**£9.95**  
Carr. £2.00

Limited stocks.



W-285  
W-7900  
W.627  
W-770HB



### HUSTLER Mobile Antennas

Model	Band	Bandwidth	Price
RM-10	10m	150-250kHz	£19.95 B
RM-11	11m	150-250kHz	£19.95 B
RM-12	12m	90-120kHz	£19.95 B
RM-15	15m	100-150kHz	£19.95 B
RM-17	17m	120-150kHz	£22.95 B
RM-20	20m	80-100kHz	£22.95 B
RM-30	30m	50-60kHz	£25.95 B
RM-40	40m	40-50kHz	£25.95 B
RM-80	80m	25-30kHz	£29.95 B

### Avair VSWR Power Meters



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

AV-200	1.8 - 200MHz 5/20/200/400W	£49.95
AV-400	140 - 525MHz 5/20/200/400W	£49.95
AV-600	1.8 - 525MHz 5/20/200/400W	£59.95

All fitted with SO-239, PEP/RMS readings, 3W for FSD approx. AV-600 has dual sensors.

### WATSON HF Mobile Whips

WHF-160	£49.95	WHF-17	£18.95
WHF-80	£19.95	WHF-15	£18.95
WHF-40	£18.95	WHF-12	£18.95
WHF-30	£18.95	WHF-10	£18.95
WHF-20	£18.95		

### Whip Accessories

WB-1M1	Ball mount 3/8"	£19.95
MMT-1	Impedance matching xfr.	£19.95
3401	3-way mag mount 3/8"	£39.95
SS-504	Heavy duty spring 3/8"	£6.95

### WATSON PBX-100 Portable HF 80m - 10m 200W

The PBX 100 offers 80m - 10m operation (max 4-bands at any time) with a height of just 3.6m. Supplied with ground spike, it takes seconds to erect, yet collapses down to little more than 1m like all ground mounted verticals, it benefits from radials, and the radial wire is provided. Use it in the garden, in the countryside or abroad. SO-239 connection. **£99.95 (€8)**

### Base Antennas

2m / 70cm fibre glass colinears with stainless steel fittings, 3 short radials and SO-239 sockets. Pre-tuned and all hardware for mast mounting.

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

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# PW

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### Cover Subject

The Icom IC-910 v.h.f./u.h.f. transceiver and Patcomm PC-500 QRP transceiver are both reviewed in this month's issue. The IC-910 has been much talked about, so with the rig being on display at the Leicester show it seemed only fitting that we sent GORSN off to review it in time for you to read it beforehand. The Patcomm on the other hand is the latest in portable QRP transceivers and Rob G3XFD thinks it has 'oodles of character'!

Photographs by: **Tex Swann G1TEX.**

Background show photo courtesy of **Mick Honeywell.**

Design by: **Bob Kemp**



## October features

### 16 Radio Basics

**Rob Mannion G3XFD** aims to take the mystery out of microfarads! This month he helps you to identify fixed and variable capacitors - something which even the most seasoned Radio Amateur often gets confused over.

### 18 Tex's Tips & Topics

A selection of your handy hints and tips presented by **Tex Swann G1TEX.** Among this month's ideas are some useful pointers on how to stay on the right side of the XYL when using the kitchen to carry out your experiments!

### 23 Review - The Icom IC-910H Transceiver

It's been a long time in coming but now that **Richard Newton GORSN** has finally got his hands on the latest v.h.f./u.h.f. transceiver from the Icom stable was it worth the wait? Read how Richard and **Terry G7VJJ** got on putting the IC-910 through its paces.

### 28 Amateur Radio & Emergency Action

When disaster strikes Radio Amateurs are often called in to help with valuable message passing and communication co-ordination. In a bid to prepare us for the unthinkable **Anthony Hern G1UFX** uses fact and fiction to set the scene.

### 35 Leicester Amateur Radio Show Guide

It's the time of year again when traders, manufacturers and Amateur Radio enthusiasts make the annual pilgrimage to Castle Donington to attend the Leicester show. So in preparation here's our guide

containing news, details about the show, the all important floor plan and show offers.

### 44 Review - Patcomm PC-500 QRP Transceiver

Find out how **Rob G3XFD** got on testing the Patcomm PC-500 supplied by Nevada. If you fancy seeing it for yourself then make sure you 'look-in' on Nevada at the Leicester show.

### 47 Practical Wireless Survey 2001

Help shape the PW of the 21st Century by taking a few minutes to share your views by filling in our survey form. Once you've done it, post it back to us at the freepost address (UK only) given and you'll be entered into the free draw to win a President Lincoln 28MHz Transceiver donated by Nevada.

### 54 Antenna Workshop

**Richard Marris G2BZQ** shares his idea for a quick-fix bulletin board loop antenna, which he says is ideal if space is at a premium.

### 56 Arctic Radio & Railways

Jump on board as we take a trip into the land of the midnight sun with **Geoff Simms G4GNQ** as he recalls his trip to Norway for the International Railway Radio Amateurs' convention.

### 60 Carrying On The Practical Way

**George Dobbs G3RJV** shows you how to construct a simple two f.e.t. receiver but before he begins on that - he's got a confession to make!

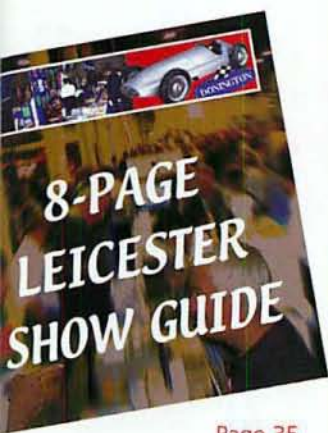
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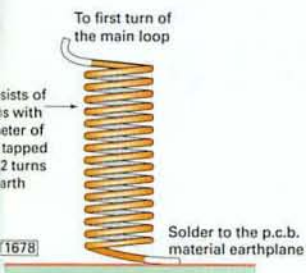
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Get "Mighty Midget"  
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Our Radio Scene reporters' contact details in one easy reference point.

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Potters Bar, Herts EN6 3JE



# rob manning's **keylines**

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

Your opportunity to help plan the future editorial approach of *Practical Wireless* has arrived! In fact it's now with you in the centre pages of this issue of *PW* - and it's the opportunity not to be missed!

Not only will your comments, likes and dislikes be taken into account, but by sending in your completed survey form you'll also stand a very good chance of winning the main prize - a **President Lincoln 28MHz Multi-mode transceiver** donated by **Nevada** in Portsmouth or even one of the 10 one-year subscriptions we plan to award in our free-to-enter competition. (All survey forms received are automatically entered into the competition).

I've already mentioned in *PW* that I intend to read all the survey entry forms - but I cannot stress enough just how important it is for every reader of *PW* to spend a little time in filling out the questionnaire. Please do so, nothing would please me more to have my office filled from floor to ceiling with your survey forms. Good luck in the competition and we look forward to seeing your opinions on paper very soon!

## Leicester Show

Everyone from *PW Publishing Ltd* looks forward to meeting you at the Leicester Show on Friday & Saturday 21/22nd September. You'll also get the chance to talk to the *PW* Editorial team, chat about the reader survey and offer some suggestions.

As we've now entered *PW's* 70th anniversary celebration year - culminating in special celebrations, which we hope to have at next years' Leicester Show, I hope to hear more from readers like Star Letter writer **Alex Blyth GM4TAL** on the letters page who have their own celebrations. So, if you're a long-time reader of *PW* do as Alex did and please drop me a line, I'd like to hear from you.

## Verso Humour

**Phil Cadman G4JCP's** humorous letter regarding my article in *The Daily Telegraph* Motoring section on Saturday 11 August joined others in pulling my leg about photographs again. However, to be quite honest I was rather taken by surprise at just how many readers saw

the article about my new Toyota Yaris Verso (don't the Japanese choose some odd names?) car when I attended the **Flight Refuelling Wimborne Hamfest** the next day!

The photograph shown here - courtesy of Bristol based freelance photographer **Christopher Jones** - shows **Alan Burgess** (PWP Finance/Office Manager) whose original suggestions and generous assistance helped me to find a car I could fit into!



As the Verso doesn't have a long wave radio (it's provided with a special integral unit which cannot be replaced with another radio) I'm building a

198kHz to 1MHz and 6 to 1MHz converter to be fitted inside the car to provide BBC Radio 4 and short wave reception for when I'm travelling abroad. The project will be published in *Radio Basics* later in the year.

## Standing Orders & Final Notices

Those of you who read my comments under **Rob Jarvis G8UBU's** letter (page 10 and 11 in the September issue) will be expecting the promised reply from the Radio Licensing Centre (RLC) in Bristol. This would have hopefully covered the problems that Rob (and others) have experienced in paying for their annual licence renewals.

Although I had pre-arranged for the RLS to provide a reply which could be published - this will not now be forthcoming. Instead, I've had an E-mail from the Radiocommunications Agency in London with the information that the RLC is only contracted to renew and issue licences, etc., and any other matters are dealt with by the RA.

So, as I cannot seem to help readers further - I ask anyone with problems to do as the RA have requested and deal with them directly, and not the RLC (the appropriate address is in the RA booklet BR68 which accompanies your licence renewal each year).

## Bargain Basement

Please don't FAX your Bargain Basement advert forms to the office - I ask this because many seem to arrive (our FAX machine is okay) blurred or unreadable, thus delaying the advert. Don't forget - many smaller home FAX machines can't cope with scanning small handwriting and fine details. Send it by post instead, we'll get it okay and be able to read it! Thank you.

**Rob G3XFD**

# practical wireless **services**

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

## Subscriptions

Subscriptions are available at £30 per annum to UK addresses, £38 in Europe and £42 (Airsaver), £49 (Airmail) overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Practical Wireless* and *Short Wave Magazine* are available at £60 (UK) £73 (Europe) and £81 (rest of world), £85 (airmail).

## Components For *PW* Projects

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

## Photocopies & Back Issues

We have a selection of back issues, covering the past three years of *PW*. If you are looking for an article or review that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues for *PW* are £2.50 each and photocopies are £2.50 per article.

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

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

## Placing An Order

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

The E-mail address is [bookstore@pwpublishing.ltd.uk](mailto:bookstore@pwpublishing.ltd.uk)

## Technical Help

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

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



**Forty Years With PW**

● **Dear Sir**

When I receive the November 2001 issue of *Practical Wireless*, I will have been continuously taking the magazine for 40 years. I started buying *PW* in November 1961, and have bought every issue since. I still have **every magazine** and all the blueprints, data cards, etc., even the mini screwdriver given away free a few years ago! I wonder if any other readers have a collection of "bought at the time" *PWs* as large as this. After 40 years I still look forward to the 2nd Thursday of the month.

Keep up the good work and inspire other youngsters to take up this great hobby of ours.

**Alex Blyth GM4TAL**  
Longniddry  
East Lothian

**Editor's comment: Our Congratulations Alex! Please see 'Keylines' for discussion on this topic.**

**Over Exposure (Again!)**

● **Dear Sir**

Over recent months, unfavourable comments have been made regarding the Editor's photographic over-exposure in *PW*. As a result, he has promised that **fewer** photographs of himself will appear in future issues of the magazine.

Unfortunately however, having been denied his indulgence in this respected journal, I fear the Editor has simply sought other publications in which he can display his likeness! Namely, the Motoring section of *The Daily Telegraph* (Saturday, August 11 2001), where he was pictured **no less than three times** (including the front page of the Motoring Section!).

I suggest that **any further censure** of the Editor in connection with this matter cease forthwith. For if such criticism has driven him to appear in the - I admit appropriately titled - *Telegraph* - I fear further rebukes may only lead to yet more photographs, perhaps in less esteemed periodicals.

Indeed, while appearing on page three of the *Telegraph* may be acceptable, page three of certain tabloids is most definitely not!

**Philip Cadman G4JCP**  
Dudley  
West Midlands

**Editor's red-faced comment: Okay I was caught red-handed Phil! Please see Keylines for my defence!**

**Puzzling Comments 1**

● **Dear Sir**

In his Star letter (*PW* September 2001) **Jack Drake GM4MOX** made very valid comments on the approval, or otherwise, that XYLS give to Amateur Radio activities.

Clubs can do much to help in this respect by organising social events which bring XYLS together with members. Christmas parties, cheese and wine evenings and barbecues are obvious examples and DXpeditions and field type events to attractive areas are also

possible.

For example, the assembly of the antenna for **Warrington Amateur Radio Club's** DXpedition on St George's Island in 2000 would have been well nigh impossible without the help of three XYLS who held the rope stays as the main mast was set-up. Valuable help was also given with logging calls but the peace and quiet of that QTH (except in the operations tent) was also very much appreciated by our wives.

None of the XYLS who attend our club functions are studying for the RAE but most, I am sure, enjoy the social side of our hobby whilst engaging in hobbies of their own.

**Ron Davies G0WJX**  
Culcheth  
Cheshire

**Puzzling Comments 2**

● **Dear Sir**

I don't often write to magazines but a couple of letters in the September *PW* have prompted me to respond. So here goes!

Firstly there's the letter from **Jack Drake GM4MOX** from Fife in Scotland. In reply to Jack I'd like to tell him that here in Plymouth (and covering a good area of both Devon and Cornwall) we have a 'Rooster Breakfast' on the first Saturday of each month. This is a social event and includes wives and families, Grannies, Grandads, children and grandchildren and anyone who is just interested in joining us (even including one sister-in-law!).

The regular Saturday event has been going on for eight-and-a-half-years. Each month we have a different venue ranging from St. Austel in the West to Totnes in the East with many points in between. We've also been having a twice yearly 'Rooster Dinner', same

format, anyone is welcome...provided that they can finance their own dinner!

Also once a month (usually the middle Wednesday) we've started a Coffee Morning at the University of Plymouth Amateur Radio Society. Again this includes wives, families and friends.

My point to Jack is that it up to the Radio Amateurs concerned to provide the social atmosphere that can include wives', etc., and to give them an interest in our hobby. In this way they get to know the faces behind the voices they hear, and also meet other Amateur's wives.

So, my suggestion is...start a Breakfast Meeting in your area! Let us all know how you get on - you never know it might stimulate others to do the same! Incidentally, if anyone is ever visiting our wonderful part of the west country on the first Saturday of the month why not call me on **(01752) 343177** so you can come and join in the 'Rooster Breakfast'?

My second point is for **Dave Parker M1BVU** (also in Radio Waves September issue). In his 'Comment' under the letter the Editor makes the point that the Morse Testing Service is run by volunteers. Has Dave Parker considered volunteering I wonder?

Thank for reading my waffle - but I feel that you get out of a hobby a lot of what you put into it.

**Bob Grififths G7NHB**  
Plympton  
Plymouth

**Editor's comment: Over the years I've heard a great deal about the 'Rooster Breakfast' based in Plymouth. It quite an institution nowadays - but do you run a similar event in your area? If you do please let PW know as we'd like to**



support your initiative. Finally, can we have some feedback from the ladies on some of the topics raised...please!

### Thank You G4HNE & G0JQC!

#### Dear Sir

I'm a PW subscriber and am writing to say how much I enjoy the magazine, which is packed with interesting articles and features and is superbly produced. Thank you.



I'm a disabled Radio Amateur and am a member of the Southport & District Amateur Radio Club. I'd like to take this opportunity to say 'Thank you' in particular Don G4HNE and Brian G0JQC who have helped me set up my new Icom IC-775DSP rig and tidy up the cables and feed lines in my shack. They've demonstrated the typical spirit and helpfulness of Radio Amateurs. I'm exceptionally grateful to them for their help.

I often make contact with other Amateurs who are 'White Stick'

operators or have other disabilities and I find that they are invariably both cheerful and informative. They certainly prove that Amateur Radio is a great hobby for all enthusiasts. In fact, making a good contact with a DX station or an inter-G operator can at times be positively therapeutic! Sincerely yours

**James Mealy G0LBF**  
**Scarbrick**  
**Southport**

**Editor's support: Well done everyone...our hobby is great isn't it? Something for everyone.**

### Royal International Air Tattoo

The following letters were addressed to Donna specifically because she's our Air Tattoo competition administrator. I'm very grateful for her invaluable assistance!  
**Editor.**

#### Dear Donna

I was most surprised and extremely pleased to receive your letter of 10 July 2001 enclosing a pair of tickets for the Royal International Air Tattoo. I have always been interested in aviation and my wife and I had a most enjoyable day at RAF Cottesmore.

The weather was superb and the highlight of the day, apart from the aerobatic teams, was the flypast of the Stealth B2 Bomber with its two fighter escorts. We spent the full day at the show,

with non-stop flying, which was nicely rounded off with a concert performance by the RAF Regiment Band and Air Training Corps. We just wish that there were more hours in the day to see everything that was there!

Thank you and the crew at PW for a super day out and best wishes to you all for the future.  
**Mike Sharp G4XPE.**  
**E-mail:**  
**m.sharp@pge.net**

### Another Happy Winner!

#### Dear Donna

Thank you for forwarding my prize of a pair of winning tickets for the Royal International Air Tattoo at RAF Cottesmore. My son and I spent a splendid day at the RIAT on 28 July. We enjoyed every minute of it, as I'm sure the thousands of other visitors did.

The weather was beautiful. Very hot, with clear visibility enabling everybody to enjoy the air display. Thank you.

**A. Judge**  
**Sevenoaks**  
**Kent**

**Donna's Comment:**  
**Glad to hear that you enjoyed the day. I was lucky enough to go to the Air Tattoo myself. It was a great day out with plenty to see and the displays were certainly spectacular. Thanks to the RIAT organisers for letting us have the 15 pairs of tickets to give away to our lucky readers.**

## 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.

### September 15

#### The Waterside Radio & Computer Rally/Boot Sale

Contact: John Daw G0UUW/Malcolm Troy G0WFO

Tel: 0238-089 3541/0238-090 5226

E-mail: troy-enterprises@faxvia.net

The Waterside (New Forest) ARS will host their rally at the Applemore College, Roman Road, Dibden Purlieu. Doors open 1000. There will be two indoor halls, field traders and exhibits, car boot/flea market, on-demand Morse tests (remember to bring passport sized photos). Talk-in on 2m. Free parking.

### September 16

#### Barry ARS Amateur Radio & Computer Show

Contact: Brian GW0PUP

Tel: 0292-083 2253

Why not go along and see the latest amateur equipment, from major manufacturers and suppliers at the Barry ARS Amateur Radio & Computer Show? There will also be fantastic working models of satellites, like Phase 3D and others. All this and a Bring & Buy. The event takes place at the Barry Memorial Hall, Gladstone Road, Barry, S. Wales.

### September 21-22

#### The 30th Leicester Amateur Radio Show and Convention

Contact: Geoff G4AFJ

Tel: (01455) 823344

E-mail: g4afj@argonet.co.uk

Website: <http://www.lars.org.uk>

This annual event takes place at Castle Donington International Exhibition Centre, Donington Park, NW Leicestershire. Doors open 0930-1730. There will be 150 trade stands, a flea market, Bring & Buy, local and national clubs and societies. Morse tests on demand, demonstration Amateur Radio stations, camping and caravanning on-site. Talk-in on 145.550 and 433.550MHz. A one day ticket costs £3, concessions (OAPs and under 16s), £2.50, two day ticket, £5, concessions £4 - under 12s free when accompanied by an adult.

### October 7

#### The Great Lumley Amateur Radio & Electronics Society Rally

Contact: Nancy Bone G7UUR

Tel: 0191-420 2061 (home) or 0191-274 4274 (work)

Website: [lumley.rally@ic24.net](mailto:lumley.rally@ic24.net)

Taking place at the Community Centre, Front Street, Great Lumley, Chester-le-Street, Co Durham, this rally is classed as the biggest and best in the north east! There will be free parking, plus easy access. Good, inexpensive food and drink, Bring & Buy, radio, hobbies, electronics, computer, satellite and component stalls. Doors open 1000 and admission is £1.

### October 7

#### Mansfield ARS, Radio, Computer & Electronics Rally

Contact: David G0RDP

Tel: (01623) 631931

E-mail: [david.g0rdp@lineone.net](mailto:david.g0rdp@lineone.net)

Please note this year's Mansfield takes place at a new venue. The venue to head for is the Intake Leisure Club, Kirkland Avenue, Mansfield. Doors open at 1000.

### October 21

#### Blackwood & District ARS Annual Rally

Tel: (01495) 228516

The Blackwood Rally will take place at the Newport Centre, Gwent. Features will include special interest groups, parking, licensed bar, catering and trade stands. Doors open 1045 (1030 for disabled). Admission is £1.50 and talk-in will be on 522.

### October 28

#### Galashiels and District ARS Annual Rally

Contact: Jim Keddle GM7LUN

Tel: (01896) 850245

E-mail: [jimk@gm7lun.freemove.co.uk](mailto:jimk@gm7lun.freemove.co.uk)

This annual event takes place at the Volunteer Hall, St. Johns Street, Galashiels, Scottish Borders. Doors open 1100 (disabled access from 1045). Admission is £2 and includes a free cash prize draw ticket. There will be all the usual attractions, Bring & Buy, traders and refreshments.

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.

Keep your letters coming to fill PW's postbag

## Letters Received Via E-mail

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

Editor



● Lake Catalogue

# The Kits with all the Bits!

Lake Electronics have just published their latest fully illustrated catalogue. Read on to find out what's inside...

The new Lake catalogue includes details of all their Novice kits together with their full range of the 'kits with all the bits', accessories and components for Amateurs and Short-Wave Listeners. The new shortwave version of the Solderless Crystal

Set is featured in the catalogue at the 'pocket money' price of just £8 plus £1 P&P.

A select listing of vintage wireless books is also featured. The full listing, which is frequently being updated, is available separately on request.

For your free copy of the September 2001 Lake Electronics catalogue send a large (A5) SAE to the address below.

**Lake Electronics,**  
**7 Middleton Close,**  
**Nuthall,**  
**Nottingham, NG16 1BX**  
**Tel: 0115-938 2509**  
**E-mail: g4dvw@cs.com.**  
**Website: www.lake-electronics.co.uk**

● An Active First

# Squaring up for Ireland

On Sunday 29 July 2001 three new Worked All Ireland squares were activated for the first time.

The Worked All Ireland Squares that were activated on 29 July were J06, J07, J08 County Tyrone. The County Tyrone sectors of these squares can only be got to by boat as they are all located in the central areas of Lough Neagh the largest lake in the British Isles.

The radio operators for the event were **Ernie GI0GDF** and **Jim GI0PGC**. They were joined by their



friend **Ken McCleod** who skippered the boat for them. Incidentally the boat was originally built by Ribtec of Southampton especially for the Camel Trophy 2000 and is 6.5 metres in length, powered by a Honda BF130 (130HP) four stroke engine.

Ernie and Jim used an Alinco DX-70TH, running 100W to a Hustler 40 meter band whip with HI-Q resonator on a triple mag mount in their quest to activate the squares. Conditions on the Lough were very deceptive and the team encountered 20 knot

winds, and 6ft waves, making for a very bumpy ride!

A good crowd of WAI square hunters where on 7.068MHz and band conditions were quite good. All but an unfortunate few made

two way contacts from all three squares.

Needless to say they all had a very enjoyable day on the Lough and were very pleased to be the first to activate the squares, so much so they hope to make it an annual event!

## amateur radio trade

● Forces Joined

# Major players Team up

Major distribution company RS Components have joined forces with Icom UK Ltd., signing an agreement to distribute a selection of their products.

Following the decision to team up with Icom UK Ltd., RS Components, Europe's leading distributor of electrical and mechanical components, will now carry a wide range of Icom equipment. The range on offer will include the IC-446S transceivers, the IC-R2 pocket receiver and the IC-PCR100. You will also be able to purchase Icom's best selling Marine transceivers, the IC-M3 Euro and the IC-M1 EuroV as well as a comprehensive selection of accessories.

Founded in 1937 RS Components has a comprehensive catalogue featuring over 129,000

products ranging from power tools to cabling and connectors. It's hoped that the new partnership will increase the profile of the Icom brand name as well as complementing RS Component's extensive range.

For more information on RS look at their website at:

**http://rswww.com**  
 and for details on the full range of Icom equipment point your browser at **www.icomuk.co.uk/**



## amateur radio help

● Help Out Your fellow Amateurs

**Roy Horton G4GRM** is looking for a technical/service manual for an Advance Q Meter type T2. Do you have one you could let him have or do you know where he could get one from? If you can help please contact Roy direct at:

**37 Chilton Road,**  
**Richmond,**  
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## amateur radio clubs

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

**SURREY**

**Sutton & Cheam Radio Society**

**Contact:** John Puttock G0BWW

**Tel:** 0208- 644 9945

**Website:** <http://www.scrs.btinternet.co.uk>

The Sutton Cheam Radio Society meet on the third Thursday of each month at 1930hrs at Sutton United Football Club, Borough Sports Ground, Gander Green Lane, Sutton Surrey. The club is a very friendly and active radio society and produce a Newsletter once a month giving details of guest speakers on club nights. The newsletter also contains articles by members.

All are welcome to attend meetings, especially those new to the hobby. A programme of forthcoming talks can be found on the Website.

**MIDDLESEX**

**Radio Society of Harrow**

**Contact:** Jim Ballard G0AOT

**Tel:** (01895) 476933 eve or 0207-278 6421 daytime

**E-mail:** G0aot@thersgb.net

Club meetings are held every Friday from 2000hrs at the Harrow Arts Centre, Uxbridge Road, Hatch End, Middlesex. Meetings to look out for are: **Sept 21:** Linda G7RJL will give a talk on simple home remedies & healing foods. Including some seasonal tips for avoiding winter ailments; **Oct 5:** A beginners' guide to Astronomy talk by **Fred 2E1ICQ**; **19th** Hungarian evening - sample some of the local foods & try for contacts on the shack radio. Why not go along and join in?

**Edgware & District Radio Society**

**Contact:** Bill G0STR/David G5HY

**Tel:** 0208-958 1255/(01923) 655284 days / 0208-954 9180 evens

All meetings start at 2000hrs and are held in the The Watling Community Centre, 145 Orange Hill Road, Burnt Oak, Edgware, Middlesex. Forthcoming meetings are: **Oct 11:** Club Field Trip out - no meeting at Edgware this week; **25th:** Talk by Steve Telenius-Lowe on the D68C DX-pedition. Visitors and new members are always welcome.

**SHROPSHIRE**

**Telford and District Amateur Radio Society**

**Contact:** Mike Street G3JKX

**Tel:** (01952) 299677

**E-mail:** mstreet@g3jkk.freemove.co.uk

Meetings of the Telford ARS are held at the Community Centre, Bank Rd, Dawley, Telford, Shropshire every Wednesday. Starting at 2000hrs the meetings offer plenty of interest and a chance to meet with others. Coming up in September - **Sept 19:** The new GB3ZME microwave beacons talk by G3UKV/G4NKC; **26th:** PIC club project, lead by G0VXG

**WILTSHIRE**

**Swindon & District Amateur Radio Club**

**Contact:** Den

**Tel:** (01793) 822705

**E-mail:** m0acm@sdark.org.uk

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

The club meets weekly on Thursdays from 1900-2100hrs at the Eastcott Community Centre in Swindon's Old Town area and welcomes visitors and new members. Light refreshments are available. October's meetings include: **Oct 4:** Table Top Direction Finding Competition (Deryck G3YKC); **18th:** Amateur Radio Observation Service (Barry Carisbrick G4ACK, National AROS Co-ordinator). Please note that the club meets every week at the same location and that other nights are taken up with informal operation and discussion.

Keep those details coming in!



**£99.95**

**LOG PERIODIC MLP32**

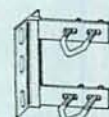
Freq. Range 100-1300MHz  
Length 1420mm Wide Band 16 Element directional beam which gives a maximum of 11-13Db Gain Forward and 15Db Gain Front to Back Ratio. Complete with mounting hardware. (The Ultimate Receiving Antenna - a must for the Dedicated Listener.)

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25 METRES OF ENAMELLED WIRE & INSULATOR  
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**SUPER SCANAIR BASE (Airband)**

(Stainless Steel) Freq. Range Receive 117-140MHz Transmit 117-140MHz Length 825mm Connector-N TYPE

This is a transmitting & receiving antenna designed for the aircraft frequency range. (For the control tower & aircraft listener.)

**SUPER SCAN STICK**

Freq. Range 0-2000MHz Length 1000mm

It will receive all frequencies at all levels unlike a mono band antenna. It has 4 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals. (Ideal for the New Beginner and the Experienced Listener alike.)

**£49.95**

**SUPER SCAN STICK II**

Freq. Range 0-2000 MHz. Length 1500mm.

This is designed for external use. It will receive all frequencies. at all levels unlike a mono band antenna. It has 8 capacitor loaded coils inside the vertical element to give maximum sensitivity to even the weakest of signals plus there is an extra 3db gain over the standard super scan stick. (For the expert who wants that extra sensitivity)

**MULTI SCAN STICK II**

Freq. Range Receive (0-2000MHz) Transmit (144-146 MHz) Gain 4.00Dbd (420-430 MHz) Gain 6.00Dbd Length 1500mm Same as Super Scan Stick but with extra gain, makes it an even better antenna for the amateur and expert alike. (Ideal for the Ham Radio user)

**MULTISCAN STICK**

Freq. Range Receive - 0-2000 MHz. Transmit 144 - 146 MHz gain 2.5 DBd 420 - 430 MHz gain 4.5 DBd Length 1000 mm.

Although marginally compromising sensitivity the multi scan stick has within its transmitting capabilities plus gain makes it an excellent antenna for the amateur and expert alike. Comes complete with mounting hardware and brackets. (Ideal for the amateurs ham radio - user).

**£89.95**

**IVX 2000**

Freq. Range Receive - 0-2000 MHz.

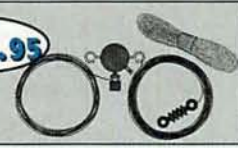
Transmit 50 - 52 MHz gain 2.00Dbd 144 - 146 MHz gain 4.00 DBh 420 - 430 MHz gain 6.00 DBd Length 2.5 m.

For external use, but at a pinch can be used in the loft. It has been finely tuned to make this Antenna the best there is. It has stainless steel radials and hardware. (THE BEST)

**MWA HF Wire Antenna Mk11**

Freq 0.05Mhz-40Mhz Adjustable comes with 25 metres of H/Grade flexweave antenna wire, 10 metres of military spec RG58 coax cable feeder, insulated guy rope, dog bone & choke balun. All Mods No A.T.U. required. Super Short Wave Antenna.

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**SWP 2000 FREQ. 25 - 2000 Mhz. Length 515mm.**

Multiband good sensitivity for its small size. Fitted with two suction cups for ease of fitting to any smooth surface (i.e. inside of car window) comes with 5 metres of mini coax and BNC connector. (Good for the car user who doesn't want an external antenna.)

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**SWP HF30**

Freq. Range 0.05-30MHz Length 770mm

Although small, surprisingly sensitive for the H.F. user. Fitted with two suction cups for ease of fitting to any smooth surface (i.e. inside of car window) comes with 5 metres of mini coax and BNC connector. (Good for the car user who doesn't want an external antenna.)

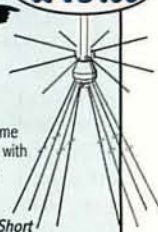
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**HF DISCONE**

Freq. Range 0.05-2000MHz Length 1840mm

Internal or External use (A Tri-Plane Antenna). Same as the Super Discone but with enhanced HF capabilities, comes complete with mounting hardware and brackets. (Ideal for the Short Wave H.F. Listener.)

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**£29.95**

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- BNC (Solder Type) .....1.00 each
- N TYPE for NGS8 .....2.50 each
- N TYPE for RG213 .....2.50 each
- SO239 to BNC .....1.50 each
- PL259 to BNC .....2.00 each
- N TYPE to SO239 .....3.00 each
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**CABLE**

- RG213 MILITARY .....0.85 per mtr.
- MINI RGB .....0.85 per mtr.
- RG58 STANDARD .....0.35 per mtr.
- RG58 MILITARY .....0.60 per mtr.
- H100 .....£1.10 per mtr.

**TRI SCAN III**

Freq. Range 25-2000MHz Length 720mm

Desk Top Antenna for indoor use with triple vertical loaded coils. The tri-pod legs are helically wound so as to give it its own unique ground plane. Complete with 5mts of low loss coax and BNC plug. (Ideal for Desk Top Use.)

**£39.95**

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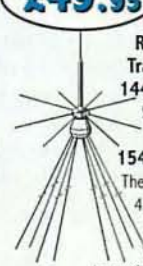
(Stainless Steel)

Freq. Range Receive 25-2000MHz Transmit 50-52MHz

144-146MHz 430-440MHz 900-986MHz 1240-1325MHz Length 1540mm Connector-N TYPE

The Ultimate Discone Design. 4.5DB GAIN OVER STANDARD DISCONE! Highly sensitive, with an amazing range of transmitting frequencies, comes complete with mounting hardware & brackets (The Best There is).

**£49.95**

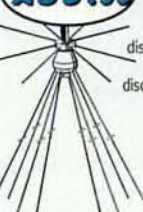


**SUPER DISCONE**

Freq. Range 25-2000MHz Length 1380mm

Internal or External use (A Tri-Plane Antenna). The angle of the ground planes are specially designed to give maximum receiving performance within the discone design. The Super Discone gives up to 3Db Gain over a standard conventional discone. Comes complete with mounting hardware and brackets. (Ideal for the Experienced Enthusiast.)

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**MRP-125 (Pre-amplifier)**

Freq Range 118-137 Mhz 9-15v input (Battery not included) 14 db Gain Complete with lead and BNC connectors.

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# Radio Basics

This month Rob Mannion G3XFD aims to ease some of the difficulties some readers have identifying and using the many forms of common capacitors.

● A bargain bag of capacitors? Perhaps...but it can only be to your advantage if you know what the components are and what they do! Read this month's column - aimed at taking the mystery out of those microfarads!

I regularly receive letters, E-mails and direct comments from Radio Basics (RB) readers who've got problems identifying some of the standard components, especially capacitors. So this month I'll only be looking at the standard variable and wire-ended type.

**Note:** surface mount (SM) components should be avoided. You need a lot of experience, very good eyes and exceptionally steady fingers!

Ever since the Farad unit of capacity (named after the brilliant practical scientist Michael Faraday) was deemed far too high a value for general electrical use we've had millifarads, microfarads, micro-microfarads, etc. And to help take the mystery out of those microfarads the *PW* technical draughtsman Tex Swann G1TEX - has provided an **Information Sheet (Capacitors)** covering many points of difficulty. **Please send an A5 s.a.e. with a 1st class stamp to Tex at the *PW* offices to receive a copy.**

**Warning:** Avoid using older higher voltage capacitors mounted in wax covered cardboard tubes. The same warning applies to older metallic 'canned' capacitors as these are often very 'leaky' due to the chemical process which may dissolve the end connections or the capacitor body. **If you find one like this - please discard it immediately.**

Always be aware of voltage limits with capacitors and the polarity if a capacitor is marked with + (positive) or - (negative) signs. Wrongly connected the component can be damaged, destroy other devices or even explode/burst - causing further problems.

## Common Capacitors

Commonly found modern capacitors, include those in Fig. 1. The type on the left is often encased in plastic, available in various values, often around 0.1 $\mu$ F. The capacitor in the centre is a tantalum bead type, resin dipped. In higher values (1 $\mu$ F or more) they are usually electrolytics with polarity marked. The type on the right is a silvered ceramic plate capacitor encased in resin. These can be very low values (from 5pF or so, with values available up to 0.1 $\mu$ F).

Other resin-encased capacitors are shown in Fig. 2, in the left and right foreground. They're rugged, reliable and are found in many values ranging from 0.001 $\mu$ F (1nF) to 0.1 $\mu$ F with working voltages from 25 to 100V or so (**always check**).

The polystyrene/polythene coated rolled silver foil and dielectric type of capacitors, Fig. 3, can cause problems for beginners. The polythene melts at very low temperatures, they're easily damaged by soldering irons, the wire leads can easily

break off and the values can be difficult to read.

Modern sub-miniature larger value electrolytics, on the left in Fig. 4, are very prominent nowadays. Modern circuitry has demanded their development. Although very voltage sensitive because of their chemically-etched internal construction, they are marvels of precision manufacturing engineering. They often provide anything up to 2000 $\mu$ F in a case smaller than that of a 1 $\mu$ F capacitor from 40 years ago in the same working voltage!

Additionally, don't be misled by the polarisation markings - **they're often not what you might think them to be!** Take care to mount them in the circuit correctly **and never assume** that the markings provided by the manufacturer refer to the + (positive) side of the component. Some manufacturers mark the - (negative) lead, and the positive side can often be a shorter pre-cut lead.

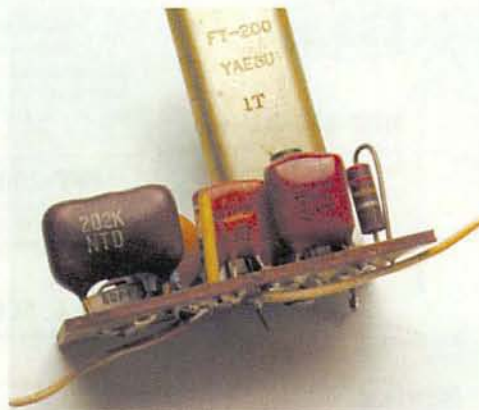
The metallic canister (often referred to as the 'can') of some electrolytic/standard capacitors **may not be isolated**. In other words there may be the possibility of a short circuit between cases of other components.

In fact, the illustration in Fig. 4 shows one such possibility. This is because if the **semiconductor case** (just to the right of the large capacitor itself) is **not isolated** (some makers print a warning) from the internal circuitry and the two touch...you could find yourself having to replace two components and perhaps even more!

When recovering small electrolytic capacitors from p.c.b.s don't overheat the connecting leads. Careful removal from a circuit will provide you with a good component - and possibly save you much fault-finding on a completed project.



● Fig. 1: Commonly found capacitors. The type on the left is often encased in plastic, available in various values, often around 0.1 $\mu$ F. A tantalum bead, resin dipped type is in the centre and silvered ceramic plate type encased in resin (right). See text.



● Fig. 2: More resin-encased capacitors, in the left and right foreground. Rugged, reliable they are found in many values ranging from 0.001 $\mu$ F to 0.1 $\mu$ F with working voltages from 25 to 100V and higher (see text).





● Fig. 3: This form on the left of polystyrene/polythene coated, rolled silver foil/plastic dielectric type of capacitors, are the most likely types to give problems for beginners (see text).



● Fig. 4: Modern sub-miniature larger value electrolytics, such as those on the left in this photograph, are very prominent nowadays. Modern circuitry has demanded their development. Although voltage sensitive they often provide anything up to 2000µF or more (see text).

## Not Capacitors!

Before venturing on, it's worth mentioning how the constructor can be fooled into thinking a component is a resistance or a capacitor when in reality it's something else!

In the past I've inadvertently used a capacitor which looked very much like a resistor - complete with colour coding - which stopped a valve in a project from working. Common sense should have prevailed and a simple voltmeter test should have showed no cathode circuit on the valve. But I was blinded by my own confidence and by the fact it was a good quality printed circuit kit only needing a few components supplied by the constructor!

**So, always check a doubtful component with your test meter.** If it's an electrolytic capacitor (meter switched to resistance measurement) connecting the leads will charge the component one way round and discharge it the other. Your meter will have the positive lead marked clearly. When connecting the meter (30V range or higher to reduce possibility of damage) you'll see the needle 'flick' as the capacitor discharges via the meter circuitry.

Smaller value (non electrolytic capacitors) should show almost 'open circuit' - infinity on resistance tests using analogue test meters. **However, take care using highly**

**sensitive digital multimeters as they can mislead the newcomer because they are so sensitive.**

So, before you discard the seemingly leaky capacitor as measured on your digital meter, check to see what resistance range it's working on - you might be surprised. It could be that it's got a resistance of 20MΩ (20 million ohms) which is quite acceptable for our purposes! (More on this subject later in the year).

## Variable Capacitors

Variable capacitors come in many forms and sizes and my advice is - when you see them on sale - buy them. They are rapidly disappearing from modern equipment and getting more expensive.

The simplest form is the postage stamp trimmer, Fig. 5, so called because it's about the same size as a stamp. Available in values from about 10pF to well over 1500pF they're useful for tuning adjustments, trimming, or main tuning on simple receiver. Check that the thin mica mineral sheets (providing insulation) are not cracked or damaged, causing short circuits between plates and the central screw.

The so-called 'foil' trimmer, Fig. 6, is relatively modern and can be regarded as a small air-spaced trimmer with thin polythene insulation provided as an afterthought! Very delicate, although extremely useful - they have to be treated with care. I've used them (values from around 10 to 50pF up to low v.h.f frequencies (70MHz or so).

True fully-variable capacitors come in many forms and Fig. 7 provides a very small selection. On the left is a solid dielectric variable type - at 500pF it's absolutely ideal for MK484/ZN414 i.c. radio projects. They're rugged and



● Fig. 5: The postage stamp trimmer (see text).

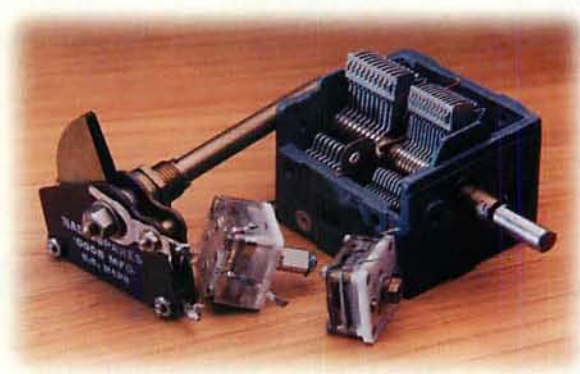
reliable...if you see them on sale - buy them.

In the centre are polyvaricons - useful but easily damaged by soldering irons. Make sure you connect to the main variable capacitor and not the built-in trimmers accidentally. If you get it wrong - you'll find that the frequency covered is much different to that expected. (The **Information Sheet (Capacitors)** - shows how to avoid the problems).

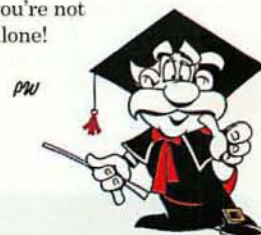
In future RB columns I'll try to include extra information on basic components as we go along - especially as I now know some readers get confused. And, as you've read, I've got confused myself in the past, so you're not alone!



● Fig. 6: The so-called 'foil' trimmer, is relatively modern and can be regarded as a small air-spaced trimmer with thin polythene insulation. Delicate, although extremely useful (see text).



● Fig. 7: A solid-dielectric variable 500pF variable capacitor (left), two polyvaricons (centre) and an alloy-framed twin gang 375pF (approximately) slow-motion drive variable capacitor (right, see text).



# Tex's

Hello and welcome to 'Tips & Topics', an occasional column of tips, tricks and ideas. This column is for you the reader, to show some of the ideas you use to make this hobby easier or more fun!

## Tips & Topics

**H**ello and welcome to the occasional column that, although it's called Tex's Tips and Topics, it really about **your ideas and tricks** that you use in practice. So, here are a few suggestions from readers seeking to win book vouchers for every tip published. This month there are two constructional related ideas and some thoughts about transformers in power supplies.

Let me start with an idea for filling in cracks and crevices of plastic boxes used to house projects. **Mark Coultas**

**GOSLP**, says that when he has a box that

needs some cosmetic, or repair work on it before applying the finishing touches of a coat of paint. Instead of using just the necessary Dichloromethane solvent alone he has made up his own filler with scrap pieces of plastic card.

Mark says to take a small glass jar that will hold around 50-100ml (2-4 fluid ounces) and half fill it with Dichloromethane solvent. Then gradually dissolve small off-cuts of plastic card (or the sprue from plastic kits) in the solvent to make a thick viscous liquid plastic. This solution may be painted into the cracks to fill them, repeating the operation to fill in deep gouges. If colour matching is a priority, then use off-cuts of the same material as you are using to make up the solution.

**Please note!** The jar and its contents should be kept away from closed room living environments - preferably out in the garage rather than in the home. To maximise the keeping properties of the solution, the jar must have a metal lid that can be tightly sealed. (For more detail on making plastic housings see 'Boxing it Up' by **Stephen Harding** **G4JGS** in *PW* Dec '92 and Jan '93. Editor)

### Finishing It Off

After a tip to clean it up, how about an idea about finishing the box or project box off! Many aluminium boxes are often unpainted with a plain metal finish. Or if they're from previous projects, they may have mismatched colours. A quick spray paint is all that's needed to make the box look good.

So, it's a typical weekend, it's windy or raining (or both) outside and the XYL has grudgingly said you can paint it in the kitchen. But she's threatened worse than murder if the paint goes anywhere else! To help you keep domestic bliss, **Keith Seddon's** tip should save your vital organs from being used as stocking supports (translation "guts for garters").

All you need is that big box that the TV or Hi-Fi came in and that's been in the garage or loft ever since. Simply very carefully slice the top flaps off with a sharp knife and put it

on the table on its side with the hole towards you. You now have your own portable spray booth. By putting a small hole in the new top side (near the old bottom) of the box, you can pass a thin string through, to which the item to be sprayed can be attached to rotate it.

Larger items could be put onto a turntable such as used for cake icing (buy your own - or take the risk as desired). You could make your own with a couple of flat pieces of wood and a length of metal as a spindle. When you're done and the item is removed to dry, take the staples out of the bottom of the box and it can be folded down for storage behind a cupboard or under the bench until required again.

### Bridge Rectifiers

From **Jim Brett** **G0TFP**, I've had the following observations about transformers and bridge rectifiers. Jim said in his letter "Most transformers these days have dual secondary windings which may be connected in series or parallel. Consider the full wave rectification circuit

**Fig. 1** where the secondaries are in series and two diodes are used conventionally".

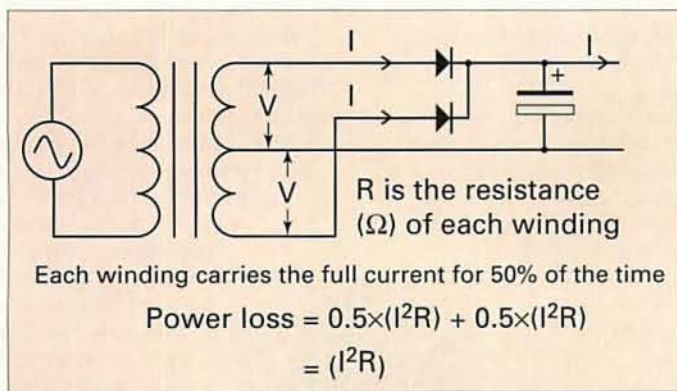
In his explanation Jim used the standard V, I and R for volts, amps and currents and shows the total power dissipated in secondary windings may be reduced to a figure of  $I^2R$  (watts). Now consider **Fig. 2** where the two secondaries are connected in parallel and fed to a bridge rectifier.

Now the total power dissipated in secondary windings simplifies down to half of the previous layout. Jim then went on to make another observation of the overall regulation saying: "The voltage output on full load in Fig. 1 becomes  $V - (IR)$  during any half cycle. But in the circuit of Fig. 2, on full load the output drops to  $V - I(R/2)$  during any half cycle so, saving a 50% reduction in the copper losses".

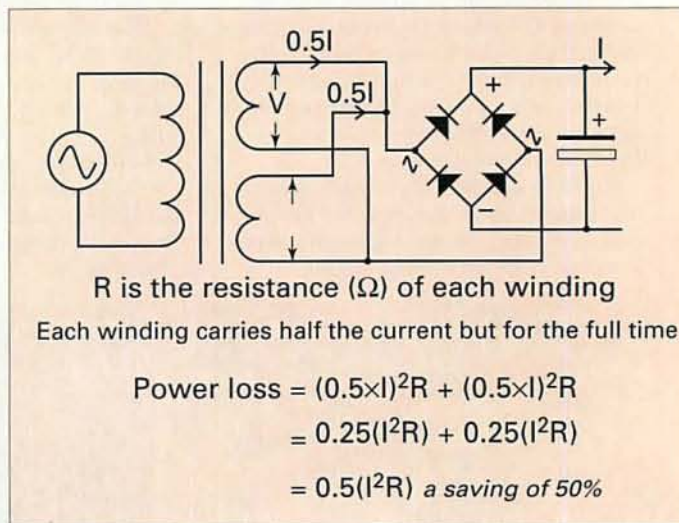
Jim finished up saying that if the extra volt drop of the diode bridge or heat dissipation due to the bridge is a problem, then it's possible to make your own bridge up with Schottky rectifier diodes.

### Vouchers Away

So, there are three vouchers on their way for those tips, and of course there will be an extra voucher for the best tip of the month to go out too. I've decided that the extra voucher should go to the portable spray booth by Keith Seddon - due more to painful memories than for any other reasons. Or



● Fig. 1: Using dual secondary windings in series looks simple, but has some hidden loose says Jim Brett. See text for more detail.



● Fig. 2: Wiring the secondary windings in parallel, although slightly more complex, brings advantages that may be significant. See text for more detail.

should that be memories of pain?

So, Keith is the overall winner this time, but thanks to everyone else for their contributions. Now - how about your ideas?

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

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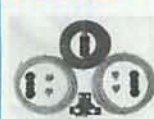
		Delivery £10.00
2m	5ele (boom 63"/9dBd)	£49.95
2m	8ele (boom 125"/11dBd)	£64.95
2m	11ele (boom 156"/12.7dBd)	£94.95
2m	5ele crossed (boom 64"/9dBd)	£79.95
2m	8ele crossed (boom 126"/11dBd)	£99.95
4m	3ele (boom 45"/7dBd)	£56.95
4m	5ele (boom 128"/9dBd)	£69.95
6m	3ele (boom 72"/7dBd)	£59.95
6m	5ele (boom 142"/9dBd)	£79.95
70cm	13ele (boom 76"/12dBd)	£46.95
70cm	13ele crossed (boom 83"/12dBd)	£79.95

## END FED HALF WAVES

Ground plane free. Made from glass fibre - no ground radials or tuning required.

4m	Length 92" (SO239) vertical	£39.95 Del £9.00
6m	Length 126" (SO239) vertical	£49.95 Del £9.00

## DELUXE G5RV



Multi-stranded PVC coated heavy duty flexweave wire. All parts replaceable. Stainless steel and galvanised fittings. Full size - 102ft.

ONLY **£42.95**

Half size 51ft. Only **£36.95** Carriage £6.00.

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

## STANDARD G5RV

Full size	102ft	£24.00 P&P £6
Half size	51ft	£21.00 P&P £6

## Q-TEK INDUCTORS

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

### REPLACEMENT PARTS

5m length	300Ω twin feeder h/duty	£5.00 P&P £3
10m length	300Ω twin feeder h/duty	£10.00 P&P £3

## BALUNS & TRAPS

1.1 Balun	.....	£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

## CUSHCRAFT ANTENNA SALE

MA5B	Mini beam 10, 12, 15, 17, 20m	£289.95	£259.95
A3S	3 ele beam 10, 15, 20m	£389.95	£349.95
R6000	Vertical 6, 10, 12, 15, 17, 20m	£300.00	£269.95
X-7	7 ele 10, 15, 20m	£549.95	£499.95
X-9	9 ele 10, 15, 20m	£799.95	£699.95

## Q-TEK COLINEARS

P&P £10.00

Glassfibre construction

QT-100	GF 144/70, 3/6dB (1.1m)	£39.95
QT-200	GF 144/70, 4.5/7.2dB (1.7m)	£54.95
QT-300	GF 144/70, 6.5/9dB (3m)	£69.95
QT-500	GF 144/70, 8.5/11dB (5.4m)	£125.95
QT-627	GF 50/144/70, 2.15/6.2/8.4dB (2.4m)	£69.95

## MOBILE ANTENNA

P&P £7.00

DB-770M	2m/70cm (3.5 - 5.8dB) 1m PL-259	£24.95
DB-790M	2m/70cm (5.5 - 7.2dB) 1.6m PL-259	£39.95
PL-62M	6m + 2m (1.4m) PL-259	£19.99
MA5M	(20 - 10m) 3/8" fitting 5 band	£29.99
NR-2000	NEW. 2m/70cm + 23cm mobile	£39.95
NR-627	NEW. 6m/2m/70cm mobile	£54.95

## COPPER ANTENNA WIRE

Enamelled (50m roll)	.....	£12.95 P&P £5
Hard drawn (50m roll)	.....	£13.95 P&P £5
Multi-Stranded (Grey PVC) (50m roll)	.....	£9.95 P&P £4
Flexweave (H/duty 50 mtrs)	.....	£30.00 P&P £5
Flexweave H/duty (20 mtrs)	.....	£15.95 P&P £5
Flexweave (PVC coated 20 mtrs)	.....	£18.95 P&P £5
Flexweave (PVC coated 50 mtrs)	.....	£40.00 P&P £5
PVC coated earth wire (6mm) 15m roll	.....	£10.00 P&P £5
Copper plated earth rod (4ft)	.....	£13.00 P&P £6
Copper plated earth rod (4ft) + 10m wire	.....	£18.99 P&P £6

## RECHARGEABLE ALKALINE CELLS



Starter kit includes charger & 4 x AA cells. **£13.99** + £2.50 P&P.

Please note that only the special cells can be recharged with this charger.

Extra cells available @ 8 x AA pack £10.99 £1 P&P  
4 x AA pack £5.99 £1 P&P 4 x AAA £6.25 £1 P&P. Rechargeable Alkaline. No memory effects. 1.5V cells. 3 x capacity of nicads.

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100m roll of RG-213 coax	ONLY <b>£49.95</b> P&P £10
100m roll of RG-58 coax	ONLY <b>£25.00</b> P&P £8.50
100m roll of Mil spec RG-213 coax	ONLY <b>£69.95</b> P&P £10
100m roll of Mil spec RG-58 coax	ONLY <b>£35.00</b> P&P £8.50



## NISSEI PWR/SWR METERS

RS-502	1.8-525MHz (200W)	£79.95 P&P £5
RS-102	1.8-150MHz (200W)	£59.95 P&P £5
RS-402	125-525MHz (200W)	£59.95 P&P £5
RS-101	1.8-60MHz (3kW)	£79.95 P&P £5
RS-40	144/430MHz Pocket PWR/SWR	£34.95 P&P £2

## CAROLINA WINDOW

CW-160	(160-10m)	£105.95 P&P £7.00
CW-80	(80-10m)	£82.95 P&P £7.00
CW-80	Special (1/2 size)	£89.95 P&P £7.00
CW-40	(40-10m)	£79.95 P&P £7.00

Windows are 1/2 or end fed.....P&P £7.00

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Rectangular snap-fitting ferrite cores suitable for :- Radio coax/TV/mains/telephone/PC & data cables. Plastic teeth prevent it from sliding on cable. Simply snap close onto cable and job is done!

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Superb quality

NEXT DAY DELIVERY TO MOST AREAS, £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 LOW PRICE £39.95** Del £10

**TWO FOR £70**

**THREE FOR £95**

2 for £70.00  
Del £12.50  
3 for £95.00  
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## BARGAIN MAST SETS

Set A: 5 section 21ft long (1 1/8") mast set **£23.95** Del £10.00.

**TWO FOR £39**

Set B: 5 section 16ft long (1 1/8") mast set **£19.95** Del £10.00. (2 sets £39.00)

## ALUMINIUM POLES

2" x 2.5m length	2mm wall thickness	£19.99 P&P £10
2" x 10ft collection only	2mm wall thickness	£24.99
2" x 12ft collection only	2mm wall thickness	£29.99
2" x 20ft collection only	2mm wall thickness	£39.99

ALL MEASUREMENTS ARE APPROX

## FIBRE GLASS MASTS

1 1/2" Dia	.....	£8.50 per metre P&P £10
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2" Dia	.....	£12.50 per metre P&P £10

Fibreglass available up to 5m lengths.

NB. WE CAN ONLY DELIVER UP TO 2.5M LENGTHS

## TELESCOPIC MASTS

6 section telescopic masts. Starting at 2 1/2" in diameter and finishing with a top section of 1 1/2" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and stainless steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 10 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

8 mtrs **£99.95** 12 mtrs **£139.95** Carriage £10.00.  
Telescopic mast lengths are approx.

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

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

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9"	Stand off	£8.95 P&P £5
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18"	T&K Brackets	£18.00 P&P £8
24"	T&K Brackets	£20.00 P&P £8
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U bolts	(1 1/2" or 2")	£1.20 each
8 nut universal clamp	(2" - 2")	£5.95
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4-way	guy ring	£4.95
2"	mast sleeve	£9.95
1 1/2"	mast sleeve	£8.95
Standard	guy kits (with wire)	£23.95 P&P £6
Heavy duty	guy kits (with wire)	£26.95 P&P £6
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- ★ Short circuit current limited
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Superb 30 amp /12V

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- Ultra quiet cooling fan
- Over volts protection
- Compact size
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The ultimate HF + 6m transceiver on the market.

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2m + 70cm handheld with built-in modem and APRS. Buy one this month before the price increase.

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A true dual-band radio suitable for the most demanding operator.

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2m + 70cms. True dualbander + 3 inch TFT colour display.  
Includes: Bandscope, 50W O/P & EXTL video input (optional RX: 118 - 530MHz (am/fm)

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Includes 16 meg cartridge

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New GPS with built-in map database, new improved built-in antenna, 8 meg of spare memory on board (data lead supplied). Auto track log/waterproof and will not sink in water. Accepts mapsouce CD data.



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SPECIAL

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- Wide screen/ 2" digit time display
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Micro-handly scanner. 100kHz-1300MHz. 700 memories/stereo FM (earphones)/attenuator/bug detector/audio descrambler. AM/FM/WEM/Selectable tuning steps (incl's 8.33kHz).



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(incl's batteries charger)

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NEW MODEL

Miniature wideband handheld scanner covers 0.5-1300MHz (AM, FM/WFM). Search banks memories and many more features.



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★ Miniature portable all mode SW receiver  
★ Station presets for 50 frequencies  
★ Single side band system  
★ Synchronous detector  
★ Tuning in 100Hz + 1kHz steps  
★ Includes compact antenna/stereo earphones/carrying case  
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### MFJ-259B

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

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(with up/down). Every amateur using this mic (over 2000) has expressed extreme pleasure with it's performance.

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I-08	8 pin "Icom" round	£9.95
AM-08	Modular phone "Alinco"	£9.95
IM-08	Modular phone "Icom"	£9.95
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25A @ 13.8V yet lighter than an IC-706 but about the same size.

- Features: ● Ultra quiet fan ● Over voltage/current protection ● Weighs ~ 1.8kgs  
● Size: 57 x 177 x 190mm  
● Additional sockets at front & rear  
● SSP £99.95.



**£79.95**  
Delivery £10.00

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Sigma Antennas are easy to assemble using the supplied instructions

### Trapped Dipoles



These trap antennas are made in 2, 4, 6, 8, and 10 trap versions. Standard 2 trap designs have low VSWR on 2 bands, and operate with a higher VSWR on up to another (depending on model) 3 bands. Versions with 4, 6, 8 and 10 traps will have a low VSWR on more bands. An antenna tuner is usually not required.

These antennas are commercial quality, and are built to last. Heavy duty stranded copper-coated steel wire is used, with low loss end insulators, and a choice of Centre Connector or Balun which accept a standard PL259 connector. Band switching is automatic, and the antennas can be used as an Inverted 'V' or flat top antenna.

Use Copper Based Anti-Corrosion Compound No1 on all connections

**Practical Wireless SD-610 review August 1995.**

**"manufactured to an extremely high standard"**

**"SD-610 erected and operational in just over two and a half hours"**

**"excellent performance"**

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SD-32	20/15/10m	2 Trap	27ft	£91.45
SD-34	20/15/10m	4 Trap	24ft	£152.95
SD-42	40/20/15/10m	2 Trap	55ft	£97.45
SD-44	40/20/15/10m	4 Trap	47ft	£157.95
SD-46	40/20/15/10m	6 Trap	42ft	£218.95
SD-52	80/40/20/15/10m	2 Trap	105ft	£113.95
SD-54	80/40/20/15/10m	4 Trap	97ft	£171.95
SD-56	80/40/20/15/10m	6 Trap	86ft	£228.95
SD-58	80/40/20/15/10m	8 Trap	82ft	£289.95
SD-68	160/80/40/20/15/10m	8 Trap	154ft	£307.95
SD-610	160/80/40/20/15/10m	10 Trap	148ft	£359.95
SD-162	160/80m	2 Trap	208ft	£135.95
SDW-22/12-17W	12/17m	2 Trap	23ft	£87.45
SDW-22/17-30W	17/30m	2 Trap	41ft	£87.45
SDW-22/30-40W	30/40m	2 Trap	61ft	£87.45
SDW-22/30-80W	30/80m	2 Trap	102ft	£97.45
SDW-34W	12/17/30m	4 Trap	32ft	£149.95
SDW-46W	12/17/30/40m	6 Trap	46ft	£209.95
SDW-58W	12/17/30/40/80m	8 Trap	85ft	£283.95
SDW-610W	12/17/30/40/80/160m	10 Trap	152ft	£325.95
ACJ-1	Anti-Corrosion Compound			£10.45

If your antenna may be unbalanced, because one side is low, or is above a building these antennas can be supplied with a 3kW current balun instead of the standard centre connector. Add £18.

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# Get out and use it!

● The Icom IC-910H transceiver provided Richard G0RSN and Terry G7VJJ with a great deal of pleasure on the v.h.f. and u.h.f. bands.

# The Icom IC-910H

Despite being in the middle of moving to a new home when asked to review the IC-910H, keen *PW* reviewer Richard Newton G0RSN wasn't phased at all! He just recruited his father-in-law Terry G7VJJ's shack and antennas!

**W**hen I was asked to review Icom's new IC-910H s.s.b., c.w. and n.b.f.m. transceiver covering the 144 and 430MHz bands, with the ability to incorporate 1.3GHz (23cm band) as well, I realised I had to enlist some help!

I hadn't done any serious operating on either the 144 or 430MHz bands for a while. Additionally, due to an impending house move, my antennas and shack were packed away, so I called my father-in-law Terry Wood G7VJJ for help. Terry has good antennas and was very keen to lend a hand reviewing the IC-910H.

## Professional Looking

The transceiver is very professional looking, and although the IC-910H is not a large rig, it has the look and feel of a base station and is smartly finished in grey. One of the first things that we noticed was the well labelled and sensibly laid out controls.

The radio is supplied with a fist microphone, power lead and some spare fuses. An informative and well-written instruction manual is also provided. And although this is **definitely** a radio that you can plug in, switch on and operate immediately - if you want the full value - you **must** read the instruction manual.

Measuring 241 x 94 x 239mm deep the IC-910 weighs a reassuring 4.5kg. This increases slightly to 5.35kg when the optional 1.3GHz band unit is installed.

On v.h.f. the IC-910's receiver works as a single conversion superhet (10.8MHz i.f.) on s.s.b. and

c.w. For v.h.f. n.b.f.m. operation the receiver is double conversion with a 455kHz second i.f. When operating on u.h.f. the receiver operates in double conversion mode for s.s.b. and c.w. (using a 71MHz 1st i.f.) and as a triple conversion on n.b.f.m. (71, 10MHz and 455kHz).

Running at 100W the rig will draw up to a maximum of 23A on transmit on 144MHz and a maximum 75W on 430MHz. The optional 1.3GHz module provides an output power of 1-10W. If you're keen on operating portable it's worth noting that the IC-910 draws anything from a minimum of 2A to a maximum of 3.5A on receive (on 1.3GHz).

## Impressive Display

The front panel of the Icom IC-910H is dominated by the large display, tuning dial and the well organised and impressively backlit display. This shows the

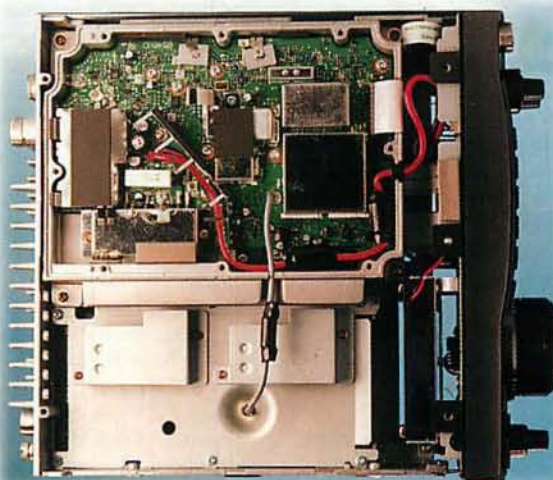
main band frequency at the top in large characters and the sub band frequency in slightly smaller characters immediately below.

Operating the transceiver is a **delight** and manipulating the frequencies in either the **Main** band dial or sub band dial is **wonderfully easy**. Switching from main band to sub band, bringing the sub band to the main band and even swapping between the two v.f.o.s and memories on each band is very

straightforward. In fact it was a lot easier to do rather than write about it!

## Impressive Features

The IC-910 is armed with some very impressive features and has all the bells and whistles I would



● Inside view showing the main chassis (underside) on the IC-910H.

hope to see on any self-respecting base station. It's equipped with direct entry keypad; Voice Operated Transmit (VOX), and a user-defined microphone gain control with a compressor that can be switched in as desired. It also has a **RF Gain/Squelch** control that can be set up in different configurations to suit different operating styles.

On the air the Icom IC-910H is well equipped to cope with the bands at their busiest and help work that illusive DX. There's a rather effective attenuator offering protection against distortion from large signals.

Additionally, the auto-frequency control is useful in the n.b.f.m. and a.m. modes to track received signals that drift a little in frequency. Lastly, I was pleased to see one of my favourites, the **RIT** and intermediate frequency (i.f.) **Shift** facility.

The i.f. Shift facility is especially useful when you're working a DX station and there's strong adjacent channel inference. By using the Shift the operator can slightly adjust the receiver's i.f. pass band frequency within 1.2kHz, providing an extra edge on selectivity to complete the contact.

As an optional extra you could also choose to install Digital Signal Processing (DSP) unit for your main band. Additionally, if you're feeling particularly flush you could install a second unit to provide this on the sub band as well. (The optional DSP filter also provides an automatic notch filter).

The Icom IC-910H is well equipped with 99 regular memory channels and six scan edge memories. It also incorporates a call frequency for each band

## Optional Extras

Many optional extras are available for the IC-910H. Amongst these are external weatherproof masthead pre-amplifiers controlled from the radio. Once installed they're activated (by a selection in the IC-910's user set-up menu) and then turned on and off by a front panel button. You can also add a high stability crystal unit to further improve the overall frequency stability, together with a narrow c.w. filter.

The transceiver provides voice capability on narrow band f.m. (n.b.f.m.), a.m and s.s.b as well as c.w. You can even transmit c.w. using the built-in c.w. keyer and the **Up** and **Down** buttons on the microphone! I actually put out a Morse CQ call on 144.050MHz but got no reply, a relief to tell the truth as I am a little rusty on c.w.!

The Icom IC-910H also offers Data modes at 1200 or 9600bps via dedicated mini data ports on the rear of the radio. Although the rig does not have an FSK mode for RTTY, PACKET or AMTOR, etc., these are operated using ASFK in either the n.b.f.m or s.s.b modes.

You can also add a high stability crystal unit to further improve the overall frequency stability. And for the c.w. operator a narrow c.w. filter in the main and sub band can be fitted. There's also a voice synthesiser unit which can be added to help operators with sight problems.

## Satellite Operations

Another advanced feature that the Icom IC-910H offers is Amateur Radio Satellite operations. However, I must confess I've not tried this mode. But I have been impressed by other's efforts and their rather impressive antenna arrays.

The Icom IC-910H seems to offer the would-be satellite operator a myriad of choices. It's able to operate both satellite mode B (435MHz up-link and 145MHz down-link) and also satellite mode J (144MHz up-link with a 430MHz down-link) which can be further extended with the addition of the 1.3GHz module to encompass the satellite mode L.

Even the Icom IC-910H instruction manual advises the new operator to seek advice and further information before attempting satellite working. I felt this was a very good idea!

## Band Sweep

Just before the on air results I must mention the band sweep function, which I liked very much. In principle this operates as a simple band 'scope. However, the most

interesting feature is that it **doesn't disable** the received audio when it's in operation.

Using the band sweep means that you can monitor the calling frequency **and see a visual representation** of where the activity is. This is then indicated by segments on what's normally the S-Meter. (The sweep time interval is user-selectable via the set up menu).

## Ready To Go!

At last we were ready to go! Operating from Terry's shack not too far away from my own QTH on the outskirts of Bournemouth (about 30m above sea level) we had the IC-910H connected to his 9-element horizontally polarised 144MHz beam. We also had a white stick style collinear for the 144 and 430MHz bands.

Even though the review radio was equipped with the 1.3GHz module, we didn't have an antenna capable of transmitting on that band. However, I listened round using a discone antenna but didn't hear any transmissions.

Terry and I threw caution to the wind and fired up the Icom IC-910H and first tried calling on 144.300MHz, the s.s.b calling frequency. Then I heard F6IFR calling "CQ Contest" from JN09TT a distance of 400 kilometres or so. I went back to him and received a 53 report (he was an excellent signal with us).

Spurred on by our success we renewed our CQ calls and had a very enjoyable chat with **Roger Powell G0AOZ**, located near Abingdon in Oxfordshire. Roger gave us some excellent reports saying that the IC-910H "sounds very nice, crisp communications quality audio" and went on to say that the transmitted audio was "sharp".

We started off the QSO with G0AOZ receiving a 4 and 2 report. However, after raising the antenna to



● The antennas used by GORSN when operating from G7VJJ's shack to evaluate the IC-910H transceiver. (photo courtesy of Terry Wood G7VJJ).

## Product

Icom IC-910H v.h.f./u.h.f. Transceiver

**Cost:** £1299 (Icom RRP)  
**Company:** Icom (UK) Ltd.  
**Contact:** Sales  
**Tel:** (01227) 741741.

## Pros & Cons

**Pros:** A joy to operate, The received audio was excellent, The large tuning control knob and the easy way that you can change tuning steps and switch between v.f.o.s made trawling the bands so simple.

**Cons:** If you're keen on operating portable it's worth noting that the IC-910H draws anything from a minimum of 2A to a maximum of 3.5A on receive (on 1.3GHz).

## Summary

You can get it out and use it straight away. But after an hour or so with the manual and playing around and you will be having great fun and using more and more of the advanced features. The IC-910H can also be computer controlled using the optional CI-V converter and the plug on the rear of the radio.

Terry and I had great fun operating the Icom IC-910H, However I did feel almost guilty about having so much fun as the IC-910H has the air of a 'serious rig'. It has the potential to be a very competent piece of hardware for the discerning and serious v.h.f./u.h.f. operator.

## Thanks

Thanks for the loan of the review IC-910H go to **Icom (UK) Ltd., Sea Street, Herne Bay, Kent CT6 8LD. Tel: (01227) 741741.**



the full height of Terry's Tenna mast (approximately 10m) and turning the beam we enjoyed a 5 and 9 each way contact that Roger described as being "Armchair copy". Roger was about 114km away using a Kenwood TS-711E running about 60W into his home-brewed 16-element beam.

We were then called by **James Roff 2E1EMK**. James was about 72km away from us in a village called Willcot near Pewsey in Wiltshire. James was running his 10W maximum from a Yaesu FT-100 into a 9-element beam.

James reported that our audio was very good, describing it as "Loud and punchy". He also took the time to help us out with tests on the 430MHz band. We went onto vertical polarisation and had a good s.s.b. contact with James, although it was somewhat more difficult than 144MHz, so we went back to v.h.f. to finish off our QSO.

We were then called by **George Aldeman G3BNE** in Sidcup in South East London. George had been very patient as he'd been waiting during our QSO with James. George gave his locator as JO01BJ, this translates to a distance of about 150km.

George was operating a Kenwood TR-751E with a 9-element beam. He gave us a great report saying that we were 5 and 1 rising 5 and 3 and with the odd aircraft reflection we rose to 5 and 7!

During the QSO George explained he was employing DSP. He told us that he'd found the better the received audio was - the better the DSP actually worked. He used this as a way to demonstrate that the audio from the Icom IC-910H was very good indeed. George commented that the modulation was excellent even when we went down in the noise occasionally.

## Joy To Operate

At this point I have to say that the Icom IC-910 was a joy to operate. The large tuning control knob and the easy way that you can change tuning steps and switch between v.f.o.s made trawling the bands so simple.

The received audio was excellent, it was so easy to hear even a distant or weak signal and then be able to turn the beam and make a contact. Although the optional masthead pre-amplifier is undoubtedly a good idea for serious contesting or DX hunting, the fact remains that the IC-910 seems sufficiently sensitive for an enjoyable and productive every-day QSO.

The contacts just kept coming! We

spoke to **Kevin Danks G0DBI** who was not far away from us near Christchurch. Kevin was using the Yaesu FT-817 and reported our signal as being "Impressive" (rarely I am called impressive!). Thanks Kevin! As we were not too far away from each other we went for a QRP contact and I turned the IC-910H down to the minimum 5W and Kevin dropped from his 5W down to 500mW. We still received Kevin as a strong 5 and 1 signal.

**Nick 2E1IDX** in Hertfordshire, at a

Hampshire. Rex said that Bournemouth was a difficult path from his direction and complemented us on the "Nice strong signal", he went on to say that the IC-910 "Sounds very nice". Rex was using an Icom IC-2100 and was about 75m or so above sea level running about 25W. We achieved a 5 and 9 report after putting the antenna up to full height. This was a trip of about 60km.

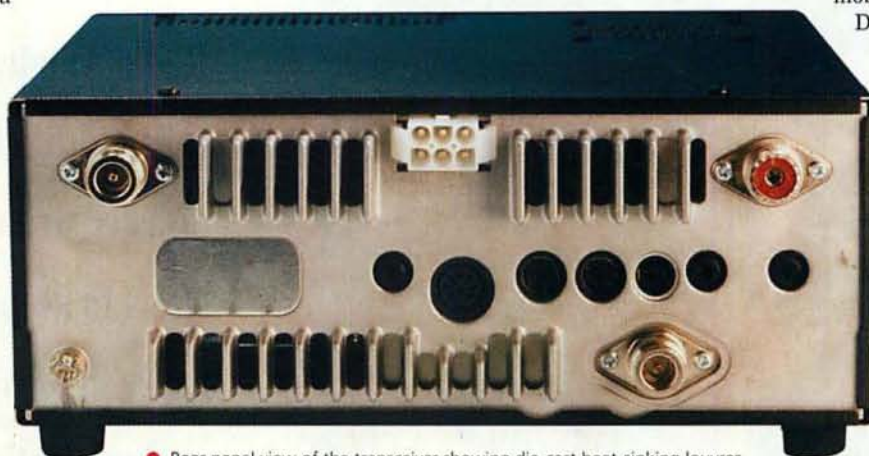
Finally Terry spoke to a good friend of ours, **Bob Knight G6DZM** while he was mobile on the way to the Dorset town of Blandford Forum to a local club meeting. Bob was also very impressed with the good audio from the IC-910H, saying that he had no problem hearing us even with the mobile flutter. I guess at the most distant Bob would have been about 25km away over less-than-ideal terrain.

## Jam Packed

In my opinion the Icom IC-910H is just jam packed with useful stuff like the band sweep, together with full CTCSS, auto repeater shift and quick access memo pads for rapidly storing interesting frequencies. Despite these facilities I think that the main attraction of this menu driven rig is that **it's so easy and simple to operate**. Honestly it really is!

I would like to say a quick thank you to Terry as not only did I take over his shack to do this review. I also commandeered his computer to write it as I had packed mine away for the move!

PTW



● Rear panel view of the transceiver showing die-cast heat-sinking louvres vents, and v.h.f., u.h.f. and 1.3GHz antenna connectors (see text).

distance of about 200km also gave us a very favourable report. He was using the Kenwood TS-2000 with 10W into a 14-element beam.

Having now satisfied ourselves that the Icom IC-910H was competent on s.s.b we decided to give a go on n.b.f.m. Again we had little joy on 430MHz, but tuning round the 144MHz band we heard a French repeater on 145.325MHz, which provided a clear 5 and 2 signal. This was a good indication that this band was 'up'.

We were soon in contact with **Rex MIDLN** from just south of Winchester in

● Richard GORSN on the air from G7VJJ's 'borrowed' loft shack where he reports that the IC-910H provide a great experience for both operators. (photo courtesy of Terry Wood G7VJJ).



# Amateur Radio & Emergency Action



Radio Amateurs are often called into action when disaster strikes. So, in an effort to keep us alert and ready to provide emergency communications Anthony Hern G1UFX uses dramatic factual and imaginary examples to prepare us for the unthinkable.

**I**n Amateur Radio, we know enough, though by no means all of course, to enjoy the aspects of the hobby that interest us the most. Traditionally, one of the things that Amateur Radio can do very effectively is to provide an emergency communications service. In this regard, Amateur Radio is part of what is known as the Voluntary Sector and as such can make a valuable contribution to Society.

In the Lockerbie disaster for example, between 80 and 130 Radio Amateurs turned out each day for 10 days to help. More recently, in August 1995, 60 Amateurs logged about 1200 hours assisting at the Woods and Heathland fires emergency in Staffordshire. Across the United Kingdom, some 3000 licensed Radio Amateurs (out of a total of about 58,000) are

active in emergency support work of some kind.

## Dramatic Examples

The purpose of my article is to try to explain something of what's going on in the UK...and there's quite a lot! Emergencies of all kinds have to be handled, so I'm 'setting the scene' with some fictional dramatic examples so that we, as Radio Amateurs, will have more of an idea in what context and what assistance can be provided.

So, let's start with some possible examples...**dramatised perhaps...but still possible!** And although such descriptions may seem more suitable for Hollywood disaster films...the authorities regularly set-up similar scenes for Emergency Services Exercises which often involves Amateur Radio.

Let's now let our imagination run free: It all began one Sunday, when a special train carrying

nuclear material passed through the Channel Tunnel on its way to the nuclear processing plant at Sellafield in Cumbria. By the time it reached London, and the crossing of the Thames at Blackfriars Bridge heading towards the Snowhill tunnel, a big concert in Hyde Park had already attracted an 85,000 people audience.

Just down the road, on the edge of the park, is the Royal Albert Hall. A capacity audience is assembled from all over the country to enjoy the culmination of a national music contest.

In the skies over London, the weather had provided low overcast cloud for most of the day. At about 2000ft above St. Paul's Cathedral, even on a Sunday, aircraft continue their relentless procession of landings and take-offs from Heathrow and the City airports. Disaster then strikes and two aircraft collide in mid air.

A jumbo jet veers towards Hyde Park, hoping to make an emergency landing that will cause



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minimum damage and maximise chances of survival. When it hits the ground and the crowd, one of its engines breaks free and slices into the Albert Hall.

Meanwhile at Blackfriars Bridge, the other aircraft has fallen onto the train when half of it is actually on the bridge. In the process, splitting two of the 12 nuclear flasks it is transporting. Nearby is the busy Southbank entertainment complex, running the usual busy Sunday programme of entertainment's in its Theatres, Cinema and Concert Hall complex.

Within an hour and a half of the start of the disasters the London telephone system seizes up because of the volume of calls.

"It'll never happen!" I hear you say and I fervently hope you're right. Consider however, what the response would be if such a series of disasters did occur.

Looking at "the worst case scenarios", researching and discover what those dangerous circumstances are, projecting the likely development of potentially hazardous sets of circumstances, and to consider and plan a response is the job of Emergency Planning Groups.

So, I suggest that you ask yourself "what are the elements in my local area that, should they by some mischance come together, will create a disaster of such magnitude that it will require a huge response by the whole community?"

Then ask yourself "what will I do as a Radio Amateur in such an emergency"...or will you look on with helpless horror? Perhaps you think its all pretentious rubbish, pie in the sky posers dreaming about things that will never happen. Maybe, but experience teaches that planning and forethought, the use of a little imagination and vision might really save life and mitigate the worst effects of a disastrous event.

## Could Be You!

It could be you twiddling around the bands in an idle moment and hear a desperate call from someone somewhere, asking help for their devastated community. On the other hand it could be you putting out just such a call. So just what will you have to do in those circumstances?

It's not for nothing that in the Radio Communications Agency booklet BR68 that Licensed Radio Amateurs receive each year with their licence validation document includes important information. Two of the three paragraphs on the first page, "Conditions of use: purpose. Clause 1 (2) and

clause 1 (3)", refer specifically to the use that can be made of the Amateur Radio station in an emergency, by a "User Service", as defined in clause 12 (1) (0).

Over the last 10 to 15 years there has been a considerable development in Emergency Planning. In the UK, a considerable infrastructure already exists. Each of the County and Metropolitan Boroughs employ Emergency Planning Officers whose job is to assess local risks and to plan a co-ordinated response from local resources.

After each major incident in the UK and increasingly, world wide; many serious and responsible people

spend time, money, and effort analysing the event in order to determine exactly what the sequence of events that occurred were.

On the basis of the known facts, procedures are

developed and refined so that **if there is a next time** or similar,

experience can be drawn on to make the response that much more effective and more efficient.

The emergency services also employ people to perform a similar function within their own organisation. The Home Office runs a full time Emergency Planning College and the subject can now be studied to Degree level at University.

## Acronyms Abound

The infrastructure is already quite complex and acronyms abound for situations and circumstances! These exist together with agencies and organisations who each have their own unique contribution to make, but which may not be relevant to every emergency situation. Because of the variety of situation and circumstance one of the user services is designated 'Lead Authority' whose job is to co-ordinate the response of all the other Agencies.

It's in order to achieve a co-ordinated and effective response that so much planning and analysis is done. The effort is made so that the appropriate organisations can be incorporated into the planning, and prepare for the response **that they may be called on to make**. These are written up as a Procedures Manual.

Separate plans may be developed to deal with any specifically local hazard and emergency plans are legally required for some industrial hazards. From time to time plans will be tested by exercise - played out on paper - with a computer or as if for real. This is done in order to try to discover weak points in the plans and to practice or rehearse those who are involved in the implementation of

the plans.

So, who is the Emergency Planning Officer at your QTH? The answer is **You** of course!

I have no doubt that you're committed up to the eyebrows and don't have the time to wait around on the off-chance that something nasty is waiting around the corner. Few of us have the time to spare. However, you could spend a few moments thinking about where you could put your hands on an emergency power supply.

Where's that spare (charged) car battery, the portable petrol-electric generator or even a small wind-powered generator perhaps? Where's the local emergency control centre?

Ask yourself the question: Could I really be the only source of information and contact with the wider world for my family neighbours and myself? Think of yourself as a local control centre! Think about these things and bingo! You're doing emergency planning.

How about a bit of very local risk analysis? Try to identify the industrial, commercial and public activities in the local area of your QTH and assess any risk they are likely to pose.

As you identify each activity, you can apply a risk analysis rating. Is it: certain, probable, possible or unlikely?

My own dramatic fictional scenario above is of course, unlikely, but all the elements are there and some combinations are possible, some certain, some probable. Each one will require consideration and planning.

Either as an exercise or for real, singularly or in combination with other events, they will all require a co-ordinated response by the various authorities and organisations. This is necessary in order to deliver structured assistance to deal with the impact of an event on those involved, on the community itself and its resources before, during and after any incident. Be it large or small, on land or water.

The stimulus for this development has come from the realisation, inspired by a number of major incidents, that a pre-planned and co-ordinated response was required in order to lessen as far as possible the effects of any major incident.



● The Dorset RAYNET Mobile Communications Centre on display at an official Emergency Service Planning Exhibition.



● Radio is essential in their work and during emergencies RAYNET steps into action. Photo courtesy of ICOM (UK) Ltd.



● The RAYNET (Dorset) group in action providing back-up emergency communications. This group - who are very active indeed - have a high profile in the Dorset/Hampshire area and are often called into action by Dorset County Council and the Dorset Police.

## Major Incident

An example of a major incident is the nuclear accident at Chernobyl in April 1986 which affected many areas of Northern Europe. Briefly, the Chernobyl explosion occurred because some tests were to be conducted on the reactor and all of the built-in safety features had been disabled to allow the experiment to be undertaken.

In the test state the experiment was started and within four seconds the water in the cooling system had reached a temperature several times higher than its safe operating limits. The resultant expansion of the coolant to super-heated gas created tremendous pressure and cavitation in the cooling system, which blew up 40 seconds later...total time to disaster was 44 seconds.

The resultant plume of nuclear debris released by the explosion mixed into the atmosphere and was moved about by the prevailing weather system. It began to drift across Northwest Europe breaking up and dispersing as it moved, and passing in due course over the UK precipitating nuclear material on to the high ground of North Wales and Scotland. It was not announced by the then Soviet authorities and was first detected by radiation appearing over Scandinavia.

As a direct result of the Chernobyl incident two new sets of acronyms - RIMNET and NAME appeared in the UK. The first, the **Radioactive Incident Monitoring Network** - hence RIMNET- was set up as part of the Government's National Response Plan for dealing with overseas nuclear accidents. It was recently incorporated into the new UK Environmental Agency.

The RIMNET system consists of 92 remote sensors, which measure the amount of radioactivity in the atmosphere over the UK. They are mostly located at Meteorological

Office (MO) sites are regularly electronically polled from a main control centre in London.

Secondary consultation sites are also located in Lancaster, Leeds, Bedford, and Bristol. Some local authorities also have their own supplementary system.

At the same time, the MO decided to develop a computer based **Nuclear Accident Modelling Environment** or NAME. This very sophisticated software system allows a passive element with predetermined characteristics to be introduced into a relationship with the Meteorological computer database. This is then used to track and predict its movements, both horizontal and vertical, in 16km grids, and predict the dynamic relationship that will develop between the two, up to five days ahead within the Met office coverage area.

The NAME system is capable of plotting any type of airborne contamination. It was effectively used to track the plumes created by the oil well fires which followed the Gulf War.

Wet and dry deposition can also be assessed, which would be important with regard to Radionuclides\* for example, where there are important considerations for food and water contamination. Concentrations and Gamma dose rates can be calculated and geographical variations are also taken into account.

A further development by the Met Office is the United Kingdom Atmospheric Dispersion Modelling System-UK-ADMS. This can be used on a PC using MS Windows and provides dispersion modelling up to 30 Km from source. It can use current Met Office data and output an overlay for superimposing on to local maps. This can be used to plot local area airborne pollution of any type and can be type specific when used in conjunction with a suitable database. A system for dealing with chemical pollution (CHEMET) is already in use.

**\*Editorial note:** *Radionuclides - Any nuclide (Isotope of an element) which is unstable and undergoes natural radioactive decay.*

## What Will You Do?

So, I've mentioned several of the many systems set up to help in national or regional emergencies but the final question is: What will you do if you find yourself in an emergency situation in your local area? You might sit back and hope that 'The Authorities' will deal with it, and to a large extent they probably will, but at least you can be prepared.

Solar power, batteries, lightweight generators and modern portable equipment mean that we can be independent of the mains in emergencies. With a little thought you can be ready to swing into action...whenever help is needed.

PW

### The Radio Amateurs' Emergency Network - RAYNET

Now that you've read the article (and thought about your own emergency plans perhaps) how about considering offering your support to an organisation which has done much over the years to support the community during times of crisis and emergency? The organisation is of course the Radio Amateurs' Emergency Network known throughout the UK as RAYNET (**Readers in the Irish Republic please see the special section below**) and came into being as a result of the disastrous floods which affected (in particular) the East coast of England in 1953. Since then the organisation has been ready to provide emergency communications for many tragic incidents...including that resulting from the atrocity which led to the Lockerbie disaster in 1988.

The Raynet organisation is a registered charity, Limited by Guarantee, with their registered office at 4 North End, Bedale, North Yorkshire. The National Chairman is **Ronald Cowan GM4SRL** and he can be contacted at: **85 Eastwoodmains Road, Clarkston, Glasgow G76 7HG. Tel: 0141-620 1000.** Covering the whole of the UK, RAYNET has 22 individual zones, all of which need your support! Want to know more? If so either write or call the National Chairman or look at the Raynet website at [www.raynet-uk.net](http://www.raynet-uk.net)



### Irish Republic - The Amateur Radio Emergency Network (AREN)

Within the Irish Republic Radio Amateurs also provide

emergency radio communications with their own parallel organisation. As readers probably realise - in common with the long standing close friendship which links British and Irish Radio Amateurs - there is close liaison and co-operation between AREN and RAYNET. Irish readers interested in offering their services can contact the AREN's newly appointed National Co-ordinator **Steve Wright EI5DD, C/O The Blood Bank, The Regional Hospital, Galway City, County Galway.** You can also E-mail Steve on: [wrights@eircom.net](mailto:wrights@eircom.net) and the AREN website can be found at <http://www.irts.ie/aren/arenofficers.htm> where full details of the various officers are also provided.

**Acknowledgement:** The PW Editorial team would like to thank the Dorset RAYNET Group for their extremely helpful co-operation in providing information and photographs for this article. Anyone interested in assisting this group should contact The Dorset County Controller (And Zone 7 Co-ordinator) **Chris Hampson G8RXA, 7 Merryfield Close, Bransgore, Christchurch, BH23 8BS. Tel: (01425) 672002.**

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£79.95 ~~£59.95~~

★ Type: 7/8 wave ★ Frequency: 26 MHz - 28 MHz ★ Impedance: 50 ohms  
★ Radiation: Omni Directional  
★ Polarization: Vertical ★ V.S.W.R.: 1.2-1  
★ Power Rating: 1000 watts ★ Band Width: 1350 kHz ★ Gain: 7dBd Wind Resistance: 130 km/h ★ Length: 9500mm ★ Weight: 4.6 Kilos ★ Connector: SO239 UHF.



## SIRIO 2012

£79.95 ~~£65.95~~

★ Type 5/8 wave Frequency 26 MHz - 29 MHz ★ Radiation Omni Directional  
★ Polarization Vertical ★ V.S.W.R. 1.1-1  
★ Power Rating 1000 watts ★ Band Width 1750 kHz Gain 6.5dBd ★ Wind Resistance 130 km/h ★ Length 6100mm Radial ★ Length 1320mm ★ Weight 5.3 Kilos ★ Connector SO239 UHF.



## SIGNAL KEEPER

£29.95 ~~£21.95~~

★ Type 1/4 Wave Ground Plane  
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★ Radiation Omni ★ Directional  
Polarization Vertical ★ V.S.W.R. 1.2-1  
★ Power Rating 1000 watts ★ Band Width 1750 kHz ★ Wind Resistance 130 km/h ★ Length 4730mm ★ Radial Length 2680mm ★ Weight 1.25 Kilos  
★ Connector SO239 UHF.



## SIRIO 27-3 YAGI BEAM

£69.95 ~~£55.95~~

★ Type Yagi ★ Frequency 26 MHz - 28 MHz ★ Impedance 50 ohms  
★ Radiation Directional  
★ Polarization: Horizontal  
★ V.S.W.R.: 1.2-1 ★ Power Rating 1000 watts ★ Band Width 1800 kHz ★ Gain 8.5dBd ★ Boom Length 2710mm ★ Dimensions 584mm x 2710mm x 100mm ★ Weight 4.70 Kilos ★ Connector SO239 UHF.



## SIRIO 27-4 YAGI BEAM

£79.95 ~~£59.95~~

## SIRIO 827

£79.95 ~~£55.95~~

★ Type 5/8 Wave Ground Plane  
★ Frequency 26 MHz - 29 MHz  
★ Radiation Omni Directional  
★ Polarization Vertical ★ V.S.W.R. 1.1-1  
★ Power Rating 1000 watts ★ Band Width 2000 kHz ★ Gain 7.5dBd ★ Wind Resistance 130 km/h ★ Length 6700mm ★ Radial Length 1400mm ★ Weight 6.0 Kilos ★ Connector SO239 UHF.

★ Type Yagi ★ Frequency 26 MHz - 28 MHz  
★ Impedance 50 ohms ★ Radiation Directional  
★ Polarization Horizontal ★ V.S.W.R. 1.2-1  
★ Power Rating 1000 watts  
★ Band Width 600 kHz ★ Gain 11dBd ★ Boom Length 4030mm ★ Dimensions 5725mm x 4030mm x 100mm ★ Weight 6.10 Kilos  
★ Connector SO239 UHF.



## SIRIO HI-POWER 3000

£29.00 ~~£24.95~~

## SIRIO HI-POWER 4000

£33.00 ~~£26.95~~

★ Type: Base Loaded ★ Frequency: 26 - 28 MHz ★ Impedance: 50 ohms  
★ Polarization: Vertical ★ V.S.W.R.: 1.2-1  
★ Power Rating: HP3000 400 watts  
★ HP4000 600 watts ★ Gain: HP3000 5.0dBd HP4000 5.5dBd ★ Length: HP3000 1740mm HP4000 2030mm  
★ Weight: 450gr ★ Connector: PL259 UHF.



## MIDLAND 38

£79.95 ~~£66.00~~



★ 80 Channel, CB Radio ★ Digital Signal Metre ★ Up & Down Buttons on Microphone  
★ RX & TX Lights.

## MIDLAND 48

£129.95 ~~£104.00~~

★ 80 Channel CB Radio ★ Frequency Read Out ★ Signal Strength Metre ★ RF Gain  
★ Mike Gain ★ Scan Facility ★ Dual Watch  
★ 5 Memory Channels ★ E.S.P. Noise Filter  
★ Last Channel Recall.



## MIDLAND 78

£99.95 ~~£84.00~~

★ 80 Channel CB Radio ★ Digital Signal Metre ★ Up & Down Buttons on Microphone ★ Scan Facility  
★ Last Channel Recall ★ Emergency Channel 9.



## MIDLAND 42

£129.00 ~~£99.00~~

★ 80 CHANNEL CB Radio  
★ HI/LOW POWER SWITCH  
★ DUAL WATCH  
★ CHANNEL 9 BUTTON ★ NIGHT LIGHT  
★ SPEAKER MIKE SOCKET.

Comes with spare battery pack, mains charger, carrying case, belt clip, car adapter kit. (batteries not supplied)



## MIDLAND 98

£89.95 ~~£75.00~~

★ 80 Channel CB Radio ★ Digital Signal Metre ★ Up & Down Buttons on Microphone  
★ Scan Facility ★ E.S.P. Noise Filter.



## MAYCOM EM27

£99.95 ~~£89.00~~

★ 80 Channel CB Radio ★ Frequency Read-Out  
★ Channel Number Display ★ RF Gain ★ Last Number Recall ★ Scan Facility ★ 6 User Defined Functions on Microphone ★ 7 Memory Channels  
★ Dual Watch.



## MAYCOM AH27

£109.95 ~~£95.00~~

★ 80 Channel CB Radio ★ Signal strength meter ★ High-low power ★ Scan ★ Memory scanning ★ On/off beep tone ★ Dual watch  
★ Channel 9/19 instant access.

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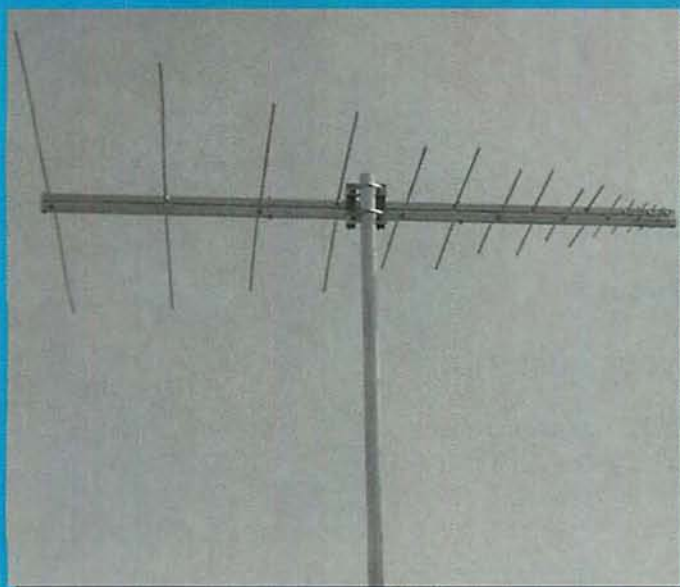
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E&OE.

## Log periodic antennas



### MLP32

#### SPECIFICATION

- ★ Frequency Range:  
Transmit freq: 100-1300MHz  
(/2/70/23cm)  
Receive freq: 100-1300MHz
- ★ Forward Gain: 11-13dB
- ★ Forward to Back ratio: 15dB
- ★ Boom Length: 1.4mts
- ★ Elements: 16
- ★ Longest Element: 1.44mts
- ★ Connector: 'N Type'
- ★ Mast up to 2"
- ★ Power: 500 watts
- ★ VSWR: <2.0:1
- ★ Weight: 3 Kg

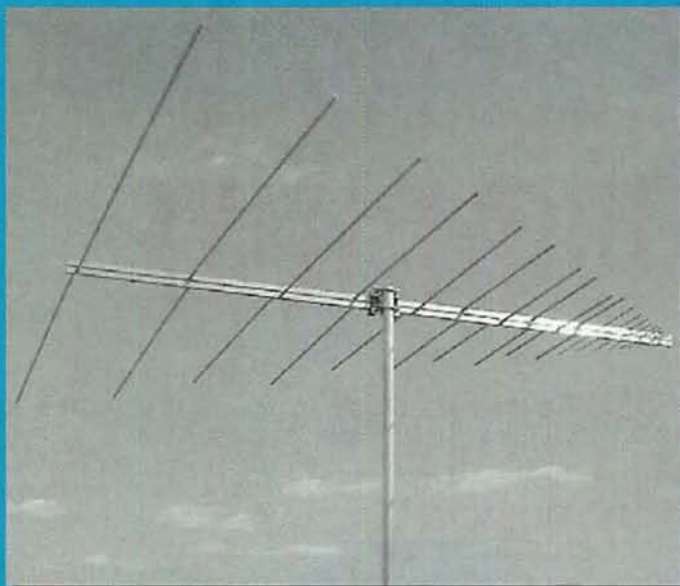
£99.95

### MLP62

#### SPECIFICATION

- ★ Frequency Range:  
Transmit freq: 50-1300MHz  
(6/4/2/70/23cm)  
Receive freq: 50-1300MHz
- ★ Forward Gain: 10-12dB
- ★ Forward to Back ratio: 15dB
- ★ Boom Length: 2mts
- ★ Elements: 20
- ★ Longest Element: 3mts
- ★ Connector 'N Type'
- ★ Mast up to 2"
- ★ Power: 500 watts
- ★ VSWR: <2.0:1
- ★ Weight: 5 Kg

£199.95



The MLP log periodic antenna is constructed to the highest specification and are supplied to our military and commercial customers. They cover the whole stated frequency, have good front to back ratio and cross polarisation rejection. With an input VSWR of less than 2:1 and requiring just one coax feed, the MLP is one of the most popular antennas for the ham and scanner enthusiast alike.



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# radio ACTIVE



- Tetracop
- The Tropical Bands - What can you hear?
- Win - PMR Radios by filling in our Survey!
- Redshift 4 - Explore the Universe on your computer!



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## September SWM

The  
**SHORT WAVE**  
Magazine

Whether you are brand new to the hobby of radio monitoring or a seasoned DXer, there is something in *Short Wave Magazine* for you every month!



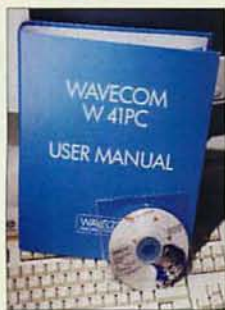
### BROADCAST SECTION

- Bandscan Australia
- LM&S

### DECODE SPECIAL

Wavecom  
W41PC  
Professional  
Decoder -  
Review

Although having used Wavecom decoders in the past, Mike Richards was keen to try out the latest version of the W41PC.



### Decoding, Past, Present & Future

Mike Richards takes a look at decoding from its beginnings, right up to where he thinks it could end up in the future!

### Decode - The Column

This month, Mike Richards takes a more in-depth look at digital signal processing

and has news of a new version of *Spectrogram* which has just been released.

### OTHER FEATURES

- JW on the Rascal RA6790
- Antenna Wisdom with Joe Carr

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# HEIL QUALITY

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### Goldline Hand Microphone



- \* High quality Stick Microphone
- \* Zinc die-cast body
- \* Heavy-duty gold cylindrical screen
- \* Choice of Inserts - HC-4 or HC-5
- \* PTT switch - non latching type
- \* Requires CC-1 adaptor
- \* Includes stand threaded adaptor.

Product Code	Price
GM4 (HC4)	£124.95
GM5 (HC5)	£124.95

### Studio Hand Microphone



- \* High quality Stick Microphone
- \* Zinc die-cast body
- \* Heavy-duty gold cylindrical screen
- \* Studio insert
- \* PTT switch - non latching type
- \* Requires CC-1-I adaptor
- \* Includes stand threaded adaptor.

Product Code	Price
HM-1	£89.95 B


### Hand Microphone



- \* Convenient Stick Microphone
- \* Choice of Inserts - DX or normal
- \* Dual version has both inserts switchable.
- \* PTT switch - non latching type
- \* Requires CC-1 adaptor
- \* Includes stand threaded adaptor.

Product Code	Price
HM-10-4(HC4)	£69.95 B
HM-10-5(HC5)	£69.95 B

### CC-1 Interface Leads



Cables for the GM4/5 & HM-10-4/5/DUAL and Kenwood, Icom and Yaesu modular sockets.

Product Code	Price
CC-1-KM KENWOOD	£25.95A
CC-1-IM ICOM	£25.95A
CC-1-YM YAESU	£25.95A


### Matching Desk Stand



This smart desk stand perfectly matches the HM stick series of microphones. Base diameter is approx 120mm and total height of stand is approx 110mm.

Product Code	Price
TB-1	£24.95 A

### AD-1 Interface Leads



These leads interface the Heil headsets to standard 8-pin mic sockets. A 3.5mm mono socket accepts the mic output of the headset whilst a 1/4in jack socket enables an external PTT to be connected. Models available for Icom, Yaesu and Kenwood.

Product Code	Price
AD-1-KB Kenwood 8-pin	£14.95 A
AD-1-IB Icom 8-pin	£14.95 A
AD-1-YB Yaesu 8-pin	£14.95 A
AD-1-KM Kenwood modular	£14.95 A
AD-1-IM Icom modular	£14.95 A
AD-1-YM Yaesu modular (8 way)	£14.95 A

### Pro-Set Headset



- \* Standard Low impedance Dual Earpiece headset
- \* Padded Earpieces - 2.5m cable
- \* Adjustable headband
- \* 2K Ohm Cardioid dynamic mic
- \* Normal or DX inserts available
- \* Fully adjustable boom
- \* Earphone - 1/4in stereo jack
- \* Mic - 3.5mm plug (matches AD-1 adaptors)

Product Code	Price
PRO-SET-4 (HC4)	£129.95 B
PRO-SET-5 (HC5)	£129.95 B


### Pro Headset



- \* Standard Low impedance Single Earpiece headset
- \* Padded Earpiece
- \* Adjustable headband
- \* 2K Ohm Cardioid dynamic mic
- \* Normal or DX inserts available
- \* Fully adjustable boom
- \* Earphone - 1/4in stereo jack
- \* Mic - 3.5mm plug (matches AD-1 adaptors)

Product Code	Price
PRO-SET-5-4 (HC4)	£114.95 B
PRO-SET-5-5 (HC5)	£114.95 B

### Mic. Capsule Inserts



Product Code	Price
HC-4 DX mic element	£32.95 A
HC-5 mic element	£32.95 A

### Lightweight Dual Headset



Product Code	Price
BM-10-4 (HC4 DX)	£89.95 B
BM-10-5 (HC5)	£89.95 B
BM-10-I (ICOM 8 PIN)	£89.95 B

- \* Standard Low impedance Dual Earpiece headset
- \* Padded Earpieces
- \* Adjustable headband \* Fully adjustable boom
- \* Either Dx or Normal range inserts
- \* Earphone - 1/4in stereo jack
- \* Mic - 3.5mm plug (matches AD-1 adaptors)
- \* Requires AD-1-Y (Yaesu) or AD-1-K (Kenwood)
- \* Icom version with electret insert & 8-pin lead (AD-1-I)

### HMM Fist Microphone



Slide switch for selecting inserts on dual Kenwood & Yaesu Models only.

- \* High quality Fist Microphone \* Three versions, Icom, Yaesu, Kenwood \* Choice of Inserts for Yaesu & Kenwood \* Electret condenser insert - Icom
- \* Industrial grade cable \* All terminated in 8-pin connectors
- \* Yaesu modular requires AD-100-8
- \* HMM-IC requires OPC-589 for IC-706

Product Code	Price
HMM-IC (ICOM)	£59.95 B
HMM-K (KENWOOD)	£59.95 B
HMM-Y (YAESU)	£59.95 B

### Lightweight Single Headset



**NEW HS-706**  
FOR ALL IC-706 RIGS  
BAGS OF AUDIO!  
£59.95

Product Code	Price
BM-5-4 (HC4 DX)	£69.95 B
BM-5-5 (HC5)	£69.95 B

- \* Standard Low impedance single earpiece headset
- \* Padded Earpiece
- \* Adjustable headband \* Fully adjustable boom
- \* Non latching PTT \* Lapel clip
- \* Either HC-4 or HC-5 insert
- \* HS-706 High gain electret mic matches IC-706
- \* Plugs directly into IC-706 via modular plug
- \* Matches AD-1 Adaptors

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All-Band HF Tx.



**IC-746**  
HF+6m+2m Tx.



**IC-756Pro**  
All-Mode HF Tx.



**IC-775DSP**  
HF 200 watt Tx.



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# Leicester Amateur Radio Show & Conve

## Icom (UK) Ltd



If you've enjoyed **Richard Newton G0RSN's** review of the IC-910H on pages 23, 24 & 25 of this issue and want to see it in the flesh then drop by the Icom UK stand and see for yourself. The team will be there exhibiting and demonstrating a range of their products, ready and waiting to welcome you to their stand.

**Icom (UK) Ltd,**  
Sea Street,  
Herne Bay,  
Kent,  
CT6 8LD  
Tel: (01227) 741741  
Website: [www.icomuk.co.uk](http://www.icomuk.co.uk)

## Nevada

The Leicester show will see Nevada launching the Trident range of UK designed and manufactured verticals and mono band Yagi antennas. At the show they will be displaying their 50 and 70MHz beams, with a range of h.f. Yagis and verticals to follow.

The Trident Yagis range of antennas has come about as a result of a collaboration between **Mike Devereux G3SED MD** of Nevada and **John Barker** of Chelcom antennas. Chelcom will also be at the show. The aim of Trident antennas is to provide UK manufactured high quality antennas at affordable prices

The Yagis use a lightweight construction, with the element clamps being pre-assembled on the boom by heavy duty rivets. They are quick and easy to assemble, with no measuring necessary upon erection. Prices will start from as low as £89 for a 3-element 50MHz Yagi.

The Nevada team will also be showing this new Patcomm PC-500 QRP two-band h.f. transceiver for the first time (reviewed in this issue). It is hoped that **Rob Van Der Ent** from Patcomm International will be present on Nevada's stand to answer questions and demonstrate the radio.

So, there are plenty of reasons to go along to Nevada's stand, meet the team and take a look at their vast array of products on offer.

**Nevada,**  
Unit 1 Fitzherbert Spur,  
Farlington,  
Portsmouth PO6 1TT  
Tel: (02392) 313090  
Website: [www.nevada.co.uk](http://www.nevada.co.uk)



## Yaesu (UK) Ltd

New for you to feast your eyes on on the Yaesu stand will be their new base microphone the MD-200A8X. This microphone is designed for base station use with the latest generation of Yaesu h.f. transceivers as well as those with v.h.f./u.h.f. capabilities.

The MD-200A8X includes the latest Variable Side Pressure Control (VSPC), which allows precise adjustment of the microphone's audio response without the need for 'active' equalisation circuits that can cause distortion and degrade signal-to-noise ratio. The microphone's housing is suspended in a solid metal yoke featuring a shock absorbing rubberised ring designed to absorb low frequency vibrations.

Also on display will be the FT-7100M dual-band. Described as a dual-band engineering



milestone, it offers some excellent features, and is sure to be a talking point. Features of the FT-7100M include:

- \* Dual-band operation on 144 & 430MHz
- \* Audio Output power up to 2W
- \* Audio Output Impedance - 4-16Ω
- \* Large l.c.d. screen - 60 x 23mm
- \* Separate volume & squelch controls for each band
- \* 262 channel memory capacity
- \* VFO scan, memory scan and programmable memory scan
- \* CTCSS/DCS tone systems

So to get a first look at the FT-7100M and for the lowdown on their range of products make sure you stop off at the Yaesu stand.

**Yaesu UK Ltd.,**  
Unit 12,  
Sun Valley Business Park,  
Winnall Close,  
Winchester,  
Hampshire  
SO23 0LB  
Website: <http://www.yaesu.co.uk>

## Waters & Stanton PLC

Waters & Stanton PLC will be occupying their huge stand at Donington again this year in a bid to offer something for everyone from their comprehensive range of products. You can expect to see new products from MFJ, Watson,



Cushcraft, SGC, Optoelectronics as well as the Hustler and LDG ranges.

In addition to this **Bob Heil K9EID** of **Heil Sound** will be visiting the show. Bob will be presenting his Science of Audio Workshop on both days and in between will be present on the W&S stand to answer questions and give advice on microphones. There will also be T-shirts to be given away and raffle prizes.

Bob's workshop explores the human ear's response curves and how this can be utilised to communicate more effectively by tailoring the received audio and the transmitted audio on typical Amateur transceivers. He tells us that there will be some really good freebies too!

**Waters & Stanton PLC,**  
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Website: [www.wsplc.com](http://www.wsplc.com)

## PW Publishing Ltd.

*Practical Wireless*, *Short Wave Magazine* and *Radio Active* will all be represented on the PW Publishing Stand. Look out for discounted books in our clearance sale, subscription offers and the new edition of *Ferrells Confidential Frequency List - 12th Edition*.

Unusually this year there will be no presentations for the 144MHz QRP Contest taking place on the PW Stand as due to the foot & mouth restrictions the contest didn't take place this year. However, **Rob G3XFD** and **Neill Taylor** the contest adjudicator will be on the stand to chat to you about next year's contest which will be extra special as it takes place during PW's 70th Anniversary year.

So come along, have a chat, look for those bargains, take out a subscription and meet the team!

**PW Publishing Ltd.,**  
Arrowsmith Court,  
Station Approach,  
Broadstone,  
Dorset  
BH18 8PW  
Website: [www.pwpublishing.ltd.uk](http://www.pwpublishing.ltd.uk)



## Moonraker (UK) Ltd

Year after year Moonraker have seen their sales grow at Donnington so this year in a bid to offer even more to their customers **Charles and Justin Godfrey** will have their biggest stand yet! You will find a vast array of antennas, mounts, cable and accessories to choose from.

Over the past few years Moonraker have concentrated on v.h.f. and u.h.f. antennas and will have on display the recent introduction to their range - the MLP62 Log Periodic antenna for 50-1300MHz. In addition to this will be professional glass mounted antennas.

However, the main attraction will be Moonraker's advance into the world of h.f. To mark this they hope to have on display their all new range of h.f. verticals, directional beams and wire antennas.

You can be assured of a warm and friendly welcome so make sure you keep your eyes open for the Moonraker stand.

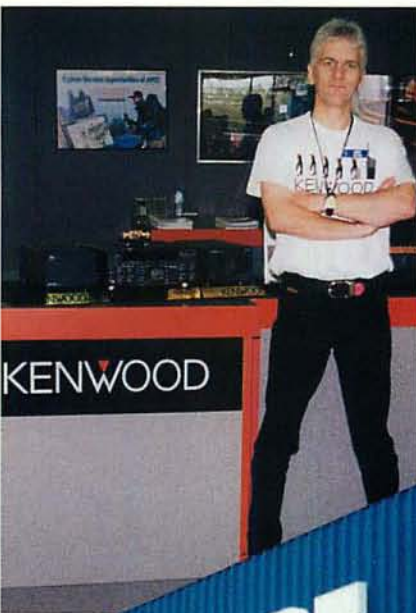
Moonraker (UK) Ltd.,  
Unit 12 Cranfield Road Units,  
Cranfield Road,  
Woburn Sands,  
Bucks  
MK17 8UR  
Website: [www.amateurantennas.com](http://www.amateurantennas.com)

## Kenwood (UK) Ltd

To find out the latest product info and news on the TH-F7E, Kenwood's new hand-held make sure you have a chat with **David Wilkins G5HY** and the team on the Kenwood stand. The TH-F7E was unveiled at the Dayton Amateur Radio show earlier this year and by now this innovative v.h.f./u.h.f. portable transceiver is sure to be raising questions among the Amateur community.

You'll also have the chance to see many of the products working and have the opportunity to get a feel for the rig you maybe thinking of buying from one of the Kenwood approved dealers at the show.

Kenwood Electronics (UK),  
Kenwood House,  
Dwight Road,  
Watford,  
Hertfordshire  
WD18 9EB  
Website: [www.kenwood-electronics.co.uk](http://www.kenwood-electronics.co.uk)



## Stop Press News

A very important presentation takes place at the convention, running alongside the show on the Friday 21st at 1600. The Radiocommunications Agency and the Radio Society of Great Britain will be joining forces to present "The Future of Amateur Licensing in the UK".

This major event is the result of the culmination of the past year or so of discussions between the RA, RSGB and the Amateur community in the UK. The presentation will reveal for the first time the new shape of UK Licensing and feature details of the foundation licence and the new structure of UK licensing.

**Don't miss it!** If you are interested in the future of Amateur Radio in this country make sure you attend!

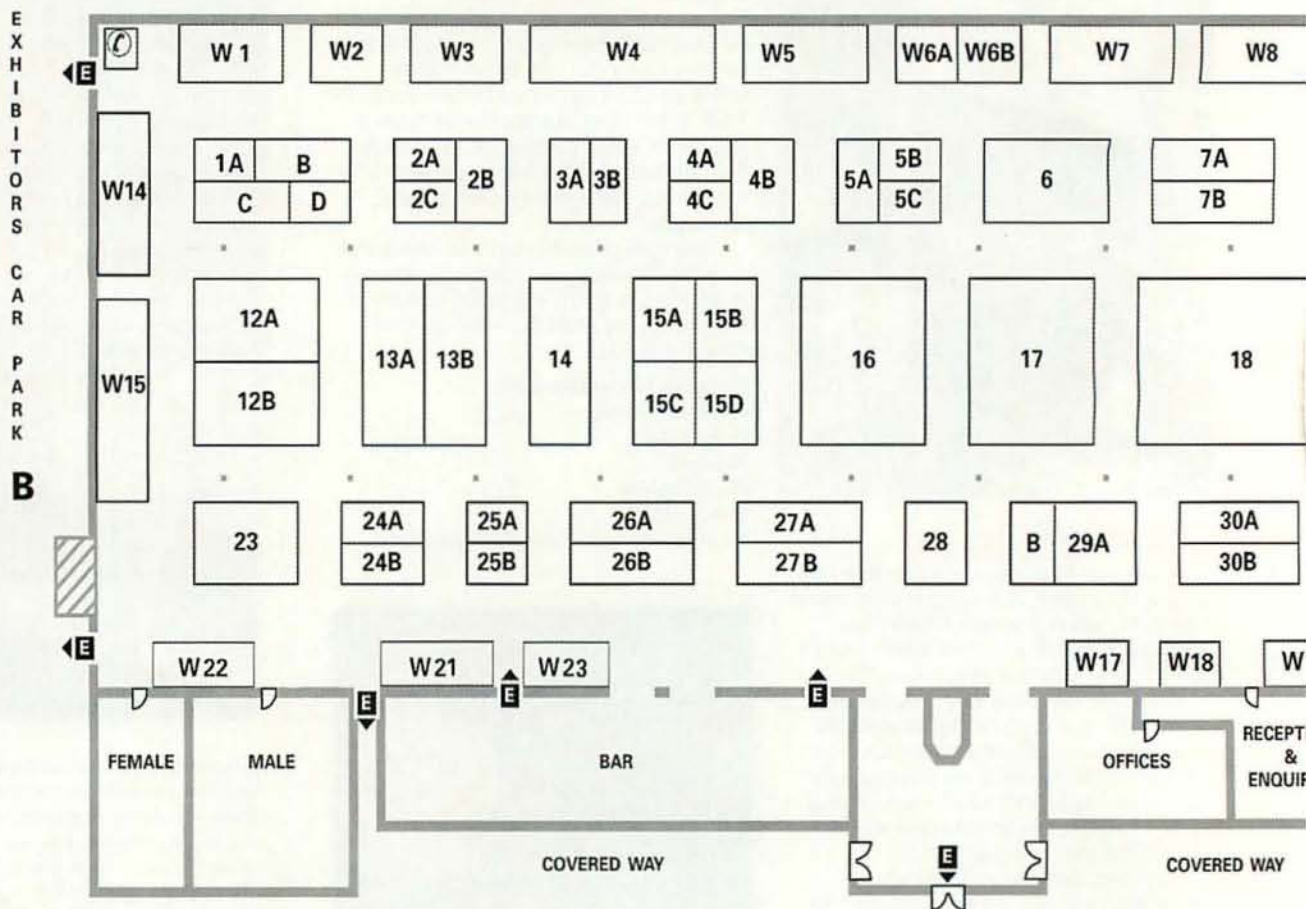


Please note this is only a small selection of the traders and manufacturers who will be attending the show and details were correct at the time of going to press. Others to look out for include: Haydon Communications, Martin Lynch & Sons, AOR (UK) Ltd, G3TUX, Radioworld, Sandpiper Communications and SRP Trading to name a few. Enjoy the show!



**Important Note:** Please see comments referring to stand allocation at the foot of this page.

# Leicester Amateur Radio Show & Conve



## Exhibitors List

Also Trading  
 AOR (UK) Ltd  
 Barenco  
 Bring & Buy  
 CD-ROM Cellar Ltd  
 Communication Hire & Sales Ltd  
 Communications PMR  
 Computer Junk Shop  
 Dial Electronics  
 Dragon Office Products Selection  
 Essex Amateur Radio  
 Festival Computing  
 G H Engineering and GIMFG.com  
 G3TUX  
 Gordon Shorley  
 H. Morgan Smith  
 Harp Shareware  
 Haydon Communications  
 Icom (UK) Ltd  
 InkTec Midlands  
 J&M Computers  
 J.A.B. Electronic Comps  
 John Dilkes  
 Kanga Products  
 Kenwood Electronics UK Ltd  
 L.M.W. Electronics  
 Lake Electronics  
 Linear Amp UK

Lowe Electronics  
 Maplin  
 Martin Lynch & Sons  
 Mary Molyneux  
 Meeting Deadlines Ltd  
 Microgenesis  
 Moonraker (UK)  
 Nevada Communications  
 Nick Dando Communications  
 Northampton communications  
 PW Publishing Ltd. - PW, SWM & RA magazines  
 R & D Instronet Ltd  
 RSGB  
 Radioworld  
 Remote Imaging Group  
 Rich Electronics  
 Ronal Computers Ltd  
 Sandpiper Comms  
 SGS Electronics  
 Skysoft  
 SRP Trading (Radio Centre)  
 Strikalite  
 Terry Milman  
 Timestep Electronics  
 TLX Electronics  
 Vine Antenna Products  
 Waters & Stanton  
 Westlake Electronics  
 Yaesu UK Ltd

## Clubs expected to attend

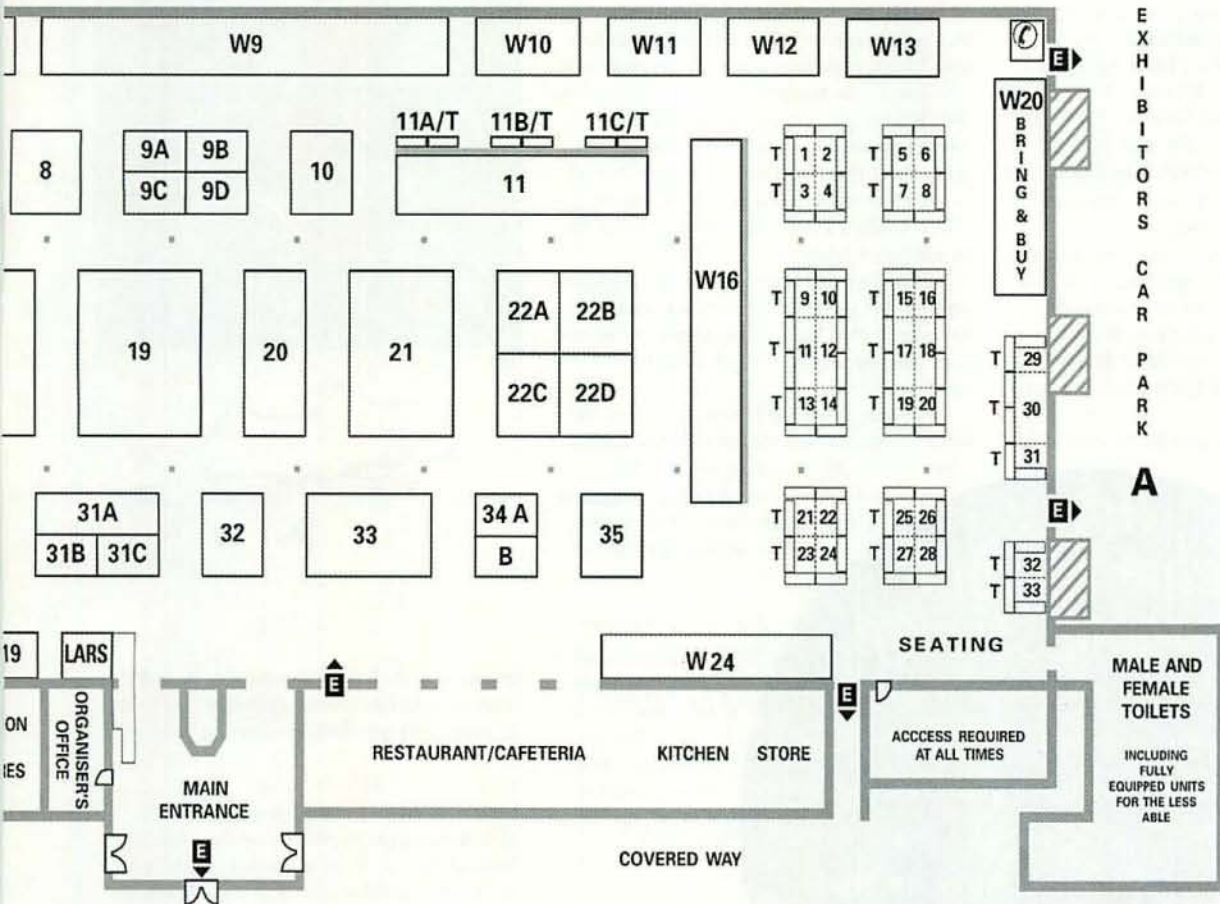
AMSAT UK  
 BARTG  
 British Railways Amateur Radio  
 Derby & District ARS  
 GQRP Club  
 International Listeners Ass  
 Leicester Raynet  
 Leicestershire Repeater Group  
 Malvern Hills Repeater Group  
 Maxpack  
 Medium Wave Circle  
 RAFARS  
 RAIBC  
 RAOTA  
 Raynet Supplies  
 RNARS  
 RSARS  
 South Yorkshire Repeater Group  
 Worked All Britain

*Plus all the usual flea market traders*

## Stand Allocation

Please note details correct at the time of going to press, although the stand number allocation had not been finalised. You can expect to find most traders in similar locations as in previous years.

# ntion 21st & 22nd September 2001



## Opening Times:

9.30am - 5.30pm each day

## Admission Prices:

1 day ticket - £3

Concessions (OAPs & under 16) £2.50

2 day ticket - £5

Concessions £4

(under 12s free when accompanied by an adult)



For more info check out [www.lars.org.uk](http://www.lars.org.uk)

# Leicester Amateur Radio Show & Conve

## Background

The Leicester show is organised every year by a dedicated committee of four and together with the help of various Leicestershire Amateur Radio Clubs. Each year they present the UK's largest Amateur Radio, computing and electronics event! Prior to 1998 home to the show was the Granby Halls in the city of Leicester, however when the local Council announced plans to redevelop the site, the show committee were forced to search for a new venue.

So, the change of scene to Donington Park came about in 1998. Although there was initial uncertainty among traders and visitors alike the new venue proved to be a tremendous success continuing to build on the interest from earlier shows. In fact the show grew by a third in size by moving to Donington Park.

*Practical Wireless* first attended the show in the early eighties and have had a presence there every year since.

**Thirty  
years on and  
still going strong!**

**This year's Leicester Amateur Radio Show and Convention will be the 30th show and although the venue may have changed over that time and traders have come and gone, it still promises plenty to interest Amateur Radio enthusiasts of all specialities.**

**It's Show Time!**

## Lots On Offer

Although the show is primarily dedicated to Amateur Radio and Computer orientated traders it now actively encourages and welcomes component, electronics and flea market style traders too. You can expect to find over 150 exhibitors at the show in various guises ranging from the 'big boy' manufacturers and traders right down to the one man band 'bits and bobs' trader. Big or small all have their place and no matter what you are looking for - that new transceiver, short wave radio or a bargain buy - one thing's for sure you are very likely to find it!

In addition to the traders many local and national clubs attend the show and there is an area set aside especially for them within the hall. There's also the Bring & Buy, the ideal place to sell your unwanted radio gear and pick-up something 'new'.

If you fancy sitting your Morse test at the show, why not take advantage of the Morse tests on demand facility? You could also get your rig tested, look in on the demonstration h.f. and talk-in station or check out one of the special event stations run by the RAF ARS and Melton Mowbray ARS.

## How to get there

Getting to the showground is easy whether you travel by air, rail or road. Situated just five minutes from junction 23A of the M1 motorway close to where the A41 and A50 join the M1.

### If travelling from the South via M1:

Leave the M1 at junction 23A following the signs for East Midlands Airport (A453) and the brown tourist signs for Donington Park. Go past the main entrance to the Airport (traffic lights) and after approximately two miles take a right sign posted Donington Park and Castle



Donington onto the B5460, 300 metres along this road brings you to the main entrance of Donington Park. Follow the internal signs to the Exhibition Centre and Radio Show.

### If travelling from the North via M1:

Leave M1 at junction 24 and follow the signs for East Midlands Airport (A453) and the brown tourist signs for Donington Park. Go past the main entrance to the Airport (traffic lights) and follow directions as above (From South via M1).

### From the Southwest take the M5 & M40 to M42/A42:

From the M5 join the M42 Northbound. From M40 join M42 Northbound. Continue Northbound on M42/A42 until junction 14. Follow signs for East Midlands Airport (A453) and the brown tourist signs to Donington Park. Go past the Paddock Entrance and turn left after about 800 metres onto B5460 signposted Donington Park and Castle Donington.



## For the Family

If you decide bring non Radio Amateur members of the family along for the weekend there's plenty to keep them busy while you spend time at the show.

For starters there's the Motor Museum, situated at Castle Donington racetrack.

The museum is home to the world's largest collection of Grand Prix racing cars with over 130 exhibits spanning motor sport history from the turn of the last century to the present day. Featuring the largest collection of McLaren racing cars in the world plus Mansell's Williams, Seena's McLaren, BRM, Lotus, Vanwall, as well as cars driven by Moss, Nuvolari, Clark, Prost to name a few.

If you and/or your family fancy spending some time at the Motor Museum during the two days of the Leicester Show you'll get a reduction off the entry price. If you present your LARS show ticket you'll get in for £5 instead of £7.

Also taking place on the weekend of the show is the British Super Bikes Championship. It's free to get in on Friday, £3 on Saturday, £13 on Sunday including Paddock Transfer or £16 for the weekend. The prices given are discounted prices, to claim yours simply show your LARS ticket at the race track ticket office.

If it's shopping that your family fancy then the shopping centres situated in Derby, Leicester, Loughborough and Nottingham are all easy reached within about 30 minutes by car. Additionally there's plenty of other visitor attractions in and around surrounding areas, you can choose from National Trust Properties, Twycross Zoo and Sudbury Hall.



# Convention 21st & 22nd September 2001

After 300 metres turn left into the main entrance of Donington Park. Follow the internal signs to the Exhibition Centre and Radio Show.

## From the North & North-West via M6 and A50:

Leave the M6 at junction 15 heading for Trentham Gardens and Uttoxeter A50. Follow A50 dual carriageway to M1 junction 24 **do not join** M1. Follow the signs for East Midlands Airport (A453) and the brown tourist signs for Donington Park. Go past the main entrance to the Airport (traffic lights) and after approximately two miles take a right signposted Donington Park and Castle Donington onto the B5460. 300 metres along this road brings you to the main entrance of Donington Park. Follow the internal signs to the Exhibition Centre and Radio Show.

There's plenty of free parking on site for cars and coaches. Disabled visitors will find allocated parking for them immediately outside the Exhibition Hall on right hand side. Don't forget to listen out for the talk in stations on 145.55 and 433.550MHz, designed to help guide you in without a hitch.

If you choose to travel by rail, coach or air there are plenty of services available. Check out the LARS website for comprehensive details or local companies for prices and travelling information.

## Where To Stay

There are plenty of hotels, guest houses and Bed & Breakfast establishments in and around the surrounding area of the show. See the Useful Contacts box below for numbers to call to find accommodation for your stay.

Alternatively you may like to take advantage of the free camping and caravanning facilities on site. For further details contact Geoff Dover G4AFJ (see below).

If you prefer you may like to consider staying at Donington Park Farm, Melbourne Road, Isley Walton, Castle Donington, DE74 2RN which has a caravan site with all amenities. It is an eight acre site with 65 pitches 40 of which have electricity hook ups. It's open all year and their charges are from £2 to £4 per night for tents and from £3 to £6 per night for caravans. Electricity is £2, showers 50p, adults £2 children £1. Their telephone number is (01332) 862409.

There you have it - your guide to the show in a nutshell. So, above all enjoy it, search for those bargains, soak up the atmosphere and meet the faces behind the names!

## Useful Contacts

To help you plan your show weekend here are some useful contact numbers:

### Donington Hotel Hotline

(Booking service for two-four star accommodation)

Tel: (01904) 471944

### Geoff Dover G4AFJ

Tel: (01455) 823344

FAX: (01455) 828273

E-mail: g4afj@argonet.co.uk

### Guest House/B&B information line

Tel: (01530) 411767

### The Donington Grand Prix Collection

Tel: (01332) 811027

### Leicester Amateur Radio Show

Website: <http://www.lars.org.uk>

### Local Tourist Information Centres:

Ashby de-la- Zouch:

Tel: (01530) 411767

Coalville: Tel: (01530) 813608

Derby: Tel: (01332) 255802

Loughborough: Tel: (01509) 218113

Nottingham: Tel: 0115-977 3558

## Convention Programme

During the two days of the show there's also a convention taking place, covering topics such as APRS, audio tailoring for Amateur transceivers, new Amateur licensing details, Amateur Radio at the National Space Centre as well as the AGMs of various Amateur Radio organisations. Something for everybody!

If you want to know more you'll have to attend so get yourself along to the Lounge, which is adjacent to the Main Exhibition Hall. Please note though, that the convention is **not** at the Motor Museum as in previous years.

At the time of going to press the convention programme was shaping up like this:

### Friday 21 September

1400hrs Radio Amateurs Old Timers' Association AGM

1500hrs The Science of Audio Workshop by Bob Heill K9EID, from Heil Sound, USA

1600hrs The New Licensing Structure in the UK by RA and RSGB

### Saturday 22 September

1100hrs Radio Amateur Invalid and Blind Club AGM

1400hrs National Science Centre and Amateur Radio by Andy Thomas G0SFJ, Chairman and George Barnett, Technical Manager, NSC.

1500hrs The Science of Audio Workshop by Bob Heil K9EID, Heil Sound

1600hrs Automatic Packet Reporting System (APRS) by Dave Ackrill GODJA



For more info check out [www.lars.org.uk](http://www.lars.org.uk)

# MASSIVE BOOK SALE

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**SPECIAL SUBSCRIPTION OFFER**

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To take advantage of this special show offer, simply come to our stand, sign up for a 3 year subscription and you'll only have to pay for the first 2 years - we'll give you the **THIRD ONE FREE!**

BACK ISSUE SALE

We'll also have hundreds of back issues of *Practical Wireless*, *Short Wave Magazine* and *Radio Active* for sale at just £1 each or £10 for an entire year (12 issues) (pre January 2001 issues only)

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Every now and again Rob Mannion G3XFD meets a transceiver which not only provides fun on the air - but comes with built-in 'character'. The Patcomm PC-500 h.f. and 50MHz dual-bander is one of those rigs!

Occasionally in my work on *PW* something new really catches my attention and I realise "That's the rig for me". I'm pleased to say that the delightful little Patcomm PC-500 h.f. and 50MHz dual-bander, which oozes character and quirkiness is such a transceiver.

The PC-500 comes with something not often found in other commercially produced transceivers: Character! You'll not find this listed in the technical specifications as it's something you'll have to find out yourself. I did...and was charmed by what I found!

### What Do you Get?

So, what do you get when you buy the Patcomm PC-500? In answering and to be frankly honest - **you don't get** a transceiver with the superb presentation and external finish that we've come to expect from the mainstream Japanese manufacturers. Instead, you get a hand-crafted transceiver which could have come from the shack of an exceedingly good home-construction specialist.

In other words - the Patcomm PC-500 **does not** have the appearance of a mass-produced transceiver. Instead, it appears to be individually hand-built and in time I think this will be one of the features to attract keen QRPers.

Yes, I was really taken with this little

transceiver on sight. In many ways it reminded me of my favourite Morris Minor - something to be proud of, something to enjoy using, but at the same time being fully aware it has limitations. The major limitations are that the transceiver only covers two bands with a power output of 15W.

Designed around a single conversion receiver, the PC-500 has an i.f. of 10.7MHz. A five pole crystal filter is provided as standard, and an eight pole filter is an option.

The variable filter unit is extremely interesting and the manufacturers describe it thus: "The PC-500 also employs a unique filtering system in the audio stages to provide a continuously variable filter from 600Hz to 3kHz which resides in the a.g.c. loop. This is a 16-pole filter whose performance rivals that of a DSP filter but which operates in real time". Explained further, Patcomm say that this enables them to place the Digital Variable Filter within the a.g.c. loop - but received signals that have dropped out of the audio pass band will not 'pump' the a.g.c. (A problem with some DSP equipped rigs).

Although maximum power output is quoted at 15W, I obtained more than 18W. This is continually variable from less than 1W (I got approximately 750mW) to the maximum.

The transceiver's two bands are provided via plug-in modules ...the review unit arriving with 3.5 and

# High Power Fun With QRP The Patcomm PC-500



• The Patcomm Corporation PC-500 dual-band h.f. and 50MHz low power c.w. and s.s.b. transceiver.



Company:	Nevada.
Contact:	Sales
Tel:	023-9231 3090
Price:	£499 plus £10 P&P

### Product

The Patcomm PC-500 h.f. and 50MHz transceiver

### Pros & Cons

• The PC-500 is able to operate on two bands, each band requires a plug-in module - the 3.5MHz module is shown in front of the transceiver (see text).

**Pros:** Simple to operate, good filtering, easy-to-use, lightweight and portable. Ideal for QRP c.w. portable and main station working

**Cons:** Relatively expensive, low power, dual band operation only - separate band modules needed for full coverage, lacks adequate 'finish' quality.

### Summary

*It's early days for the PC-500 yet and I'm certain that as time goes by it will become a firm favourite with QRP operators. It's certainly made its mark with me - the performance of the receiver and filter are impressive for a transceiver in what really must be considered as the 'Low Budget Price' class. My thanks go to Mike Devereux G3SED of Nevada, Unit 1, Fitzherbert Spur, Farlington, Portsmouth PO6 1TT. Tel: 023-9231 3090, FAX: 023-9231 3091 for the loan of the Patcomm PC-500 transceiver.*

14MHz modules. However, during the loan period the 7MHz module arrived.

Although the PC-500 is equipped with an internal electronic keyer, for my own evaluations on the air I used a straight key. A standard PC compatible keyboard can be plugged straight into the DIN connector at the rear of the transceiver. It can then be used to send c.w., store frequencies in memory, change bands and modes and to perform direct frequency entry.

## On The Air

Conditions on 3.5MHz for on-the-air evaluation weren't so good, and although I achieved some QSOs on c.w., the noise levels were horrific. So until the 7MHz module arrived I concentrated on 14MHz.

Once on the air I quickly forgot the '500 has only a single conversion superhet...performance of the receiver is that good with the 5-pole filter. Those annoying (they drift about in frequency) h.f. packet transmissions which should be just below the International Beacon Project frequency on 14.1MHz, often made beacon reception difficult - but the PC-500 coped very well indeed!

Tuning the receiver is a pleasant experience, despite the fact there's no 'flywheel' effect on the main tuning knob. I particularly enjoyed what Patcomm call Variable Speed Tuning rate (VST). Selected when the tune rate button is pressed, it changes tuning from a fixed 10Hz step rate to a rate dependent on how fast you turn the knob. Very effective and helpful!

In fact the only problem I came across was not poor selectivity, instead it was perceived lack of audio drive to the audio output stages. At first this gave me a totally misleading feeling that the receiver is 'deaf'. However, this is not the case...it's purely the lack of audio drive from the detector stages to the audio output.

I've come across this problem before with another American manufacturer and following my comments (and those from other reviewers of course) they increased the audio gain with another pre-amplifier

stage which improved things tremendously. The reason why it occurs? I think it's because designers (like home constructors) tend to stick with detector and audio stage designs they know - and only modify the designs (particularly if they're based on i.c.s) when they have to. This approach is usually satisfactory but when faced with the audio insertion losses through the type of filters used in the PC-500 - some extra audio pre-amplification appears to be necessary in my opinion.

On c.w. I found the little transceiver to be great fun indeed to use. The clear, precise display unit provides a pleasant luminescent green colour which I found suited me very well, and also provided me with the all the information I required.

To be honest, I was really surprised to see just how good the variable audio frequency filtering was on the air. It's variable between 600Hz to 3kHz and in practice - in conjunction with the five pole filter...it was excellent.

It's a long time since I last operated a receiver fitted with a variable audio filter unit as effective as that fitted on the PC-500. And in fact the last time I did use a transceiver with a comparable filter was when I tried the (sadly missed) American-made Index Laboratories QRP Plus Transceiver some years ago.

Incidentally, the Index Plus transceiver was immediately nicknamed 'The Rig On A Leg' by PW's Donna Vincent G7TZB because of its front mounted single-leg, providing the characteristic upwards tilt. That too was a distinctive low power transceiver - its square box-like (I too was charmed by its appearance) cabinet also hid a wealth of talent and performance in the same way as the PC-500 seems to. And if you experienced the filtering on the Index Plus - make sure you hear the receiver on the PC-500...it's just as good in my opinion.

Received audio reports with s.s.b. transmissions were good, and despite the low power output (on s.s.b. anyway) I enjoyed QSOs all over Europe. Additionally, I have several other Radio Amateurs living very close to me - one is so close that the recording level meter needles on my Revox tape recorder flickers when he's on 14MHz. He's that close!

When my Amateur neighbour is chasing s.s.b. DX on 14MHz the PC-500 did not seem to overload or suffer from cross modulation when I too was on 14MHz - albeit mostly at the c.w. end of the band. So, how's that for performance from a single conversion superhet?

When I received the 7MHz plug-in module I was at last able to operate on my favourite band and I wasn't disappointed with the results! Mostly running around the 5W level output I worked all over Europe on c.w., getting some excellent reports and maintaining QSOs under very crowded conditions.

As I've often said - ad nauseam perhaps - the 7MHz band is an excellent test for any receiver. I really enjoyed using the PC-500 on c.w. on this band and I would seriously consider as a dedicated /P transceiver to take in the car with me on holiday, etc.

On 7MHz s.s.b. in the crowded conditions of late summer weekends I

## Comments & Suggestions

What appeals to me most about the Patcomm PC-500 is it's obviously not a transceiver in high volume mass-production...it really has the appearance of a highly quality 'home-brewed-transceiver. This is an attraction for me, but at the same time it also means that the manufacturers probably don't have the highly organised quality control and final finishing departments that we expect from the mainstream transceiver producers. It also means that they will be able to listen to PC-500 owners and easily take note of comments - an advantage for smaller manufacturers.

In essence I've only got a few suggestions for Patcomm to bear in mind - and I'm sure that once these are carried out the transceiver will become extremely popular and sought after. Firstly, the supplied power cable has an

which was which at all! So, point taken Patcomm?

The audio problem I've already mentioned can easily be remedied, making a good receiver even better. Additionally, there's some 'rustling' noise effects originating from the rotary encoder used to tune the transceiver - although this only really becomes noticeable when the receiver is tuned fairly quickly up and down the band.

On several occasions in my shack - and once in the PW offices when Tex G1TEX was preparing the transceiver for photography - the plug-in module for 7MHz couldn't be selected via the front panel switch. Gently pushing the module's p.c.b. firmly, cured the problem. Perhaps a little attention to the p.c.b. interconnectors needed here?

Again inside the transceiver, I found that although the main p.c.b.s seemed to be extremely well-made, presented and finished...the interconnecting wires and leads weren't. Only a small detail perhaps...but it could mislead a potential owner into thinking that the transceiver wasn't built well. **It is built well...**but needs that final 'polish' in the assembly stages.

The PC-500 manual - in typical American fashion - is neat, simple to read, is to the point, and provides most of the information required by Amateur Radio operators. However, I hope that when I get round to buying one for myself...that Patcomm will in future include a circuit diagram.

Finally - and this may be a purely personal thing - I'm not so keen on the white push-on then push-to-release type switches on the front panel of the PC-500. They operate well but I don't think they suit me at all. Something with a little more surface area, or metal-capped switches (to match the main panel aluminium knobs) would be perfect.

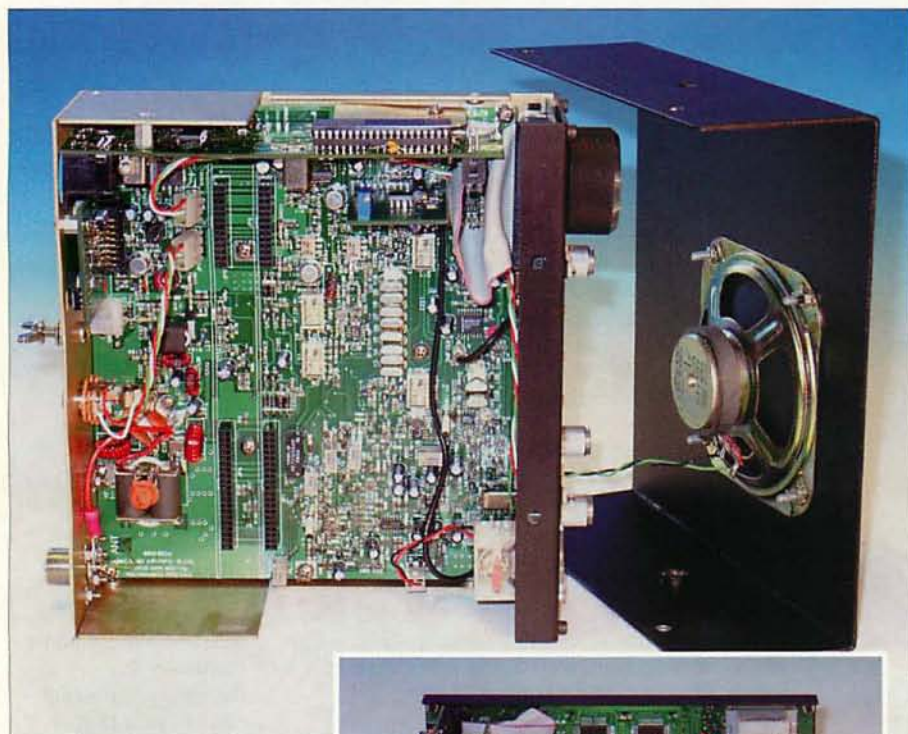
## Final Opinion

So, you've now you've read my thoughts on the Patcomm PC-500 - you're now probably wondering what my final opinion is? Well...it's simple and straightforward - even with the little problems I discovered I think it's a rig which will find its way into the keen QRP operator's shack.

It's early days for the PC-500 yet and I'm certain that as time goes by the transceiver will become a firm favourite with QRP operators. It certainly made its mark with me - the performance of the receiver and filter are impressive for a transceiver in what really must be considered as the 'Low Budget Price' class.

**But even if the transceiver is classed as being in 'Low Budget' category price-wise....on the air its performance is anything but low budget. In fact I think the PC-500 provides 'high power QRP fun'...**but to find out what I mean with that conundrum you'll have to try one for yourself and I'm sure you will!

PW



● Inside view of the Patcomm PC-500 15W transceiver (see text for comments).

● Rear panel view of the transceiver (see note in the text regarding the power supply lead).



found that the receiver had no problems coping with the very busy band and the transmitter was competing with other stations running far higher powers. It was also satisfying to realise that the Patcomm was running at 15W or so and the other station was often using the maximum legal power. Sometimes they were even employing a linear amplifier and I was earning only an S-point or so report below what I was awarding them!

extremely faint red tracer marker on it - so faint that in certain light it could be connected the wrong way round on a power supply, thus blowing the protection fuse.

Knowing that I do have vision problems (especially close-up viewing) I consulted both Tex Swann G1TEX and the keener young eyes of Donna Vincent G7TZB to identify the red tracer. Tex had great difficulty and Donna couldn't see

# Help Plan The Future of Practical Wireless

## **PW Survey 2001**

# YOUR Magazine YOUR Choices YOUR Opinions

Send us YOUR completed survey - you could win a President Lincoln transceiver, worth £225, kindly donated by Nevada.

- 28MHz coverage
- Mobile and transportable transceiver
- Multi-mode
- See the review by Jon GOIUE in the July issue



**Free to enter competition**

**Be in With a Great Chance to Win A President Lincoln 28MHz Multi-mode Transceiver Donated By Nevada!**

*Practical Wireless* Editor Rob Mannion G3XFD, writing on behalf of the Editorial team invites you to play your part in what's intended to be the most important planning exercise - taking the magazine into the future. Your opinion really counts and you could win one of 11 prizes - ten of which are individual one year subscriptions to *PW*!

The information we're asking you to give us will provide vital feedback for the future editorial content of the magazine. Finally, I ask all our readers who live abroad to join in with the survey because your opinion is just as valuable. And although you will not be able to use the Freepost service from outside the United Kingdom, Northern Ireland, Channel Islands and Isle of Man - on behalf of everyone working on *PW* I ask you to send that form in! Thank you, and here's to the future!

Closing date: 2 January 2002.  
(Entries to be drawn out of the Editor's hat, no correspondence entered into).

How many issues of PW do you usually buy in a year?

1  2  3  6  9  12  Subscribe

If you are not a subscriber, have you ever thought of subscribing? Yes  No

What kind of offer would persuade you to subscribe?

.....

.....

When did you first buy PW?

Within the last 12 months  3 years ago   
2 years ago  More than 3 years ago

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How did you discover PW?

Club  Advert in  Newsagent   
Friend  other Publication  Internet

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- On firm order  From an Amateur Radio Dealer   
- Home delivery  By subscription   
- Casual purchase  From a friend

If you purchase from newsagent, please tick which one:

Dillons  WH Smiths   
Fourbouys  Tesco's   
Martins  Other

Do you have difficulty finding a copy of PW? Yes  No

Do you think that at £2.75 the price for PW is:

too low  about right  too high

If the following delivery methods were available for PW, which would you use?

(Please tick all that apply and also tick to show the one that you would prefer.)

Paper Magazine  Preferred   
CD  Preferred   
Website  Preferred

If you chose the paper magazine, would you be interested in buying CD back issues/Volumes? Yes  No

Did you obtain a copy of the PW CD? Yes  No

How do you rate the overall design and layout of PW compared with when you started reading the magazine?

Worse  Same  Better

What do you think of the design of PW's covers?

Very Good  Good  Average  Poor  Very Poor

Do you buy PW because of what you see on the cover?

Yes  No  Sometimes

How many of these magazines do you read or buy per year?

	None	1-3	3-6	6-9	9-12
Radio Communications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio Active	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Electronics & Wireless World	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Shortwave Magazine	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Monitoring Times	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Popular Communications	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
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		Yaesu	<input type="checkbox"/>

Other - please specify) .....

Do you usually buy equipment from:

Your local dealer  Rally/exhibition   
Mail order  Other

Do you usually buy New  or Secondhand  equipment?

Do you read nearly all  some  a couple  none  of the advertisements in PW?

How many rallies/Amateur Radio shows do you visit each year?

None  1-2  3-4  5 or more

How much do you spend on the radio hobby in an average year? (Including QSL expenses, books, equipment, rally visits, etc.)

Under £50  £50 - £100  £101-£250   
£251-£500  £501-£1000  Over £1000

How many books have you bought from the PW Book Store (in the last year)?

0  1  2  3  4  5  6  7  8 or more

How would you rate the PW Book Store Service?

Excellent  Good  Average  Poor  Very Poor



**Do you hold an Amateur Radio transmitting licence?**

- Yes (Class A)  Yes (Novice A)   
 Yes (Class B)  Yes (Novice B)  No

**Do you think the ability to send and receive Morse code is the appropriate qualification to allow access to the h.f. bands?**

- Yes  No

**If you have any other major hobbies or interests, what are they?**

.....  
 .....

**How do you rate your expertise in radio and electronics?**

- Beginner  Average  Experienced

**On a scale of 1 - 10 how happy are you with the current content of PW?**

Not at all happy « [1] [2] [3] [4] [5] [6] [7] [8] [9] [10] » Very happy

**How important to you are the following regular features in PW?**

	Not at all Important « » Very Important									
	1	2	3	4	5	6	7	8	9	10
Advertisements	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amateur Radio News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amateur Radio Club News	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amateur Radio Rallies	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Amateur Radio Waves	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Antenna Workshop	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bargain Basement	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Bookstore	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Carrying on the Practical Way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Competitions	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Down Under	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
DX Destination	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
HF Highlights	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
In Vision	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
It's a Classic	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keyboard Comms	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Keylines	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Looking At	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Radio Basics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Reviews	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Special Offers	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tex's Tips & Topics	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Topical Talk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Tune In	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Valve & Vintage	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
VHF DXer	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

**Which subject covered in PW interests you the most?**

.....  
 .....

**On a scale of 1-10, please tick to indicate how you rate the technical content of PW?**

Not technical enough « »Too technical  
 [1] [2] [3] [4] [5] [6] [7] [8] [9] [10]

**What would you like to see more of in future issues of PW?**

**(Please tick all that apply)**

- |   |  |
|---|--|
| Beginners Articles <input type="checkbox"/>         | Major Constructional Projects <input type="checkbox"/> |
| Propagation Articles <input type="checkbox"/>       | Minor Constructional Projects <input type="checkbox"/> |
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| Review of Accessories <input type="checkbox"/>      | Dealer profiles <input type="checkbox"/>               |

**Do you ever construct anything from PW?**

- Yes  No

**What other radio related subjects not currently covered by PW would you like us to include?**

.....  
 .....

**We occasionally publish themed issues that concentrate on a particular aspect of the hobby. Should we:**

- Carry on devoting a large part of occasional issues to a single theme   
 - Spread the content evenly throughout the year and not have themed issues

**What radio related societies, clubs or specialised groups do you belong to?**

- |                                 |  |
|---------------------------------|--|
| AMSAT <input type="checkbox"/>  | RIG <input type="checkbox"/>                   |
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| BATC <input type="checkbox"/>   | WACRAL <input type="checkbox"/>                |
| G-QRP <input type="checkbox"/>  | Radio Station DX Club <input type="checkbox"/> |
| EDXC <input type="checkbox"/>   | Local Club <input type="checkbox"/>            |
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| RAYNET <input type="checkbox"/> | Other (please specify) .....                   |
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- |   |                                   |
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| Emergency Services <input type="checkbox"/> | SSTV <input type="checkbox"/>     |
| Telephones <input type="checkbox"/>         | Amateurs <input type="checkbox"/> |
| Airband <input type="checkbox"/>            | CW <input type="checkbox"/>       |
| Weather Satellites                          |                                   |
| Other (please specify).....                 |                                   |

**Do you own a home computer?**

- No  PC  Mac  Other

**Do you have Internet access? Yes  No**

**If yes, what is your e-mail address?**

.....

**How long have you been on the 'net?**

- less than 1 year  less than 2 years  less than 3 years   
 3 years or more

**Is your access pay per use  or do you have unmetered access ?**

**Modem/connection speed?**

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Personal details are required for statistical purposes only and will be treated in the strictest confidence. Your answers will be stored in a database but your name and address will not be associated with them in any way. **If you are not happy with answering any of the following questions, please ignore them but you must supply your name and address if you want to be included in the prize draw.**

### How old are you?

Under 15  26 - 35  46 - 55  Over 65   
16 - 25  36 - 45  56 - 65

### Are/were you employed in an electronics related field?

Yes  No

### What is your annual income?

Under £8,000  £15,001-£20,000  £30,001-£35,000   
£8,001-£10,000  £20,001-£25,000  £35,001-£40,000   
£10,001-£15,000  £25,001-£30,000  Over £40,000

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Thank you for taking the time to complete this questionnaire. If you now write your name and address in the space below and post the form to us, you will be entered in our prize draw. There's no need to use a stamp, we will be happy to pay the postage.\*

Name.....

Address.....

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Postcode.....

\*Please note: The FREEPOST facility is only available to readers in the United Kingdom, Northern Ireland, the Channel Islands and the Isle of Man. Overseas readers will have to pay for the postage but they will still be entered in the prize draw. We have set the closing date of 2nd January 2002 to allow time for entries to arrive from overseas.

Please affix a SMALL piece of tape here

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# QRP

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The QRP Component Company



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MFJ "Cub"™ QRP Tevr 2W monoband CW truly miniature transceiver. 80,40 or 20m.....	£89.95
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All prices include VAT. Carriage is charged extra. VISA/Mastercard payments are welcome. Check our website for full product range and detailed information - sorry, no printed catalogue/data available.

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**Yaesu FT1000MP Mk5**  
Yaesu's flagship radio still our number one selling radio among the discerning DXers.



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a top grade starter radio HF and 6 metres with internal ATU

RRP £1499  
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This is set to put Icom back on TOP of the DXers CHOICE!

**DEPOSITS**  
BEING TAKEN NOW

**Icom IC756 Pro Mk2**  
YES, THE SECRET IS OUT - the IC756 Pro has been improved. The new model will be called the IC756 Pro Mk2 and IC7500 in some countries. Estimated price to be about £2495.00 offering:

- Improved Twin Pass Band Tuning
- Better strong signal handling
- Extra display modes
- Digital Voice storage

Orders are being taken for the new model with first shipments expected in October (In time for Donnington we hope).

We still have some of the original IC756 Pros but be quick as they are going FAST at only £1899.00

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**Icom IC706 Mk2G**  
the original mobile multiband radio. Now the 3rd variant offering HF/6/2&70 with DSP and detachable head. Icom certainly got this radio spot on with features and performance.

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The ultimate add on for your station. Offering 1000 Watts of effortless RF on HF and six metres this amplifier is a delight to use.



**LAST FEW!**

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following on from the FT100 the D version offers a few extras and improved HF performance. Auto repeater shift on VHF and UHF plus an easy menu system make this the most popular HF mobile radio.



**FREE SU-1**  
BAROMETER PRESSURE  
SENSOR  
(WHILST STOCKS LAST)

RRP £339  
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# Antenna Workshop

Short of space?  
 Don't have a  
 garden at all?  
 Want to work  
 from the beach  
 hut? - You need  
 the 'Quick-fix'  
 bulletin board  
 loop as  
 described by  
 Richard Marris  
 G2BZQ.

**D**uring a period, many years ago, I was living and working in Minnesota USA. Pressure of business and much travel throughout the USA and Canada meant that a quickly erected structure would have to suffice until time allowed little more thought for more permanent antenna affairs.

Many of the apartments that I lived in had 'No outside antennas here policies' which meant I was unable to put up even an effective long wire. So, to enable me to continue with my radio hobby, I had to come up with a suitable antenna to overcome all the above problems.

## First Answer

My first answer to the various difficulties was to wind a horizontal loop of medium to thick copper wire around the operating room. Then, with both a loading coil and a variable capacitor I brought the single turn loop to resonance in the 3.5MHz band.

In an effort to reduce the size and losses of the loading coil, the loop would have to be made bigger. But I had a limitation on the size of the room. Luckily the room door was at the opposite end of the room from the operating position and the tuning capacitor.

So, I quickly cut the loop wire at the door and attached more wire, which I took down the long hallway and back up to connect to the other cut end of the loop. Then I began the task of bringing the loop to resonance again.

The results of my experiments were interesting! The whole contraption had taken around two hours to make, check, modify and recheck. Amazingly the resulting loop could be loaded up with 15W of c.w. transmissions on 3.5MHz without producing any TVI at all.

My new large around-the-apartment loop worked well, with many QSOs throughout the USA and Canada, although the bandwidth was rather narrow at around 18kHz wide. The point is however, that I had an effective antenna that worked, even though it was a bit of a monstrosity.

My loop gave good service, in a first floor apartment until time allowed for a more permanent affair consisting of a vertical wooden frame on a stout wooden base. Onto this frame I wound a few turns of wire to form the main loop.

## Brought To Resonance

Then I added a loading coil fed with 50Ω coaxial cable and brought the loop to resonance with a variable capacitor. The main layout of this antenna is shown in Fig. 1. To keep loop tuning changes, due to hand capacity, to a minimum, I fitted the shaft of the tuning capacitor with an extended insulated spindle before fitting the tuning knob.

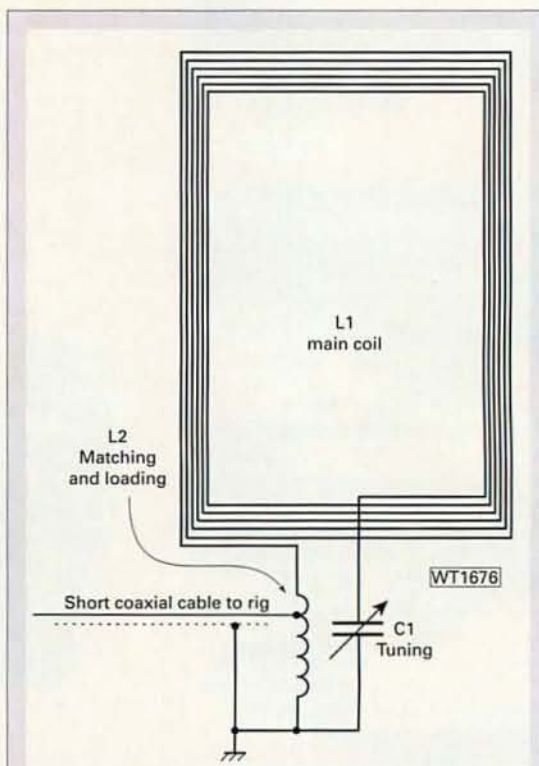
As the loop was mounted vertically, I could turn it to take advantage of the directional properties of the antenna. This way I got around the apparent limitations of the 'No outside antennas here' rules. But in the interest of domestic safety and to keep the chances of TVI to a minimum, I'd recommend keeping down to no more than 15-20W maximum.

Despite living in what is often called 'central southern England' we're not exactly blessed with an inspiring local shopping experience. However, we have, apart from the motley collection of shops, a small local Woolworth's

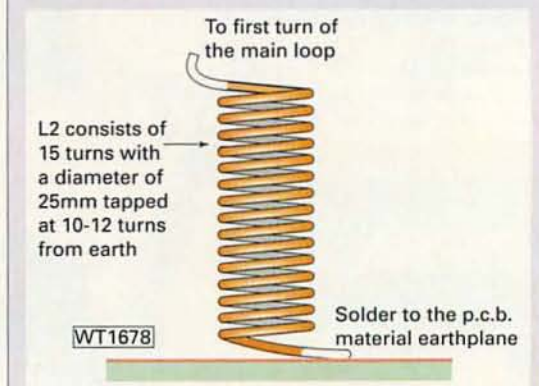
and on a recent visit, I came across an absolute bargain of a cork based message board reduced to £2.99.

Finding this message board coincided with a loop project I had in mind so, I decided that it would make a good basis for the frame to hold the loop itself, which consisted of six turns of wire. This board has a pseudo wooden frame around a stout cork sheet, with an overall size of 600x400mm. It also weighs very little!

The board also proved strong enough to support the loading coil and the tuning capacitor, which I also mounted on a small section of Paxolin. You could, though, use almost any other insulated material for the purpose or even small piece of p.c.b. material



● Fig. 1: I've produced several tuned loop antennas in this form, all of them work with slight modifications to the number of turns and sizes of both coils.



● Fig. 2: The 15-turn matching and loading coil L2 has the lower point soldered to the p.c.b. earth plane close to the point that the coaxial screen is also soldered.

## Older Jackson

The tuning capacitor is an older Jackson 150pF unit with a metal frame and mounting feet making attaching it to a chassis, or mounting board much easier. The matching coil, L2 (shown diagrammatically in Fig. 2) consists of 15 turns of 2mm dia (14 or 16s.w.g.) tinned copper wire wound on a length of plastic tubing. The turns should be spaced one wire diameter apart.

Leave some excess length at each end of the coil for connections to be made later. This matching and loading coil is to be mounted vertically and near the tuning capacitor on the insulated plate that holds the tuning capacitor. Connect the bottom end of the coil to the frame of the tuning capacitor.

In each corner of the board is mounted a six-way terminal block with a screw into the frame and a bolt through the cork on the inner (make sure you put a large washer under the nut to protect the cork from the pressure).

Now let's begin wiring the main coil onto the board. Arrange the board as shown in Fig. 3. Start from the outer hole of the bottom left hand terminal block. I used pvc covered hook-up wire, pass the loop wire through the hole and solder it to the top connection of L2.

## Clockwise & Inwards

Feed the wire through around in a clockwise and inwards direction around the board, to make the main coil. Then when all runs are in place, gently tension the wire and lock each turn in place with the screws of the terminal blocks. When the final turn is in place, continue winding the wire to the stator plate of the main tuning capacitor.

Now to attach the coaxial cable feed to the antenna, I used a two metre length of RG58U coaxial cable for this purpose. Strip a short length of the outer insulation from the cable and carefully separate the screen from around the inner insulated conductor.

I mounted the coaxial cable on the reverse side of the board with 'P' clips in a position so that the twisted together screen could be fastened securely to the frame of the tuning capacitor via one of the fastening bolts.

A short length of wire is used to extend the inner conductor to a temporary tapping point 10 turns from the bottom of L2. After making sure the wiring follows the plans shown here, it's ready for initial tests.

## Simpleton Approach

The simpleton approach to testing a loop antenna is the best method in my opinion! This is a method of carrying out tests in a series of steps, checking at each stage before proceeding to the next, and potentially more disastrous level. So, begin with checking the tuning range of your particular loop with a receiver.

If your antenna is as described here, then it should tune from just below the 1.8MHz band to just above the 3.5MHz band. Firstly set

your receiver to somewhere in the middle of this range and attach the antenna via the coaxial cable to the receiver.

Slowly swing the antenna's tuning capacitor from maximum to minimum capacitance and back again. There should have been two peaks of received noise, hopefully at the same capacitance positions. Now tune both the loop and the receiver in synchronism, maximising received noise, to check the tuning range.

At several points within its range and after tuning the loop, adjust the tapping point on L2 to maximise the received noise at that point. If the tapping point alters over the range, choose the tapping point best suited to the band and area that you intend using most.

Now it's time to move on to low power transmit tests, for which you will ideally need some form of field strength indicator. Set the receiver to the frequency of interest and tune to loop to maximise noise. Now apply a few watts of r.f. at the same frequency to the loop by transmitting.

## Field Strength

Watch the field strength generated by the loop and carefully adjust the loop's tuning capacitor to maximise the transmitted field strength. Then, after dropping carrier, adjust the L2 tapping point and again check to see if this gives any improvement on the transmitted field strength.

You may note that at the maximum field strength, the s.w.r. (if you're measuring it) should have dropped very near to unity. You're now ready for on-air tests at that frequency - **but do remember not to use more than 20W for safety reasons!**

In operation the loop may be operated in either the horizontal or vertical plane (giving a degree of directional capability) **but must be kept clear of metallic objects.** If hung vertically on a wall, try to make sure that it's clear of house wiring. Another point to remember is that fluorescent lights or lights on dimmer controls are both horrific sources of r.f. noise!

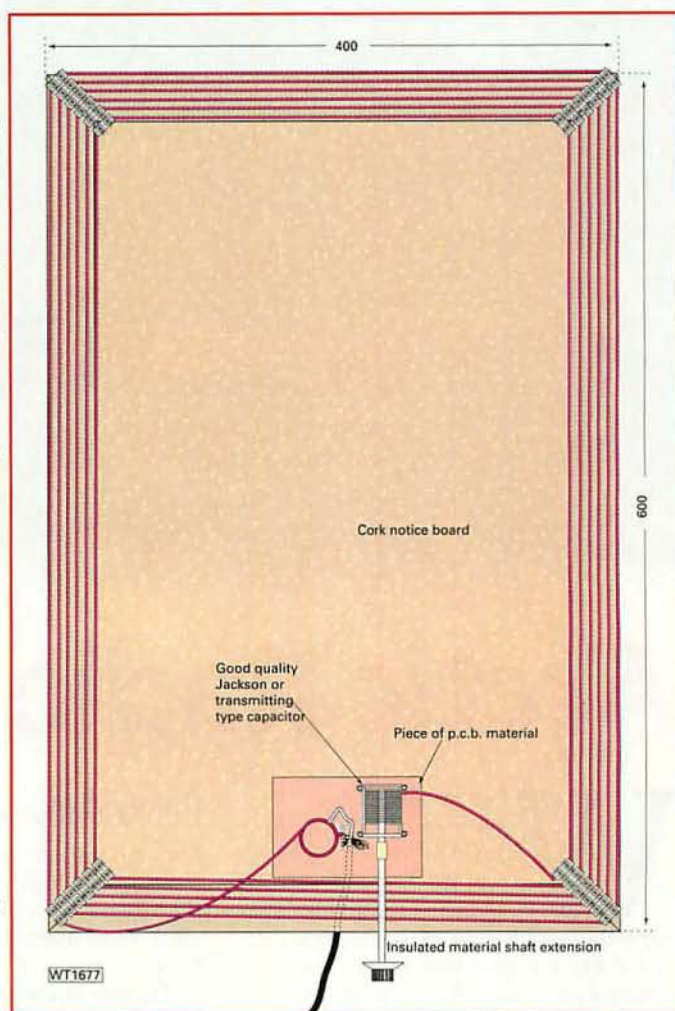


Fig. 3: The general layout of the message board loop antenna for 3.5MHz, this gives bandwidth that is rather narrow (about 20kHz) but does match quite well over the whole band.

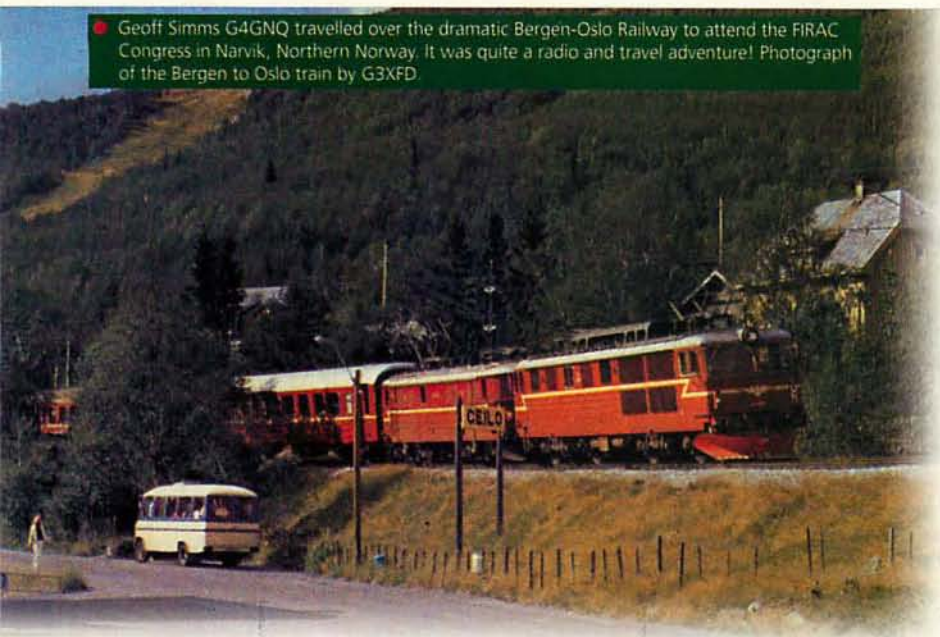
Early one morning, just before dawn, I set the loop and transmitter up on 3.555MHz and with some 10-12W of r.f., I made a tentative CQ call using c.w. I had an answer, with a good signal report, from a German station, which was rather unexpected but proved that the loop antenna can be effective, even when as small as this example.

## Final Comments

My final comments about this loop antenna, is that as an exercise to find a small, but effective loop antenna that was both quick and above all cheap to produce - it was a great success. I used the smallest available bulletin board, with all other items from the junk box. When not in use, the loop stays in a black plastic bin bag on the wall of the garage.

There are some thoughts to bear in mind when building this and indeed any other indoor loop antenna. The most important is to keep the operating power down to no more than around 15-20W maximum and to make sure that there are no exposed metal points near any hand controls. If possible, try to extend all tuning controls through a length of insulating rod or similar material.

Geoff Simms G4GNQ travelled over the dramatic Bergen-Oslo Railway to attend the FIRAC Congress in Narvik, Northern Norway. It was quite a radio and travel adventure! Photograph of the Bergen to Oslo train by G3XFD.



Although the politicians have killed off British Rail, The BR Amateur Radio Society lives on. Here Geoff Simms G4GNQ describes a trip to Northern Norway when BRARS Members visited the annual convention of International Railway Radio Amateurs.

# Arctic Radio & Railways!

**W**hen the *PW* Editor asked me to write about a trip he knew I'd taken over the Arctic Circle by train and the problems that face Radio Amateurs living in the land of the 'Midnight Sun' I was delighted...but somewhat ill prepared for the job! It seems a long time ago now - but in August 1995 **Geoff Livesey G3FIB** and I, along with our wives visited Northern Norway to attend the **Federation of International Radio Amateur Cheminots\* (FIRAC)**.

The FIRAC organisation is the international Federation of Railway Radio Amateurs and in 1995 they held their Congress in Narvik. But it's not until you start to plan a trip to beautiful Northern Norway that the distance to be travelled becomes truly apparent and to get the maximum benefit local knowledge is required. Our group was fortunate as our friend **Wilhelm Roer LA6DU** sorted out problems for my **Geoff G3FIB** (travelling by air) and those encountered by my wife and myself as we travelled by sea and land.

It was a chance not to be missed, but transporting Amateur Radio equipment was definitely out of the question for the four days we were due to be above the Arctic Circle itself. However, I knew that there would be equipment available for use during the FIRAC congress and travelling by boat and train had already limited our luggage.

\*Cheminot - pronounced shem-min-o is the French word for a railway worker from Chemin de Fer - the term for railways.

## Outward Journey

Our outward journey was by ferry from Newcastle to Bergen then by train to Oslo. Here we stayed over with **Wilhelm LA6DU** and his wife **Marit LA4JCA** for several days.

The outward journey to Stavanger - the first port of call - was uneventful. From there onwards the ship hugged the coastline to Bergen which meant keeping our eyes peeled for any coastal radio stations! However, the only one we spotted was the main short wave installation belonging to Radio Norway.

Arriving in Bergen, Norway's second largest city and the south-western base for Norges Television, we then made our way to the railway station for the first part of our journey to Oslo - the capital. The majority of the railway route is single track using radio as the main means of communicate. The trains were all equipped with u.h.f. radio, whereas at that time in the UK most of the BR system used v.h.f.

## Effective Communication

How do they maintain effective communication in the mountainous terrain in Norway? The Bergen to Oslo line is a perfect example of the difficulties facing the Norwegian engineers as the railway is famous for its scenery and the number of tunnels as it rises from sea level to over 3000 metres before descending down into Oslo.

Next to the line, radio communications stations are spaced at regular 20km or so apart, each equipped with two Yagi arrays, mounted back-to-back. The system is well

engineered for effective communications as in winter - failure could mean the difference between life and death.

Winter on the Bergen line starts anytime after September and the line is never safe from snow because of the altitude. Fortunately, when we travelled on the route we were in luck - it was sunny. Even so reminders of the altitude were present in the form of snow, even in August!

Our train arrived in Oslo late in the evening at 2230 and we were met by **Wilhem** and **Marit** who soon made us very welcome. During our stay we were taken up the television transmitting station's mast to the observation tower which provided superb views of Oslo and into Sweden.

## Northwards To Narvik

Tuesday soon arrived and our journey northwards to Narvik began. Narvik is 600km inside the Arctic Circle, and although there is a railway link (from Sweden) we went by rail and road up the coast. We travelled by train via Trondheim overnight through the Nordland Region to Fauske, finishing the trip with a five hour bus ride to Narvik.

On the journey I'd noticed was the lack of medium wave broadcasting stations! The BBC World Service on 648kHz just about makes it into Southern Norway, but as for the Northern part of the country...not one medium wave station was to be heard.

All the local broadcasting is transmitted on Band II v.h.f., with television on u.h.f. Band IV and V, together with satellite broadcasting. The last medium wave



transmitter is in Trondheim and this transmits on 1314kHz (1.314MHz). Trondheim is 908km distant according to a large signpost in the middle of Narvik.

Geoff G3FIB and party had arrived safely and their flight had been smooth and uneventful. We'd got there okay!

## Amateur Radio Scene

Narvik has a thriving Amateur Radio population and club with the callsign **LA1N**. It has one of the best club stations I've ever visited.

Amateur Radio activity is, according to my friend **Tor LA5FV**, rather low. If you consider the length of the nation neither 3.5 or 7MHz is really suitable for inter-Norwegian working. However, on the August night we visited, the club station was very active working to the USA and Europe on 14MHz using their four-element tri-band beam antenna.



## Congress On Air

During the Congress the FIRAC Amateur Radio station operated from the first floor of the hotel where it was being held.

Unfortunately the number of the antennas were limited to just two for h.f. and one for v.h.f.

For h.f. operations we had a sloping dipole cut for 14MHz strung from the hotel's roof to a pole just outside the shack and a Windom, strung across the roof to a suitable anchoring point. This antenna served the remaining bands including the WARC allocations. Considering the lack of available space the antenna erecting team had done a good job!

The radio station - with the callsign **LA3NSB** (NSB being initials of the Norwegian State Railways) - became operational on the first day of the Congress. The room was full of eager participants, all with the same idea...but who would make the first contact?

**Lode ON4ED** (from Belgium) tried to make a pre-arranged QSO with his friends on 7MHz only to be met with silence, and the whole band was inactive. Surprisingly 14MHz proved to be equally challenging, and although some stations **were heard** - **LA3NSB** was unable to work any of them. So much for operating in the morning!

A packet station was also available to send and receive greetings to absent friends and was operational for the whole of the congress. However, this mode is not particularly efficient in Northern latitudes due to Solar disturbances disrupting the node link without warning.

My turn operating the main congress station came later in the afternoon and eventually I contacted **Jim G4OUY**. He was using a three-element beam and 150W and putting a good 5 and 9 signal into Northern Norway.

I was using the Windom antenna and the report of 5 and 9 rather surprised me

because the band conditions seemed poor. However, the QSO lasted for 30 minutes with both the other Geoff and I taking a turn before **Carlo HB9QU** from Switzerland had a go.

Carlo was keen to try 10MHz and it was not long before he was in QSO. Interestingly...he was still using the Windom antenna.

Returning to the 14MHz band we were soon called by one of the French FIRAC stations eager to work us and obtain one of the special QSL cards. This contact proved to be very difficult and **André F6AFA**, the operator at the other end reported conditions were no better in France.

Operations on 144MHz proved very difficult too - even via the local repeater! Looking back, I can remember facing similar conditions only once before - in Blaenau Ffestiniog (North Wales) where the mountains of slate meant you had to use 25W even for a local contact!

## Local Museum

The following morning we visited the local Second World War Museum. It's not particularly large, but complete details and records of the occupation have been meticulously photographed. Particularly interesting was the large model depicting the various sites of wartime activity with a detailed explanation of each event or site.

Standing next to the model are the remains of the special Barnes Wallis 'Bouncing Bombs' (similar to those used on the Dambuster Raids) used by the Royal Air Force used to disable the German Warship *Scharnhorst* when she was moored in a Norwegian Fjord.

There was also a fine collection of radio equipment used during the Second World War. This included spy sets, aircraft transmitter-receivers, Enigma encoding/decoding machines and humble civilian medium wave receivers.

- No, not waiting for the train at Narvik station - instead the FIRAC Congress delegates are using the station as a convenient meeting point!

Later that day I spoke to Wilhelm **LA6DU** about the museum and he made a confession. He'd been twice and had still not seen everything!

Unfortunately time was now running out, and as we were working to a very strict timetable there were no opportunities available for further Amateur Radio operating or re-visiting the War Museum. A great pity indeed.

## Home Via Sweden

All too soon the congress came to an end and we headed homewards - this time via Sweden. On the train were several other FIRAC congress members - mainly Danes.

Our good friend **Lode ON4ED** was keen to capture the crossing of the Arctic Circle from the train on his video camera. Unfortunately, when that point was passed...Lode was fast asleep!

At Boden in Sweden we said farewell to Lode and some of the other congress members as they were bound to Stockholm whereas we were travelling overnight to Gothenburg and then by ferry to Denmark. But we weren't alone...**Hans OZ3VQ** and **Grethe OZ2GX** were on the same train and the following morning they called on 144MHz in case any of the Swedish members were listening, sadly as it turned out they were all still asleep!

Eventually we arrived at Stuer in Denmark after 29 hours of travelling. We were glad to see our old friends **Fred OZ9FM** and his wife **Erna**.

We spent a few restful days with them, remembering previous FIRAC congresses and all our old friends before heading home again - exhausted and happy.

Would we do it again? I'll let you know in a few years time!

# Amateur Radio Communications Ltd

38 Bridge Street, Earlestown, Newton-le-Willows, Merseyside WA12 9BA

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The TS-940S is a competition class HF transceiver designed for SSB, CW, AM, FM and FSK modes of operation on all 160 through 10 metre Amateur bands, including WARC bands. Although an older model this radio is still an impressive looking set to feature in any shack. ....£525  
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### ICOM IC-R7000

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### KENWOOD TS-530S

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### \*\*\*\*\* STAR BUY \*\*\*\*\* AOR-8600

The AR-8600 is an extremely versatile all mode receiver 530kHz - 2040MHz, which can be used virtually anywhere, mobile, base or trans-portable. This radio was only purchased new a couple of months ago, so it is an extremely good buy at .....£499  
\*\*\*\*\*

### ICOM IC-765

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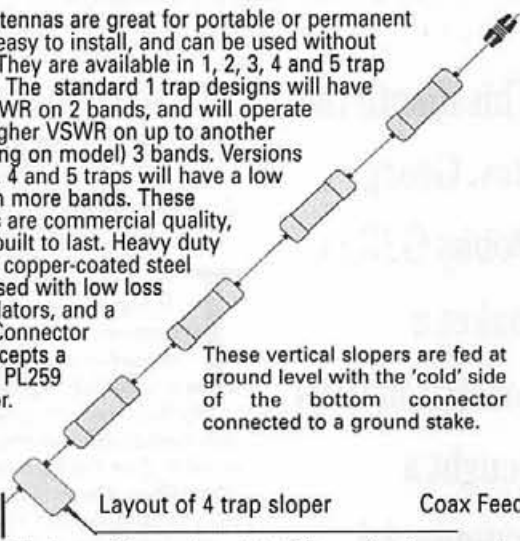
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# Carrying On The Practical Way

This month the Rev. George Dobbs G3RJV makes a confession (he's bought a commercial rig!) and describes a simple two f.e.t. receiver...after quoting a little Yogi!

"It's so simple to be happy, but so difficult to be simple"

Gururaj Ananda Yogi

I've got a confession make this month...for the first time in many years, I have just bought a commercial transceiver! This is because I do like to have at least one piece of equipment that's 'plumbed-in' and working within the shack.

My home-brewed equipment is frequently undergoing modifications, or is possibly just short of completion, or I've borrowed bits and boards from it for other things. The very nature of home construction of radio equipment often results in having little or no workable items at any one time!

Reading the manual of my new acquisition took me through the several layers of accessible software used to set-up the required functions. That last sentence in itself reminds me of why I still love to play around with 'minimalist radio' and remember William of Occum's statement "It is vain to do with more what can be done with less". There's real delight to be had in achieving results with the lowest of technology.

However, I would like to call the approach the use of appropriate technology but often it simply isn't all that appropriate and better results could be had with a little more effort and expense. It certainly is fun, often challenging in use and encroaches little into our resources of money and spare time. I like to think of the approach as Amateur Radio with soul....but I suppose I would think that wouldn't I?

## Simple 14MHz Receiver

The little project I'm presenting this month comes from the minimalist-radio world and is essentially a simple receiver for 14MHz which only uses two f.e.t. devices. One is used for the variable frequency oscillator (v.f.o.) and the other is used for the mixer.

I admit that the constructor will have to add some audio amplification to complete the project...but this may already be available. In fact, for the prototype I did not build anything beyond the v.f.o. and mixer. I simply took an



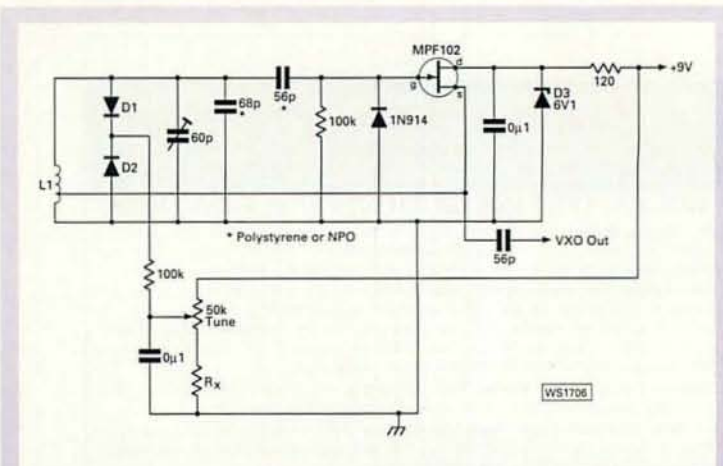
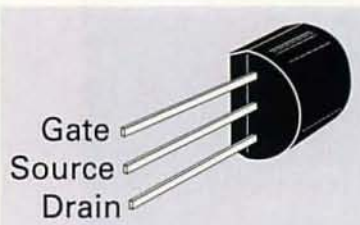
- This month's project...a surprisingly effective 14MHz receiver using two field effect transistors.

existing audio amplifier from an old project and added it to the receiver.

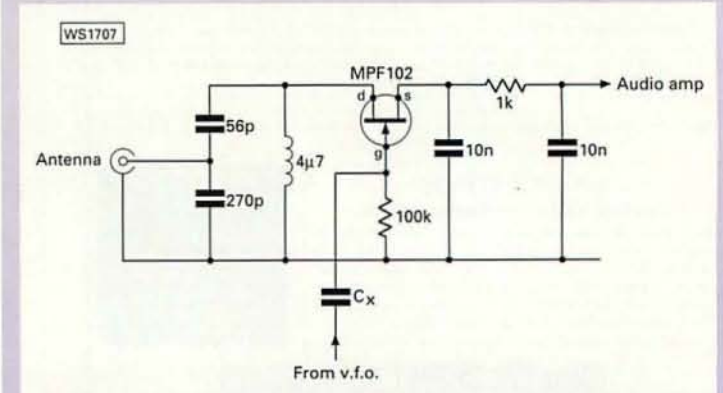
A faithful reader and follower of this column could use the 'Audio Brick' from July 1998 or the 'Booster Amplifier' from January 2000.

The diagram, Fig. 1, shows the one f.e.t. circuit diagram for the v.f.o. I'm dealing with this first because it's the trickiest part of the receiver.

The circuit is that of an Hartley Oscillator using a tapped coil, L1, to provide the feedback between the source and gate of the MPF102 device. Other common P-channel



• Fig. 1: The circuit diagram for the 'One f.e.t.' v.f.o. George G3RJV is dealing with this section first because he regards it as the trickiest part of the receiver (see text).



• Fig. 2: Diagram showing the one f.e.t. mixer circuit used in this month's project - a surprisingly low noise mixer with very few parts (see text).

f.e.t.s, like the 2N3819, would probably work well in this circuit.

The supply to the f.e.t. is regulated by a zener diode. A three-legged regulator chip would be an inexpensive alternative but I have a lot of zener diodes in my junk box.

The coil, L1, has a total of 17 turns of 22s.w.g. enamelled wire wound on a T50-6 iron powder core. The coil is tapped 5 turns from the bottom of the winding.

I make taps in coil windings by pulling out a small loop of the wire (about 10mm or so) and twisting it tightly to stick out the side of the coil. The enamel is then scraped from the twisted wire and tinned with solder for a good connection.

The ratio of turns between the total winding and the tapped section is always a matter of compromise in such oscillator circuits. The tapping point requires enough turns to maintain oscillation but too many turns will make the oscillator prone to instability.

A common rule of thumb is to make the tapping point about a quarter of the total number of turns from the bottom of the coil. In practice the little v.f.o. proved to be surprisingly stable.

The rest of the tuned circuit is made up from a parallel combination of a fixed capacitor, a trimmer capacitor and varactor tuning diodes. All the capacitors used in and around the tuned circuit should have good temperature stability characteristics. Polystyrene or NPO types make a good choice.

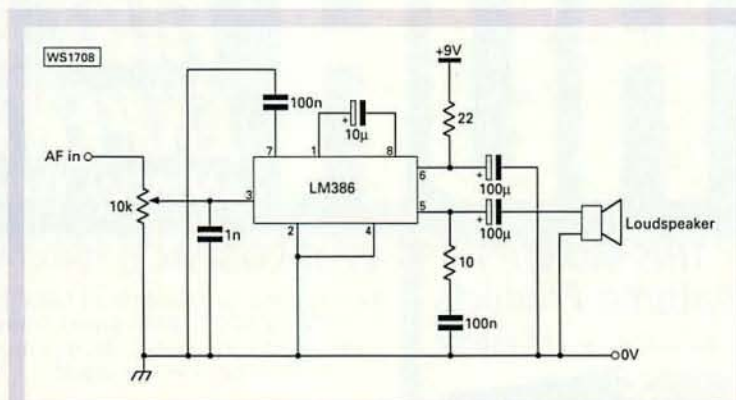
I used a pair of conventional silicon switching diodes for the varactor tuning. The diodes D1 and 2 are both 1N4005 types. With the values in the tuned circuit, these enabled me to tune the whole of the 14MHz Amateur band.

## Frequency Coverage

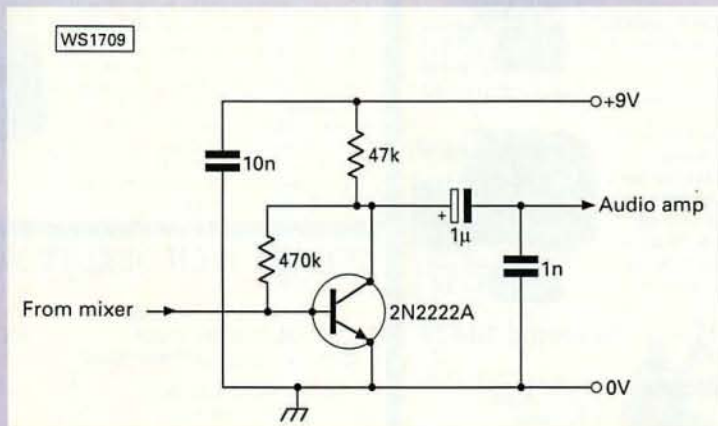
It may take a little individual experimentation to achieve the desired frequency range coverage. The trimmer should allow the setting up of the required frequency but further adjustment is possible by squeezing or opening out the spacing of the turns on the coil.

Usually, I arrange for turns on a toroidal former to occupy about three-quarters of the former. Then - by adjusting the wire spacing - you can vary the inductance a little.

Readers may like to experiment with 'proper' varactor diodes or even try other



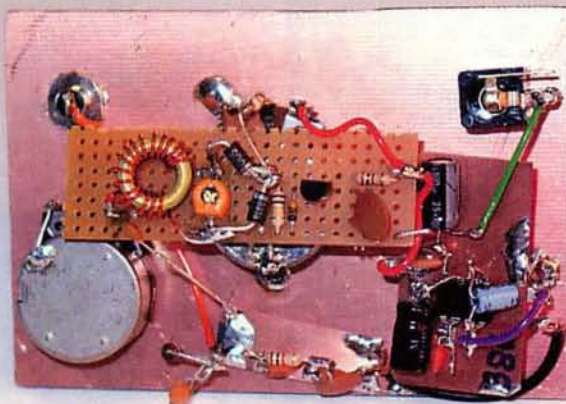
● Fig. 3: Many constructors will have a suitable audio amplifier to use with the receiver. But if you need an amplifier, this simple circuit worked well with the G3RJV version of the receiver (see text).



● Fig. 4: Extra gain may be required to bring the audio output on the receiver to fully drive the LM386 i.c. amplifier. George G3RJV found that the pre-amplifier circuit - inserted between the mixer and the i.c. amplifier proved adequate (see text).

silicon diodes in the circuit. The control voltage comes from a 50kΩ linear tuning potentiometer.

In the circuit I have added a series resistor, Rx, to shift the tuning voltage to a more linear part of the varactor range. And although I did



● Fig. 5: This month's little project as finished is certainly not elegant technology - but it does work! (see text).

not use one myself, readers may like to experiment with values for Rx and even add another series resistor at the top of the potentiometer to limit the control voltage.

No doubt, with a little experimentation a

more linear tuning range could be achieved. The output from the oscillator is taken from the source of the f.e.t.

## Mixer Circuit

The diagram, Fig. 2, shows the one f.e.t. mixer circuit. This is a surprisingly low noise mixer with very few parts. The signal from the f.e.t. oscillator appears across the 100kΩ resistor. The capacitor marked Cx in Fig. 2, is the coupling capacitor from the oscillator (refer to Fig. 1).

In practice the r.f. input from the antenna goes via a very simple input tuned filter to the drain of the f.e.t. This input tuned circuit is truly minimalist! It's a single tuned circuit based on a moulded 4.7μH inductor and a pair of series capacitors.

A capacitive tap is provided by the two capacitors to allow the use of a low impedance antenna input. If you're using a low impedance antenna, perhaps via a tuner, connect the circuit as shown.

On the other hand, if you're just hooking a length of wire to the receiver, try using the top of the 56pF capacitor as the antenna input point. A wise constructor may like 'go the extra yard' (Metre?) and use a decent bandpass filter for the input, although this simple arrangement worked fine on the prototype receiver.

The resultant mixer products appear at the source of the f.e.t. A resistor and a couple of capacitors decouple the r.f. signal but leave the required audio signals. The mixer will not deliver enough audio signal to be heard so further audio amplification is required.

## Audio Amplifier

Many constructors will have a suitable audio amplifier around the workbench. However, to assist those who don't Fig. 3 shows a simple to make audio amplifier, which worked well with my version of the receiver. I'm afraid it's our old friend the ever-useful LM386 again! - but it does do the job very effectively.

Please bear in mind that the audio amplifier provides the only gain available in the receiver and - depending on the antenna in use - extra gain may be required. The diagram, Fig. 4, shows a single stage audio pre-amplifier that could be inserted between the mixer stage and the audio amplifier.

This month's little project as finished, Fig. 5, is certainly not elegant technology - but it does work! I heard plenty of signals on the 14MHz band with my version...and perhaps you'll hear some good DX with yours?

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### COMET MOBILE ANTENNA CABLES/MOUNTS

3D-4MR	SO239 Base/4mtrs coax c/w PL259 plug	£15.50
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CBL-2000	0.5 - 60MHz 2kw 1:1	£27.50
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### COMET DUPLEXERS

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Turning Radius	2.6 mtrs
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Mast Diameter	50mm
Wind Load	(144 km/h) 255 N
Power	500 Watts

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MODEL	BAND	EL.	BOOM LGTH	TURNING RADIUS	GAIN DB	F/B RATIO	WEIGHT (KG)	PRICE
<b>6m Band</b>								
ZX6-2	50MHz	2	0.60m	1.53	6.2	-18	2.20	£49.95
ZX6-3bn	50MHz	3	1.75m	1.74	9.1	-25	3.00	£89.00
ZX6-4	50MHz	4	2.75m	2.03	11.4	-28	4.30	£99.95
ZX6-5	50MHz	5	4.35m	2.64	12.1	-28	6.50	£129.00
<b>10m Band</b>								
ZX10-3DX	28MHz	3	3.35m	3.35	10.3	-20	6.50	£129.00
ZX10-4DX	28MHz	4	5.80m	3.90	12	-26	10.80	£166.00
<b>12m Band</b>								
ZX12-2	24MHz	2	1.10m	2.85	6.3	-18	4.20	£99.95
ZX12-3	24MHz	3	3.50m	3.30	9.1	-25	6.90	£128.00
ZX12-4	24MHz	4	5.50m	3.92	11.4	-28	3.70	£159.00
ZX12-5	24MHz	5	8.60m	5.13	12.1	-28	14.80	£215.00
ZX12-6	24MHz	6	14.50m	7.78	12.7	-35	19.59	£229.00
<b>15m Band</b>								
ZX15-3	21MHz	3	4.15m	3.98	9.1	-25	10.90	£155.00
ZX15-4	21MHz	4	6.40m	4.67	11.4	-28	15.40	£185.00
<b>17m Band</b>								
ZX17-3	18MHz	3	4.90m	4.85	9.1	-25	11.58	£159.95
ZX17-4	18MHz	4	7.50m	5.63	11.4	-28	16.80	£189.95
<b>20m Band</b>								
ZX20-2	14MHz	2	1.70m	4.57	6.3	-18	10.00	£149.95
ZX20-3	14MHz	3	6.20m	5.60	9.1	-25	13.50	£199.95
ZX20-4	14MHz	4	9.40m	6.58	11.4	-28	21.00	£259.00
<b>30m Band</b>								
ZX30-2	10MHz	2	2.35m	2.63	6.3	-18	15.60	£189.00
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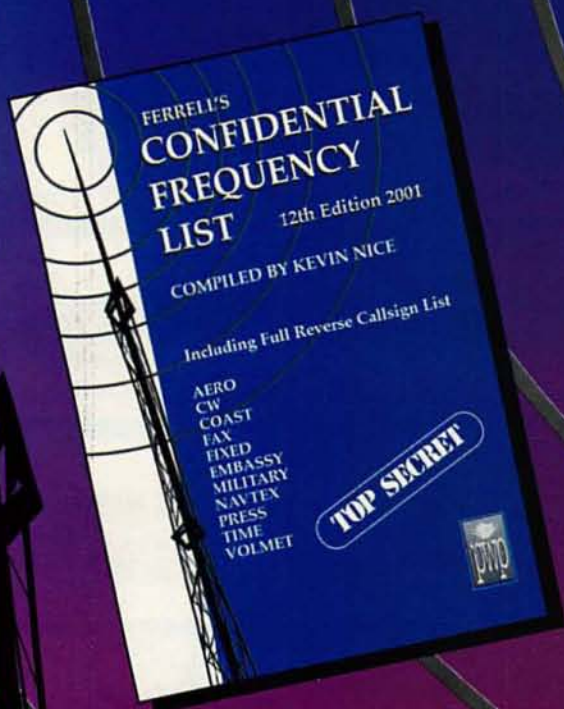
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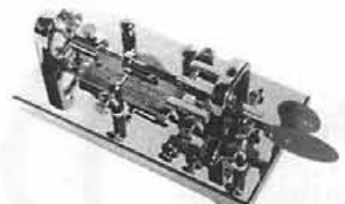
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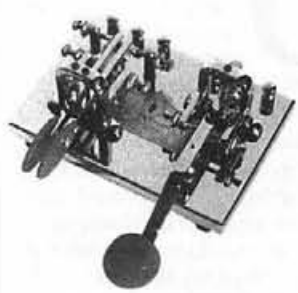
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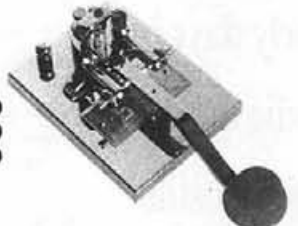
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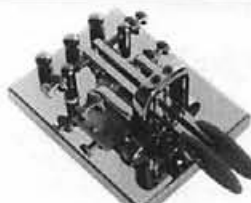


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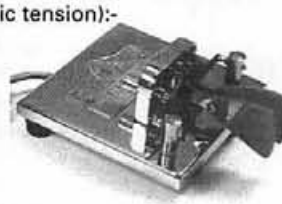


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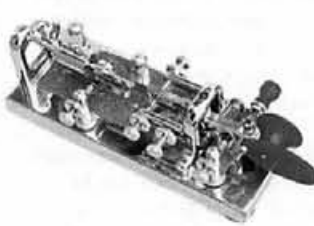
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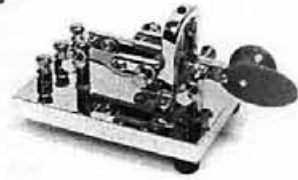
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Practical Wireless, October 2001

# Value & Vintage

Charles Miller continues the fascinating story of his early days in radio and how his first stint of self-employment ended with his call-up into the Royal Air Force.

**D**uring my last year with Smith's (carrying on from the last thrilling instalment in the July *PW*) a rival to radio began to make its appearance - television! Ever since television had re-started in the London area in 1946 there had been talk of extending it to the Birmingham area, and in fact as long ago as in the winter of that year and 1947 the GEC company had been checking out sites for a series of microwave links to carry the programmes there.

Two years later real progress was being made, with a transmitter site chosen at Sutton Coldfield. The site was on the outskirts of Birmingham and contracts were awarded to Marconi's Wireless Telegraph Company and EMI for the equipment.

## Huge Profits?

Like every other radio dealer in the area Smith anticipated making huge profits from the sales of TV receivers. So he decided that the technical staff must be ready to meet the challenge of the new technology.

Smith didn't go so far as to send us on training courses run by TV manufacturers. Instead he bought himself a correspondence course in which six of us participated through two-hour weekly classes after normal working hours.

Smith had also recruited managers for his three shops some characters who appeared to be somewhat shady. Delbert, the oldest member of the staff, frankly hated and mistrusted them. But I was much too taken up by the thought of getting to grips with television to bother unduly about the shady types.

That Summer a team of aerial erectors from Belling-Lee installed a mighty v.h.f. Band I 'H' aerial, with a distribution amplifier feeding outlets in the main shop and the upstairs showroom. Not long after, the first television receivers arrived, in the shape of 9 and 12in screen models by Ferranti.

## Test Transmissions

Test transmissions started from Sutton Coldfield in September and we gained personal experience of television reception. We were so enthralled that when those early short test films finished for the day, we remained...watching the



● Fig. 1: A radio curiosity - the Emor 'Globe' which has now become a cult collector's item (see text).

white interference spots on the screen caused by car ignition systems!

My enjoyment would have been total had there not been a little black cloud on the horizon. In those days an impending 18th birthday did not bring pleasurable anticipation of reaching adult status but brought instead the decidedly unpleasant prospect of being hauled off to do 18 months' National Service.

The call-up became a reality for me when a brown envelope landed on the doormat containing a request that I should present myself at Bethesda Street Schools, Hanley in Staffordshire for medical and aptitude examinations. There, in the company of several score other quaking striplings I tramped stark naked on coconut matting from one cubicle to another, being prodded and poked by a succession of white-coated, world-weary medical types who seemed to be as depressed by the process as we were.

Eventually, at the other end of the medical sausage machine, I was told that, **incredibly**, I had passed A1. I was then told to put my clothes on in readiness for an interview with an officer who'd decide which of the Services should be graced by my presence.

I persuaded my inquisitor that the citizens of Britain might sleep easier in their beds if I were to be inducted into the RAF rather than as a foot-slogger in the Army. I was then sent home and told to await further instructions.

Back at work the next day I reminded Smith of his promise to secure my call-up deferment by signing me to a five-year apprenticeship, only to find that he had become evasive about the matter. Shortly afterwards I heard him laughing with one of the shady managers and suffered an uneasy (but accurate) suspicion that it was my request that had caused the mirth.

Meanwhile, something strange appeared to be going on. After all the work preparing for an impending rush of TV customers, no more receivers arrived and the two Ferranti remained the entire stock.

Apart from the lack of TV receivers, an increasing number of radio sets, especially those of the best-known makes, would have normally been piling up in the showroom and the shop. It would also have been crammed with electrical goods in readiness for the Christmas rush.

Instead, every morning when we arrived...stocks seemed to have fallen (literally) overnight. The

new radio sets that did arrive were of largely unknown makes such as Ace, Allander and Etronic.

## Emor Globe

There was also an example of a curiosity which has now achieved cult status, the Emor 'Globe', Fig. 1. The works of this were housed in a spherical metal cabinet supported on a chrome-plated tubular stand with foot plate.

The loudspeaker grill was in the top of the sphere, the dial was disposed around its 'equator' and tuning was achieved by turning the whole thing on its stand. The other controls consisted of movable ferrules set into the tube.

The Emor sold quite quickly and it seemed surprising to us that other examples were not ordered. Instead, we were bidden to make up from kits a run-of-the-mill an a.c./d.c. tuned radio frequency (t.r.f.) receiver called the 'Peter Pan'.

Assembling the 'Peter Pan' was bad enough, but at least it did have a **Bakelite cabinet and a proper dial**. However, we felt we were really

plumbing the depths with something called the 'Mighty Midget', Fig. 2, made by a back-street firm in London calling itself the General Electric Radio Company (not surprisingly, the real GEC had something to say about that).

There may have been worse sets produced in Britain...but if there were I haven't met any! It was a ghastly little three valve plus metal rectifier

a.c./d.c. t.r.f. covering medium waves only, built on a chassis of such inferior mechanical strength that the metal rectifier was bolted under it, fore and aft, to give it some rigidity.

With the metal rectifier in that position ventilation must have been virtually non-existent. How the rectifier managed to survive is a mystery!

To save money on a mains dropper, a 230V 40W mains lamp with an Edison Screw base was employed. The surplus light produced - via a hole was drilled in the cabinet and a red lens fitted - acted as a pilot lamp.

The dial was simply a transfer with arbitrary marking from 200 to 550 metres stuck directly on the cabinet above a hole for the tuning condenser spindle. This was fitted with an ordinary small pointer knob...the lack of slow-motion tuning was

not greatly missed due to the poor selectivity of the set.

The receiver sold for £6.19s.9d. including purchase tax. So the firm must have been knocking them out for no more than about four quid trade price...yet still making a profit on the job.

What we **didn't know at the time** was that all these sets I've just mentioned were obsolete. Smith must have been buying them in at knock-down prices to maintain the appearance of a fairly well-stocked and ostensibly prosperous business when in fact it had only a few weeks left to run.

## Television Repairs

Early in December the 12in Ferranti TV was sold to a local Radio Amateur, who not unnaturally made his own arrangements about installing it and its aerial. Only days later it broke down, and I was faced with my very first TV repair job.

Fortunately the repair turned out to be what we called a 'visual' fault - one of the valves in the vision strip had gone soft, as evidenced by the getter having turned

Delbert and I turned up at the service department on the day after Boxing Day expecting to settle back into the usual routine. Instead, we found that the bubble had burst for Smith and that the business was in the hands of a receiver.

Even then we didn't really know what had been going on and it took some time before the truth of the matter filtered out. For years Smith must have been practising what is termed in the Bankruptcy Courts as "drawings exceeding earnings" and had piled up debts with every firm which had supplied him with goods.

As one company put him on the 'stop' list he would find another unwise enough to give him credit, and so it went on until he owed money to dozens of different suppliers. Even then, he might just have managed to weather the storm had he been able to last out until the television bonanza arrived in our area, had his luck held.

For a long time Smith's creditors had held back from taking him to court in the vain hope that given time he might just pay up. It took only one of them to lose patience and go to Law to bring all the others down

like a flock of vultures.

The result was catastrophic; the business went into liquidation and the creditors ended up with about sixpence in the pound after all the assets had been sold off. They couldn't understand why there was so little stock to be auctioned, but Delbert and I did!

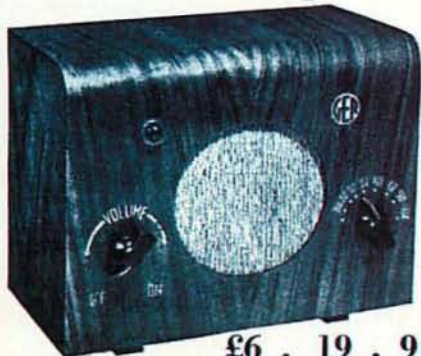
We now realised that Smith and his shady managers must have been systematically purloining it at

night and stashing it away in some secret location in readiness for either selling it themselves or for starting up a new business under a different name. Whichever the intention, as far as we were concerned we never saw Smith again, although I did encounter one of the managers years later driving a taxi, so he couldn't have benefited too well from the fraud.

I still needed to earn a living, though, so I made my first attempt at being a self-employed radio (and TV) engineer. This business didn't last long enough for me to know if it would be a success. Why? - three weeks later another brown envelope arrived with a railway warrant and a peremptory request that I should present myself at RAF Padgate!

To be continued...

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Fig. 2: The 'Mighty Midget' was assembled from a kit - and Charles Miller says "There may have been worse sets produced in Britain...but if there were I haven't met any!"

white. So I was able to give the wholly undeserved impression that I was an expert TV engineer!

Since the other Ferranti didn't seem to attract a customer, in the end it was sold to my father at not much more than trade price. There wasn't time before Christmas to erect a proper aerial, so I somehow contrived to cram a full-size 'H' type into the space at the top of our stairs, where against the odds it produced very acceptable pictures over the holiday.

## Bubble Bursts

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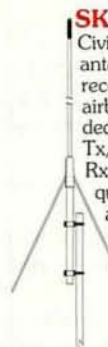
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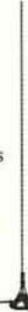
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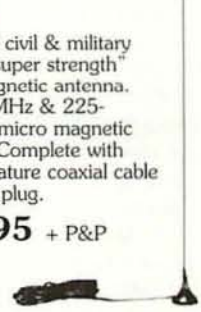
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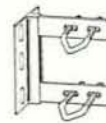
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REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

In recent months I've been looking at your reports of 50MHz activity, so this time around I'll concentrate on your reports of activity on the 144MHz band. During June only two Sporadic-E (Sp-E) openings were reported on the 144MHz band. Occurring on June 15 and 16 both were fairly brief and enabled contacts to be made with stations in Spain and Morocco. This lack of E-layer activity was very disappointing.

However, ionospheric propagation during July was much better with 144MHz openings being reported on 9 days during the period. These took place on July 2, 3, 4, 6, 7, 14, 27, 28 and 30 so now I'll take a look at those events in more detail.

The first Sp-E opening of the month on July 2 commenced around 1330UTC. Propagation was very good with contacts being made from central UK with stations in south-eastern Europe. Among the DX being worked at this time were the stations of S51WX (Slovenia), SV1BHU, SV2AMU and SV4BGW (Greece). This lasted for about two hours before fading out.

Within the hour the ionisation had reformed and brief openings were noted until 1900UTC. During this second phase some very good DX was reported such as the Ukrainian stations of UR3LL, UR7IWZ, US4MG and UT5ER.

The Sp-E opening was rather 'spotty' at my QTH in Herefordshire. It was not very intensive at all and only eight stations were contacted between 1400-1518UTC.

However, as the propagation was hopping around it did enable me to work seven countries. My s.s.b. contacts included I8MPO and IK0NOJ (Italy), I19NGN (Sicily), LZ5UV (Bulgaria), T94DU (Bosnia), YU7BW (Yugoslavia), Z32UC (Macedonia) my best DX at 2212km and 9A3FT (Croatia).

The station of **Conrad Farlow G0RUZ** (South Yorkshire IO93) reports making 14 s.s.b. contacts between 1441-1534UTC with stations in Italy and Sicily. He also heard the station of 9H1GB (Malta) but as he was

(Poland), US0YA and UY5M (Ukraine). Other DX reported included HA8CE by M1BTR (JO03), YO5BWD (Romania) by G4VPD (IO92) and YO8BOI by the station of G4FUF (JO01).

An opening on July 6 was a bit more extensive occurring between 1745-2000UTC. Propagation was mainly to the south of the UK although some stations found DX in other directions.

Many operators reported working into southern Spain contacting stations such as

## THIS MONTH DAVID BUTLER G4ASR TAKES A LOOK AT SPORADIC-E OPENINGS THAT HAVE RECENTLY OCCURRED ON THE 144MHZ BAND.

only peaking 55 he couldn't crack the pile-up.

On the following day, July 3, Conrad reported a three minute opening between 1825-1828UTC. In that time he managed to make contacts with the Lithuanian stations of LY2CI/P (KO15) and LY3ED (KO14). Other stations known to have been worked around this time included ES6GM (Estonia), YL2JN and YL3AG (Latvia).

An early morning opening was reported on July 4 between 0725-0800UTC. **Dave Edwards G7RAU** (Isle of Wight IO90) spotted HA0MK (Hungary), SP9AMH

EA4AMX, EA7AJ, EA7ERP and EA7RZ. Others were even luckier finding CN8DX (Morocco) and 7X2LS (Algeria), both of these in north Africa.

On the Island of Jersey the station of **GJOJSY** found UR5DDX, UT5DL/P, UZ5DZ (all in KN18) and OK2VSO (Czech Republic). **Mike Davies G0WZY** (Hereford IO82) reported picking up some packet radio messages on 144.850MHz from OE3JPC to OE1XLR at 1840UTC. He mentions that this was quite extra ordinary for him as he has never heard anything outside of the UK before on packet. Mike's antenna is a Slim Jim vertical and the receiver a converted p.m.r. Storno CQM644 f.m. transceiver.

**Bob Harrison G8HGN** (Essex JO01) reports that the Sp-E opening on July 6 was very scratchy at his QTH. Received signals were not very strong and were generally short lived.

Bob runs a Yaesu FT-847 transceiver, 150W and a pair of 15-element Yagis. Around 1852UTC he contacted EA7AJ and heard the station of EA7ERP. He found the Sp-E conditions to be slightly better on the following day. Between 1600-1700UTC on July 7 Bob made s.s.b. contacts with the stations of LZ1JY, LZ1KCO, LZ1UK, LZ1ZP, LZ2KZ (Bulgaria) and 4N1UN (Yugoslavia).

**John Lemay G4ZTR**, also in Essex, mentions that at his QTH the opening was also very sporadic! Signals were up and

● Hope he was insured!



down and the openings were generally too short to complete a contact. He briefly heard the stations of IZ4ANL, LZ1QI, SV1EN, YU1OK but did manage to contact LZ1KWT, LZ2KCO and YU1HFG.

Although Sp-E propagation was not very good in Essex it was excellent in other parts of England with, for example, the station of **Paul Pasquet G4RRR** (IO80) making a total of 41 contacts.

**Claudio Maracci I4XCC** (JN63) reports contacting 22 stations throughout England, Scotland and Ireland during the Sp-E opening on July 7. There were QSOs made with stations in locator squares IO51, IO53, IO62, IO63, IO70, IO80, IO85, IO86 and IO90.

**Reg Woolley G8VHI** (Northamptonshire IO82) also managed to work some good DX during the opening on July 7. He runs a Yaesu FT-847 transceiver, 50W and a pair of 14-element Cushcraft Yagis. Between 1527-1757UTC his s.s.b. contacts included EA2GFB, EB3DYS, EA6VQ, EB6ALB, I4XCC, IC8FAX, LZ1KCO (2375km), LZ2ZP (2250km) and SV2DCD (2195km). During this event he also heard the stations of EA/F6GE/P, EA3TI, EA6IB, EA6SA and IZ0BEE/O. Reg also mentions catching other Sp-E openings, working EW6FS (Belarus Republic) on July 3, HA0MK on July 4 and EA7RZ on July 6.

## EUROPEAN FIELD DAY

**David Cawley EI4IX** (Co. Mayo IO53) remarked that the Sp-E opening on July 7 coincided with the European v.h.f. Field Day contest. He mentions that at times during the opening the s.s.b. calling frequency, 144.300MHz, would be quiet but a tune around the band would turn up a single DX station with rock crushing signals. At other times though the band would sound like 14MHz with many stations all crammed in within a few kHz of the calling frequency.

Running an Icom IC-746 transceiver, 100W and a 17-element M-Squared Yagi David reports making 36 contacts, with 12 stations being over the magic 2000km mark. Among the DX worked on the 144MHz band were the stations of I8MPO (JN70) his best DX at 2306km, IS0/IW2MXY (JN40), S51DX (JN71), TK5HW (JN41) and 9A6V (JN74).

Later in the evening the station of EI5FK alerted David EI4IX to a tropo opening to the north coast of Spain. He beamed that way and was very pleased to work the station of CT1FOH/P (IM59) over a 1548km path. A great day with three new countries, Corsica (TK), Portugal (CT) and Sardinia (IS0) in the log book.

**Christo Minchev LZ1DP** reports that his club station LZ1KWT were active during the v.h.f. Field Day contest on the 144, 430 and 1296MHz bands. They operated from the top of a mountain (KN32) at 1600M a.s.l.

On 144MHz the group were using a Yaesu FT-736R transceiver, an 800W amplifier and two DJ9BV long Yagis. Christo

informs me that they were very happy to participate in the excellent Sp-E opening on July 7. Between 1614-1758UTC they made 77 Sp-E contacts with stations located in England, Jersey, Belgium, France, Germany, Netherlands and Spain. The UK contacts included the stations of G0KPW, G1EWY, G1HWU, G1HWY, G3BNE, G3JHM, G3LTF, G3YVR, G4AEP, G4APL, G4FUF, G4SWX, G4ZTR G6LEU, G7RAU, M1DNJ and GJ0JFY.

**Philip G0ISW** (Cumbria IO84) mentions that he has been operating mobile on the 50MHz band using an Icom IC-706 transceiver running 50W into a Comet vertical antenna. Operating as GM0ISW/M from the Isle of Arran (IO75) he made many contacts via Sp-E with stations located throughout Europe.

On Philip's return from Isle of Arran on July 7 he was very pleased to catch the 144MHz Sp-E opening. Running an Icom IC-746 transceiver, 50W and a Create log-periodic antenna he worked the stations of EB6ALB and EA6VQ.

**Gabriel Sampol Duran EA6VQ** (Balearic Is. JM17) mentions that although he missed the first 45 minutes or so of the opening on July 7 he did manage to make some good contacts before the event faded out. Between 1600-1759UTC he made s.s.b. QSOs with the stations of G4AEP (IO91), G6YIN (IO93), G8BNE (IO94), G8VHI (IO92), G8WXU (JO01), M1AIX (IO83) and M1DGW (IO95).

Gabriel also made some long distance contacts into Scotland working the stations of GM0WDF (IO75) 1860km, GM3WOJ (IO77) 2070km, GM0EFT (IO86) 1920km, GM0HJN (IO87) 2075km and GM4OGI (IO85) at 1882km. The best DX of the day was with the station of GM8LFB (IO88) over a path of 2135km.

Surprisingly **Jim Rabbits GM8LFB** (Caithness IO88) only runs 10W output from a Trio TR9000 transceiver into a vertical colinear antenna. As well as working EA6VQ Jim also contacted EA3TR (JN11) at 1900km and heard EA3DJA and EA6IB (JM09). He also worked F6HLP (IN94) in the Sp-E opening on July 4. This shows just how effective the ionospheric Sp-E propagation mode can be when conditions are right.

Another Scottish station **Nick Shaxted GM4OGI** (Stirlingshire IO85) mentioned making 11 s.s.b. contacts during opening. Between 1539-1755UTC he worked EA3DHR, EA3DUY, EA3EZG, EA3GFB, EA6SA, EA6VQ, EB6ALB, F6KKH/P, F8CH and I4XCC. His best DX of the event was with I8QLS over a path of 2121km.

The next Sp-E opening occurred one week later on July 14 between 1630-1730UTC. It was mainly restricted to stations located on the south and east coasts of England and didn't appear to be very extensive. Among the stations reported on the 144MHz band were U5YM, UR5BAE and US5CCO (Ukraine) and YU3IO.

## JUST LIKE AN HF CONTEST!

**Vladimir Shuplyakov RX3QFM** (Russia KO91) reports that an opening on July 27 was just like being in an h.f. contest! Between 1718-1804UTC he made 51 s.s.b. QSOs mainly with stations located in Germany and The Netherlands.

However at 1851UTC Vladimir did manage to work the station of **John Regnault G4SWX** (JO02) with 59 signals bothways over a 2531km path. Very little else was worked from the UK although G4SWX did spot UT2AM (KN70) and G4FUF found UA3EEN (KO82) at 2400km.

Another Sp-E event occurred on the following evening, July 28, with stations in England, Wales and Northern Ireland working into south-east Europe (I, LZ, OK, YO, YU) between 1700-1840UTC. At my QTH s.s.b. contacts were made with I0AKP, YO2CCB, YO3DMU and YO7AQF all in a brief four minute opening between 1833-1837UTC.

The distance to the Romanian stations was around 2400km. Stations in Scotland appeared to get into the action from around 1830UTC for about 30 minutes or so with contacts being made into Austria, Germany and Switzerland.

David Cawley EI4IX reports two events during the evening of July 28. In the first one between 1653-1726UTC he contacted 16 Italian stations, ten QSOs being over 2000km. His best DX ever, IZ8DWL (JM88) at 2559km, occurred when he was running just 50W following a tropo contact with a station in Wales.

The next opening between 1836-1853UTC was very geographically selective. A nearby station EI8IP (IO63) with an e.m.e. (moonbounce) capable station heard nothing. David however made a further ten contacts with stations in Germany (DL) and Poland (SP).

The final Sp-E event during the period was reported on July 30. Contacts were made between 1800-1845UTC from southern and central England to stations in the Mediterranean region. Some of the DX worked on the 144MHz band included the stations of IS0GQX (Sardinia), 9H1CG, 9H1EE and 9H1ET (Malta).

## DEADLINES

That's it again for another month. Next time around I'm taking a look at meteor scatter propagation and in particular the Leonids shower which is predicted to produce exceptional results in November.

I'll also be taking a look at a new data mode, WSJT, specifically written for meteor scatter usage. Please forward any news, views, comments or photographs to the address and by the date given at the top of the column.

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

*73 David G4ASR*

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Kenwood TR-8400	+ PSU, 70cm	£149.00
Alinco DX-70TH	HF + 6m multimode	£499.00
Icom PS-85	PSU	£189.00
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REPORTS, INFORMATION AND PHOTOGRAPHS TO ME PLEASE BY THE 15TH OF EACH MONTH.

**M**y recent holiday operation from Rhodes as SV5/GW0VSW was bought to an abrupt end on the fifth day. At the time I had made just over 100 contacts from EU-001 despite poor band conditions.

High static noise made reception difficult when I could operate and a number of overhead power lines did not help the situation. My antenna was attached low down on what I thought was another holiday apartment. However, it turned out to be a private home and the owner was none too happy when he discovered my half-size G5RV supported by his drainpipe!

The result was a very angry owner shouting down at me from his roof accompanied by a local policeman. Despite attempts to apologise and remove the antenna, the police advised me in no uncertain terms that I should close down.

A visit to the local police station followed with copies of my passport and Amateur Radio licence. I have not heard anything since, fingers crossed!

I was amazed that the G5RV was discovered because it was low down on the roof and could not be seen from the road below. There may have been a TVI problem, which led the owner to try and trace the cause.

My holiday location, Lindos, was very nice but cannot be recommended as a good Amateur Radio location. Planning restrictions and those power lines make the erection of antennas very difficult.

If any of you are planning some holiday activity, please ensure you know exactly who owns the property you are using for your operation and that you get permission to use it. I obviously had not and paid the price!



● It's in here somewhere! - George Woods G3LPT's fractal antenna (see text).

## DISCREET ANTENNA

**George Woods G3LPT**, Bury St. Edmunds, Suffolk sent in some photographs of a fractal antenna he has constructed in the garden. You will all know from the *PW* Listening Watch that George is a keen and active 28MHz DXer, especially using n.b.f.m.

George decided to try building the fractal antenna after reading the article in *Antennas in Action*, *PW* November 1999. Using garden netting to support the wire the vertical antenna is suspended from a convenient tree. George is

very pleased with the antenna and says "It's suitable for r.f. and clematis growing! The antenna is very discreet, works well for both local QSOs and DX!"

## YOUR REPORTS

It looks like conditions on all h.f. bands have been very poor according to the logs received this month. High noise levels made the 3.5MHz band unusable most of the time with contacts outside Europe on 7MHz almost impossible. However, despite this our reporters

(Libya), JH4FUF (Japan), JW/DJ3KR (Svalbard), 9Q5BQ (Zaire), HK6KKK (Columbia) and PY7ZY (Brazil).

Also spending some time on this band was Mike G3SUK who worked UT2EA (Ukraine) and 9K2RA (Kuwait) at 1630UTC followed by CU3EJ (Azores) EU175 at 2105, TA3ET (Turkey) 2107, PY7HW/MM off the coast of Brazil near Salvador 2155 and SV2FPU/P (Greece - Skyros Is) EU060 at 2158UTC.

On to 21MHz now and the PSK31 of Robin GW3ZCF who found conditions "rather

## CARL MASON GW0VSW TELLS THE TALES OF HIS HOLIDAY EXPLOITS AND ROUNDS UP YOUR BAND REPORTS.

have still managed to 'dig out' some DX.

First off this month is **Mike Baker G3SUK**, Stowmarket, Suffolk. Mike used his IC-746, Carolina Windom antenna and 100W island chasing on 14MHz. Contacts using s.s.b. include 8S4C/P (Sweden - Soderman Island) EU-177 at 0754UTC followed later by

IM0/IK4VET (Italy - Maddalena Archipelago) EU-041 and LA9VDA/P (Norway - Nordoyane) EU-056 around 1820UTC. Glad to hear your holiday went well Mike.

Here in South Wales, **Robin Trebilcock GW3ZCF**, Bishopston near Swansea used his IC-775 and 50W to a 40m horizontal loop late evening around 2330UTC to reach LU3OK (Argentina), PY4KS (Brazil), UA9CQR (Asiatic Russia) and ZP4KFX (Paraguay) using PSK31. One c.w. contact was made with JW/OK1FBH (Svalbard) at 1340UTC.

All c.w. man **Ted Trowell G2HKU**, Isle of Sheppy, Kent used his Ten-Tec Omni 5 and

HF6 Butternut vertical at 2100UTC to work HS4BPQ (Thailand) and JT1BH (Mongolia) in between hospital visits and gardening! I hope you are now feeling better Ted?

## THE 18 & 21MHZ BANDS

On 18MHz Ted found conditions slightly better, especially in the early evening around 1900UTC. Contacts on this band include 5A1A

disappointing at times" but still worked 3B8/G0WZM (Mauritius) 0939, YC0UTC (Indonesia) 1407, TT8JE (Chad) 1534, ZS6RVG (South Africa) 1557, VP2VE (British Virgin Islands) 2348, FK8GX (New Caledonia) 2223 and HP3XBH (Panama) at 2238UTC.

Ted G2HKU heard few DX stations on this band. Best DX included contacts with JT1BH (Mongolia) 0900, JG3KIV (Japan) and JY9NX (Jordan) at 1500 followed by YC0LND (Indonesia) 1800, CX3EU (Uruguay) 2100 and 5A1A (Libya) at 2110UTC. Ted also managed one QRP contact with FR5FD (Reunion) at 1500UTC using an IC-721 and 5W to a G5RV antenna.

## THE 28MHZ BAND

The 28MHz band was not at its best this month and all our reporters struggled to make any contacts. It's interesting though, that those contacts made were all in South America. Mike G3SUK lists s.s.b. QSOs with PY2VA (Brazil) 2059 and CE2SQE (Chile) at 2102UTC. Robin GW3ZCF managed LU3FT (Argentina) at 1551 using PSK31 and Ted G2HKU used c.w. to work LU1DZ (Argentina) at 1100 followed later by PY2OW (Brazil) at 1505UTC.

## SIGNING OFF

It is clear that, despite mediocre conditions, our reporters have still managed to dig out a good deal of DX on the h.f. bands. It just goes to show what can be done when propagation is less than reliable. Thanks to you all and keep up the good work.

*73. Carl GW0VSW*

# KEYBOARD COMMS

BY ROGER COOKE G3LDI

TEL: (01508) 570278

E-MAIL: rcooke@g3ldi.freemove.co.uk

PACKET: G3LDI @ GB7LDI

Once again the contest season is upon us. Contesting using RTTY is more popular than ever, despite the decline in our hobby. Listen during any RTTY contest and you will find it difficult to locate a clear 5Hz anywhere!

For the stalwart contester this all means lots of activity and mega points, but for the newcomer to the contest scene, it can be very daunting so here a few pointers to help make it a fun event!

\* An overview of your station and operating position is essential. Make sure all the equipment is working; all antennas work well and that your desk is clear of clutter. Place pens, pencils, logbook and so on in the proper place. Test all the gear on each band before the contest starts. Load the computer with the contest program and check it works!

\* Know the rules of the contest and read them thoroughly before the event. Have a set of rules printed out and to hand, just in case!

\* Organise breaks according to propagation if possible and not forgetting family commitments. Make sure you have drinks close by and some nibbles too, but NOT near the computer keyboard, this can be fatal.

\* Have a rest before the contest, a walk in the garden is ideal. Put the telephone answering machine on, disturbances like this cost lots of points!

If you cannot operate a 48 or 24 hour contest, consider one of the short period contests, the Sprints. These are similar to the AFS CW contest, just four hours of concentrated operating.

The only disadvantage of the North American one is that it runs from 0000-0400hrs and that, together with the band restrictions, puts the emphasis on 3.5, 7 and 14MHz. It is good fun and there are some very nice awards to be won.

**North American Sprint CW/SSB/RTTY Rules**  
(Revised 5 October 2000)

1. **Eligibility:** Any licensed Radio Amateur may enter.

2. **Object:** To work as many North American stations (and/or other stations if you

are in North America) as possible during the contest.

3. **Entry Classification:** Single operator only. Use of helpers or spotting nets is prohibited.

4. **Contest periods:**

**February 2001 Contests:**

SSB: 0000 – 0400z 4 February 2001

CW: 0000Z – 0400z 11 February 2001

RTTY: 0000Z – 0400z, 11 March 2001

**September 2001 Contests:**

CW: 0000-0400z 9 September 2001

SSB: 0000Z-0400z 16 September 2001

RTTY: 0000Z-0400z 14 October 2001

These are entirely separate four-hour Sprints. An entrant may submit scores for one or more Sprints, but he may not combine his scores. Note that the c.w. Sprint is first in September and second in February.

5. **Mode:** c.w. only in c.w. Sprints, Phone only in Phone Sprints, RTTY only in RTTY Sprints.

6. **Bands:** 3.5, 7 and 14MHz only. Suggested frequencies are around 3.540, 7.040 and 14.040MHz on c.w.; 3.850, 7.225 and 14.275MHz on Phone; and 3.580, 7.080 and 14.080MHz on RTTY. You may work the same station once per band.

**Note:** For RTTY only, the same station can be worked multiple times provided three contacts separate the contact in both logs, regardless of band.

7. **Exchange:** To have a valid exchange, you must send all of the following information: the other station's call, your call, your serial number, your name and your location (state, province, or country). For example:

N6TR DE K7GM 154 RICK NC K  
K7GM NR 122 TREE OR DE N6TR K

## KEYBOARD SET-UP

Here are some hints for keyboard set-up for the NCJ RTTY SPRINT contests. Official rules,

results, and records can be found at: [www.ncjweb.com](http://www.ncjweb.com). Here's some useful advice from **Jeff K1AM**:

"This contest is not as difficult as it appears to be but the proper exchange sequence is very important. If you use the correct sequence this contest is great fun for all participants.

The bottom line is that if you call CQ and make a QSO you **have** to move after that QSO

---

## THIS MONTH ROGER COOKE G3LDI CONCENTRATES ON CONTESTING AND HAS SOME POSITIVE PACKET NEWS.

---

(it doesn't matter if someone else is calling you, get the hell off the freq, at least 5kHz to call CQ or at least 1kHz to answer a CQ.

You **never** under any circumstances make more than one QSO without moving if you call CQ, and you **never** make more than two QSOs on the same freq without moving if you are Searching & Pouncing (because after your S&P QSO you now have in a sense become a CQing station and can only make one more QSO on that frequency before you have to move. If you remember this you're off to a good start.

My recommendation for function keys would be F1-F4 for CQ MODE and F5-F8 for S&P MODE. use the HOME key to capture call signs and put the mouse away. It's so much easier than trying to hit a moving target.

Here are my recommendations for function key set-up:

**F1-F4 CQ Mode:**

F1 = cq int cq int de <11> <11>

F2 = <1> <11> <14> <14> name state/or province/or country

F3 = TU

F4 = de <11> <11>

Note: please **don't** use DE between <1> and <11> in F2, you don't want that call sign highlighted as that station will have to QSY.

**F5-F8 S&P Mode:**

F5 = de <11> <11>

F6 = <1> <14> <14> name state/or province/or country DE <11>

F7 = (open to suggestions)  
 F8 = cq int cq int de <11> <11> cq int cq  
 int de <11> <11>

Note: **do** use "de" in f6 before <11>  
 F8 is used for a long CQ and not a function for S&P mode. You don't really need this key.

If you're S&P'ing you call the guy with F5, send your exchange with F6. If no-one calls you when you finish the exchange then go to the CQ Mode keys hit F1 (to call CQ) and when someone answers **please** use the F2 key and NOT F6.

You will at some time during the contest need to ask for a repeat. I will set my function keys in the same order as the exchange is sent. My recommendation for repeat keys are:

- SHIFT F1 = Pse nr agn
- SHIFT F2 = Pse name agn
- SHIFT F3 = Pse state agn (the VE's will know what you mean)
- SHIFT F5 = <14> <14> <14>
- SHIFT F6 = "ur name"
- SHIFT F7 = "ur state/province/country"

## ARTS WW RTTY CONTEST

Now for details of the JARTS WW RTTY Contest which is sponsored by JARTS (President: JA1ACB) and supported by Japanese *CQ Magazine* (Ref: JH1BIH). It takes place on the third full weekend in October.

1. **Contest Period:** 0000UTC Sat 20 to 2400UTC Sun 21 2000 (48hrs). No off periods required.
2. **Bands:** 3.5, 7, 14, 12, and 28MHz  
 JA RTTY BAND SEGMENTS: 3.5MHz 3.520-3.525MHz note!  
 7MHz 7.025-7.040MHz  
 14MHz 14.070-14.112MHz  
 21MHz 21.070-21.125MHz  
 28MHz 28.070-28.150MHz
3. **Mode:** Baudot (RTTY) only.
4. **Operator Classes:**
  - A) Single Operator, All band
  - B) Multi-Operator, All band, (Multi TX Permitted)
  - C) SWL, All band
5. **Message Exchange:** RST + Operator's age (00 acceptable for YL and XYL). Multi-op stations must send 99 as operator age.
6. **QSO Points:** Two (2) points for QSO within your own continent. Three (3) points for QSO outside your own continent.
7. **Multiplier:**
  - A) Each DXCC country except JAW/VE/VK Mainland
  - B) Each call area in JAW/VE/VK

\* Each multiplier is counted only once per band.  
 \* You can count your own country or call area as a multiplier.
8. **Final Score:** Total QSO points x total multipliers. (Same for s.w.l.s)
9. **Awards:** First place plaques to top winner in all three classes. First through fifth place certificates, all three classes in each continent. Special award for 16th from last, in all three classes.  
 Note: Awards will be only be issued, based on 20 or more participants in each class.

**10. Logs and Summary:** The logs to contain: BAND, DATE/TIME UTC, CALLSIGN, RST/AGE sent and received, MULTIPLIERS, and POINTS claimed. Any entry making more than 200 QSOs must submit duplicate check sheet. Use separate log sheets for each band, and include a Summary Sheet showing the scoring, class, your call, name and address.

Multi-Op stations please include names and call signs of all ops. Log sheets and Summary sheets are available from Contest Manager, JH1BIH.  
**11. Deadline:** Logs must be received by 31 December 2001 and mailed to: **JARTS Contest Manager, Hiroshi Aihara, JH1BIH, 1-29 Honcho, 4 Shiki Saitama 353-0004 JAPAN.**

## LONG LIVE PACKET!

The good news is that operators are returning to the packet network. They are probably fed up with all the flashing stars, animated scenes that take forever to load, only to end up reading text. The packet network has none of these fancy things, but lots of text and lots of it interesting and informative text too!

I've also noticed an increase in the Satgate traffic over the last few months, something I am very pleased to see. The times in passage for mail on that system is very comparable to E-mail and Amateur traffic at least uses our frequency spectrum.

This phenomenon has also been noted in VK. According to the Australian Amateur Packet Radio Association (AAPRA) *Digital Radio News*, their network is improving and they are surviving financially too. Here in Norwich we have yet to see an improvement in our financial situation, but at least there have been no closures of the BBS as yet.

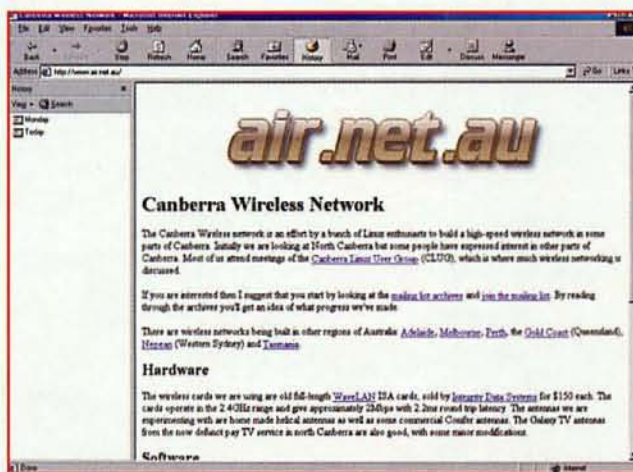
The two BBS' operating in the Norwich area have been doing so since 1983 and have every intention of carrying on. The Internet should be seen as an addition to the digital scene rather than as a replacement. Using both is possible and can complement each other.

The original drive that we had to develop the network has died to some extent and the problem is money. With a dwindling packet population, there is less money and less development, an obvious conclusion.

In Germany they are not allowed to connect their packet network to the Internet so they have developed a very nice packet network, the envy of most. As **Barry**

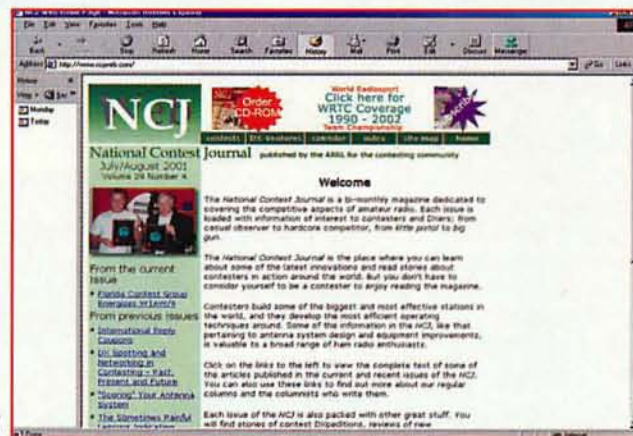
VK2AAB, states in the AAPRA magazine, "The packet network in Germany is unique. So is the rule that they cannot connect to the Internet".

It has been muted that BBS abandon RF



forwarding altogether in favour of a central server on the Internet. This would be set up such that all BBS in the world connect to this central server to upload and download traffic.

Personally, I am not in favour, but there may be variations on this theme that could serve as 'worm-holes'. After all, we have



made use of such linking in the past. The Lonny link is one such commercial facility we made use of until a couple of years ago, when the use was withdrawn. Let me know what you think.

## HIGH SPEED AGAIN

We still talk and dream about the high-speed backbone and I have mentioned this before, but it really is worth mentioning yet again. Slovenia can do it, why not us?

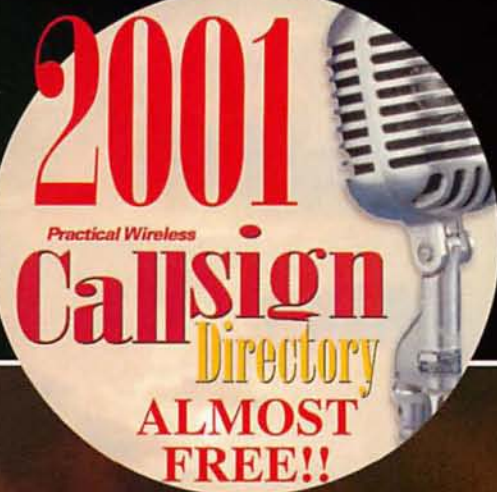
For point to point, 23 and 13cm are ideal. There is sufficient bandwidth, and the Slovenian gear is all home-brew. Their backbone network runs at 1.2288Mbps and seems to be working well. Wonder how that competes with 1200bds? Take a look at:

[www.hamradio.si/hid.html](http://www.hamradio.si/hid.html)

That's all for this month so until next time happy keyboarding!

*Roger G3LD9*

# Coming Next Month



If you're thinking about buying a callsign directory, look out for our very special offer in next month's issue. We'll be giving away a CD containing the very latest list of UK and Eire callsigns all in a database that will be searchable on any field. We're providing the data for nothing - all we're going to charge for is the cost of production and post & packing.

## TWO WAYS TO BUY

We've just bought the latest up to date data from the Radiocommunications Agency and recieved the latest Irish listings (courtesy of the IRTS) and there are two ways you'll be able to get it with your November issue of PW.

**1**

WH Smith have agreed to distribute the CD through their chain of stores. It will be cover mounted on all the copies of PW on their shelves and all you have to do is pay for it at the till. The CD will cost **£1** so that means the November issue of PW will cost you **£3.75** if you buy it in a branch of **WH Smith**.

**2**

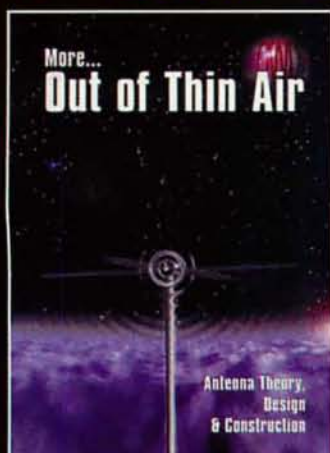
If you buy your PW from a different shop, it will **not** have the cover mounted CD but it will be at the normal price of **£2.75**. There will, however, be a card for you to complete if you want the CD and all you'll have to do is send it back to us along with **£2** to cover post & packing and we'll send you the CD.

If you have a subscription, your copy will not contain the CD but you will be given the opportunity to buy it for the concessionary price of **£1**.

## That's it - it couldn't be easier!

If you want a CD containing a fully searchable database of the latest UK and Eire callsigns for **£1**, simply buy the November issue of PW in any branch of WH Smith for **£3.75**. Or buy your copy from any other newsagent for **£2.75**, return the form and the CD will cost you just **£2**. If you don't want the CD, simply make sure you don't buy your copy from WH Smith and you won't get the CD nor will you have to pay any more for your magazine.

# bonus items on the CD



**.pdf versions of More Out of Thin Air, Practical Power Supplies and a repeat of last year's 'Interactive' magazine, crammed full of useful information!**



The November issue will be on sale on **Thursday, October 11** and it is expected to sell out earlier than usual. You can avoid being disappointed by placing a firm order with your newsagent **now!**

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ADI	AR-146 2m FM 50W MOBILE	£130.00	KENWOOD	SP-430 LOUDSPEAKER	£40.00	SML	SWR-25 SWR & POWER METER	£20.00
AKD	4001 4m TRANSCEIVER	£130.00	KENWOOD	SP-950 LOUDSPEAKER	£90.00	SOMMERKAMP	FT290R 2m MULTI-MODE TRANSCEIVER	£180.00
AKD	6001 6m FM TRANSCEIVER	£135.00	KENWOOD	TH-25E HANDY TRANSCEIVER	£49.00	SSB ELECTRONICS	LT-23 23cms TRANSVERTER	£450.00
ALINCO	DJ-G1 HANDY TRANSCEIVER	£120.00	KENWOOD	TH-47E HANDY TRANSCEIVER	£100.00	ST3 HEADPHONES	DELUXE HEADPHONES	£45.00
ALINCO	DJ-G5EY DUAL BAND HANDY	£199.00	KENWOOD	TH-79E HANDY TRANSCEIVER	£189.00	STANDARD	AX-700E WIDE BAND RECEIVER - BASE	
ALINCO	DJ-X1 RECEIVER	£90.00	KENWOOD	TH-D7E 2m / 70cms HAND HELD BUILT-IN TNC		SYNCRON	PS-1220VU 20 AMP POWER SUPPLY	£60.00
ALINCO	DJ-X10 WIDE BAND RECEIVER	£275.00	KENWOOD	TL-120 100W LOW DRIVE HF AMPLIFIER	£150.00	TAGRA	22AMP POWER SUPPLY	£20.00
ALINCO	DR-150E 2M 50W MOBILE TRANSCEIVER	£140.00	KENWOOD	TL-922 HF LINEAR AMP 1kw (AS NEW!)	£999.00	TIMEWAVE	DSP-599ZX TOP OF THE RANGE DSP UNIT	£250.00
ALINCO	DR-M06 6M FM TRANSCEIVER	£140.00	KENWOOD	TM-251E MOBILE TRANSCEIVER	£140.00	TIMEWAVE	DSP-9+	£125.00
ALINCO	EDX-1 ATU	£140.00	KENWOOD	TM-255E 2m MULTI-MODE MOBILE TRANSCEIVER	£400.00	TOKYO HY-POWER	HL-166V 6m 160W LINEAR AMPLIFIER	£175.00
AMERITRON	AL-1500 1.5KW AMPLIFIER	£1,499.00	KENWOOD	TM-45E 70CM MULTIMODE MOBILE TRANSCEIVER	£495.00	TOKYO HY-POWER	HL-30V 2m and 25W AMPLIFIER	£75.00
AOR	AR-3030 HF / VHF RECEIVER Inc converter VHF	£450.00	KENWOOD	TM-45E 70CM MULTIMODE MOBILE TRANSCEIVER	£495.00	TOKYO HY-POWER	HL-37V LINEAR AMPLIFIER	£60.00
AOR	AR-3030 HF RECEIVER	£399.00	KENWOOD	TM-D700E 270 DUALBAND APRS Built-in TNC TRANSCEIVER	£375.00	TONNA	7000E TERMINAL	£130.00
AOR	AR-7030 HF RECEIVER	£550.00	KENWOOD	TM-V7E MOBILE TRANSCEIVER	£290.00	TRIO	TR-2300 2M PORTABLE TRANSCEIVER	£60.00
AOR	AR-7030+HF RECEIVER (With AM Filter, Optical Encoder)	£650.00	KENWOOD	TR-9000 2m MULTIMODE MOBILE TRANSCEIVER	£240.00	TRIO	TR-9130 2M ALL MODE TRANSCEIVER	£250.00
AOR	AR-8000 WIDE BAND RECEIVER	£199.00	KENWOOD	TS-120 HF SOLID STATE MOBILE	£225.00	TRIO	TS-90SAT HF TRANSCEIVER	£750.00
AOR	AR-8200 mk1 WIDE BAND RECEIVER	£230.00	KENWOOD	TS-430 HF BASE / MOBILE INCLUDING FM	£375.00	WELZ	AC-38M 200W MOBILE MATCHING NETWORK	£50.00
BEARCAT	UBC-860XLT SCANNER	£120.00	KENWOOD	TS-450AT HF TRANSCEIVER	£600.00	WELZ	SP-15M SWR & POWER METER	£20.00
BEARCAT	UBC-9000XT RECEIVER	£199.00	KENWOOD	TS-50S SMALL HF MOBILE 100W	£425.00	WELZ	FC-102 1.2KW ATU WITH 4 WAY SWITCHING UNIT	
BNOS	LP-50 50MHz 50 Watt AMPLIFIER	£99.00	KENWOOD	TS-570D HF/DSP/ATU MOBILE-BASE TRANSCEIVER	£650.00	YAESU	FC-20 AUTO ANTENNA TUNER FOR 847/FT100	
DAIWA	CN-1001 AUTO ANTENNA TUNER	£140.00	KENWOOD	TS-570D HF/DSP/ATU MOBILE-BASE TRANSCEIVER	£650.00	YAESU	FC-757AT FULLY AUTOMATIC ATU	£180.00
DAIWA	CN-518 1KW AUTO ATU	£199.00	KENWOOD	TS-570D HF/DSP/ATU MOBILE-BASE TRANSCEIVER	£650.00	YAESU	FC-902 ATU 500W	£140.00
DAIWA	NS-660P SWR & PWR MTR	£40.00	KENWOOD	TS-570D HF/DSP/ATU MOBILE-BASE TRANSCEIVER	£650.00	YAESU	FEX-767-2M 2m MODULE for the FT-767GX	£140.00
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DAIWA	CN-630 SWR & PWR MTR	£40.00	KENWOOD	TS-570D HF/DSP/ATU MOBILE-BASE TRANSCEIVER	£650.00	YAESU	FEX-767-70CM 70cms MODULE for the FT-767GX	
DATONG	FL3 FILTER	£75.00	KENWOOD	TS-711E 2m MULTIMODE BASE TRANSCEIVER	£399.00	YAESU	FL-2100Z HF AMPLIFIER	£450.00
DATONG	D-70 MORSE TUNER	£25.00	KENWOOD	TS-790E 2m / 70cm MULTIMODE BASE TRANSCEIVER	£799.00	YAESU	FP-107E POWER SUPPLY	£120.00
DATONG	AUTOMATIC RF SPEECH PROCESSOR	£80.00	KENWOOD	TS-811E 70cms MULTIMODE BASE TRANSCEIVER	£399.00	YAESU	FP700 POWER SUPPLY	£100.00
DATONG	FL-2 FILTER	£60.00	KENWOOD	TS-830S HF TRANSCEIVER	£325.00	YAESU	FP-757HD HEAVY DUTY POWER SUPPLY	£120.00
DAIWA	PS-304 PSU 20amp	£75.00	KENWOOD	TS-850AT HF BUILT IN ATU EXCELLENT TRANSCEIVER	£800.00	YAESU	FRG-100 HF RECEIVER	£300.00
DRAKE	R7 HF RECEIVER	£550.00	KENWOOD	TS-870AT HF/DSP-IF-100W BUILT IN ATU TRANSCEIVER	£999.00	YAESU	FRG-7 HF RECEIVER	£99.00
DRAKE	SW-2 HF RECEIVER	£299.00	KENWOOD	TS-940SAT HF BASE STATION BUILT IN ATU (CLASSIC!)	£700.00	YAESU	FRG-7700 HF RECEIVER	£220.00
FAIRHAVEN	RD-500 WIDE BAND RECEIVER	£575.00	KENWOOD	TS-950SD HF/150W DSP BASE TRANSCEIVER	£1,100.00	YAESU	FRG-9600 60-905MHz All mode Receiver	£199.00
HARRIS	RF-590 TOP CLASS RECEIVER	£2,250.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-1000MK5 200W DSP HF TRANSCEIVER	£2,600.00
HOWES	CTUS ANTENNA TUNER UNIT	£20.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-1000MP AC HF BASE DSP TRANSCEIVER(Late serial no)	£1,550.00
ICOM	AT-180 AUTOMATIC ANTENNA TUNER	£200.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-1000MP DC BASE TRANSCEIVER	£1,200.00
ICOM	FL-100 500Hz CW NARROW FILTER	£40.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-101 TRANSCEIVER MINT!	£200.00
ICOM	FL-222 1.8kHz SSB NARROW FILTER	£100.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-101ZDmk111 HF TRANSCEIVER inc FM	£375.00
ICOM	FL-223 1.9kHz SSB FILTER	£40.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-23R HANDY TRANSCEIVER	£89.00
ICOM	FL-52A 500Hz CW NARROW FILTER	£99.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-2500M MOBILE TRANSCEIVER	£190.00
ICOM	FL-53A 250Hz CW FILTER	£100.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-290Rmk1 2m ALL MODE TRANSCEIVER	£180.00
ICOM	IC-2100H 2m MOBILE TRANSCEIVER	£150.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-290Rmk1 Includes Bracket + FL-2010 LINEAR AMP	
ICOM	IC-229H 2M / 50W / FM Mobile TRANSCEIVER	£130.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-290Rmk11 MOBILE 2M MULTIMODE	£275.00
ICOM	IC-229H FM TRANSCEIVER	£140.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-3000M 2m 70W MOBILE TRANSCEIVER	£175.00
ICOM	IC-251 2m MULTIMODE TRANSCEIVER	£295.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-41R HANDY TRANSCEIVER	£120.00
ICOM	IC-275E 25W TRANSCEIVER	£525.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-470 DUALBAND HANDIE TRANSCEIVER	£150.00
ICOM	IC-290 2m MULTIMODE TRANSCEIVER	£240.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-690MK11 6M MULTIMODE MOBILE	£295.00
ICOM	IC-2KL AUTOMATIC LINEAR AMPLIFIER + PSU	£999.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-7 MINT! CONDITION	£275.00
ICOM	IC-490E 70cms MULTIMODE MOBILE TRANSCEIVER	£265.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-726R 2 / 70 / 6m TRANSCEIVER	£575.00
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ICOM	IC-728 HF TRANSCEIVER	£399.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-736R 2m / 70cm TRANSCEIVER	£650.00
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ICOM	IC-765 HF BASE TRANSCEIVER	£950.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-757MK1GX HF TRANSCEIVER	£375.00
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ICOM	IC-810 HANDY WIDE BAND RECEIVER	£199.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-790R 70CM MULTIMODE MOBILE TRANSCEIVER	
ICOM	IC-R7000 RECEIVER MINT! CONDITION	£550.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-7B HF 50 W MOBILE TRANSCEIVER	£199.00
ICOM	IC-R72 RECEIVER	£399.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-80C 0-30MHz COMMERCIAL TRANSCEIVER	
ICOM	IC-R75 HF / 6m RECEIVER	£475.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-840 HF MOBILE TRANSCEIVER	£450.00
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ICOM	IC-78E HANDY TRANSCEIVER	£175.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	FT-900AT HF / DETACHABLE FRONT BUILT IN ATU	
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ICOM	UT-102 VOICE SYNTHESIZER	£20.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	SP-5 LOUDSPEAKER Including Audio Filters	£100.00
ICOM	UT-84 TONE SQUELCH UNIT	£25.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	SP-767 LOUDSPEAKER Including Audio Filters	£80.00
ICOM	AT-120 ANTENNA TUNER	£200.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	SP-8 LOUDSPEAKER Including Audio Filters	£100.00
ICOM	IC-R71E RECEIVER	£399.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	SP-980 LOUDSPEAKER Including Audio Filters	£55.00
ICOM	NRD-535 HF RECEIVER	£600.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	VX-5R 2 / 70 / 6 HANDIE 5W	£220.00
JRC	KAM PLUS TNC	£220.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	XF-114SN 2KHz SSB FILTER	£60.00
KANTRONICS	KP-3 TNL	£89.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	YO-100 SCOPE VERY RARE!	£150.00
KANTRONICS	AT-250 AUTOMATIC ANTENNA TUNER	£200.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	YAESU	YS-60 SWR METER 1.6 - 60MHz	£30.00
KENWOOD	AT-50 AUTO ANTENNA TUNER	£175.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00	ZETAGI	B-132 10 / 11m LINEAR AMPLIFIER, MAINS	£60.00
KENWOOD	AT-50 AUTO ATU	£175.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
KENWOOD	DFC-230 FREQUENCY CONTROLLER	£70.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
KENWOOD	PS-20 10A POWER SUPPLY FITS TR-9130 ETC	£55.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
KENWOOD	PS-50 POWER SUPPLY	£145.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
KENWOOD	PS-52 POWER SUPPLY	£150.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
KENWOOD	SM-220 SCOPE 830 etc	£200.00	KENWOOD	TS-950SD HF/150W MOSFET DSP TRANSCEIVER	£1,749.00			
			KENWOOD	SP-120 LOUDSPEAKER	£30.00			
			KENWOOD	SP-430 LOUDSPEAKER	£40.00			
			KENWOOD	SP-950 LOUDSPEAKER	£90.00			
			KENWOOD	TH-25E HANDY TRANSCEIVER	£49.00			
			KENWOOD	TH-47E HANDY TRANSCEIVER	£100.00			
			KENWOOD	TH-79E HANDY TRANSCEIVER	£189.00			
			KENWOOD	TH-D7E 2m / 70cms HAND HELD BUILT-IN TNC				
			KENWOOD	TL-120 100W LOW DRIVE HF AMPLIFIER	£150.00			
			KENWOOD	TL-922 HF LINEAR AMP 1kw (AS NEW!)	£999.00			
			KENWOOD	TM-251E MOBILE TRANSCEIVER	£140.00			
			KENWOOD	TM-255E 2m MULTI-MODE MOBILE TRANSCEIVER	£400.00			
			KENWOOD	TM-45E 70CM MULTIMODE MOBILE TRANSCEIVER	£495.00			
			KENWOOD	TM-D700E 270 DUALBAND APRS Built-in TNC TRANSCEIVER	£375.00			
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**B**rian Davies GW4KAZ, chairman of The Arfon Repeater Group, reports: "Following the commissioning of 1.3GHz ATV Repeater GB3TM by the Arfon Repeater Group (Wales) some seven years ago, interest in ATV in the coverage area of GB3TM has greatly increased, which is very encouraging for the hobby in the North Wales area. Derek GW0BCR, one of the GB3TM users has, for some time, been experimenting with video links on the Internet. Derek thought that a natural progression for experimentation would be to link the video and audio from the Internet, through his station onto GB3TM.

"In April, Derek approached the Arfon Repeater Group, presented his proposal, which the group and David GW8PBX, GB3TM's repeater keeper and committee member, fully supported. The result of this was a proposal to the Repeater Management Committee of the RSGB, with an application for a Notice of Variation completed in April 2001.

"We are pleased to announce that on Saturday 7 July 2001 Derek GW0BCR received the Notice of Variation to his licence, as GB3TM-1. This is believed to be the first NOV to be issued for a combined video and audio gateway for a repeater in the UK".

Brian continues: "Experimentation will now continue with the linking of GB3TM through Derek's gateway GB3TM-1. Initially, Derek will be in full control of the gateway and will be responsible for the video and audio transmissions from his station. This is, in essence, similar to the usual video source generated by his station, but switched to an Internet gateway rather than from the local camera at his station. Users of GB3TM will then be able to have a QSO with stations on the Internet, thereby expanding the possibilities to worldwide contacts in video and audio".

Derek has proposed a working window of between 1700 and 1800 local time, each day, for the gateway operation, with a further period, maybe once a month, on GB3TM's activity night on Tuesday each week, so that he can learn and carry out further experimentation with the system. Derek is using Iphone software, and will be on the **Ham Radio** and **RptrLink**, chat rooms, using the call sign **GB3TM-1**. If you have video and

audio access to the above, then a contact through GB3TM on the Isle of Anglesey in North Wales is a possibility.

## SOUTHAMPTON REPEATER

The August In Vision included the plans for an analogue/digital ATV repeater near Southampton on the 2.3GHz band, stating that there was, at the time, no allocation of repeater channels within that band. This simply meant, of course, that no spot

you are keen to start ATV, but are unsure how, post a message here and I am sure plenty.

## REPEATER IN APPLICATION STAGE

Another new repeater that is at the application stage is **GB3YX**. This will be on the 10GHz (3cm) band and co-sited with 24cm ATV repeater **GB3YT** near Bradford, West Yorkshire. The GB3YX repeater will have its input on 10.425GHz and output at 10.24GHz. The 10GHz Amateur (including satellite)

## GRAHAM HANKINS G8EMX OPENS THIS MONTH WITH A COUPLE OF FIRSTS FOR AMATEUR TELEVISION ON THE 1.3 AND 2.3GHZ BANDS.

input/output frequencies had yet been authorised or approved.

So the pioneering spirit of Amateur Radio lives on with the clearance of 2.3GHz ATV repeater GB3VW near Hull, which came on-air in early August. Input is on 2.330GHz and output 2.435GHz. The keeper is **Richard Parkes G7MFO** (who, incidentally, is also the ATV Contests manager for the British Amateur Television Club).

On the BATC's internet Forum (chatroom) Richard says: "I would like to thank the people who helped in getting GB3VW licensed. The repeater came on air in time to coincide with the Hornsea club's 30<sup>th</sup> Anniversary".

**Graham Shirville G3VZV**, who is the Repeater Liaison Officer for the BATC, adds: "This is the very first time that we have been able to get clearance for any 13cm repeaters and another

one, GB3VV at Brighton, is already in the system".

The BATC's Forum is a new development for the club. Designed as a sophisticated ATV 'chatroom', the Forum is accessed via the club's web site <http://www.batc.org.uk> and messages can be read by anyone. The Forum divides ATV into seven topic areas, each subdivided to relevant headings where individual messages can be found. The BATC topic area contains a Beginners questions strand, so if

band in the UK extends from 10 to 10.500GHz – frequencies that can be thought of as truly 'microwave'. At 10GHz and above, coaxial feeder gives way to waveguide, attenuating and impedance matching become a mechanical rather than electrical challenge, antennas become horns, dishes or modified waveguide and propagation tends towards 'line of sight'.

The 'line of sight' limitation has become considerably modified with the increasing ATV on 3cm; at these frequencies signals will bounce between buildings, skim low over surface water, find previously undiscovered ducting paths through the upper atmosphere.

A few members of the BATC had been using 10GHz for many years, but it was perhaps the coming of satellite broadcast TV that put microwave parts onto the surplus market and enabled many more keen Amateurs to dabble with 3cm ATV. Hopefully, I'll have much more about 10GHz next time, but to date there are nine 3cm ATV repeaters in the UK, either operational or proposed. These are:

BG Sedgley	20 Slot Colinear.
DJ Telford	Slotted Waveguide
RV Brighton	Horn
TG Milton Keynes	Slotted Waveguide
XG Bristol	Slotted Waveguide
XT Burton-on-Trent	Slotted Waveguide
XV Eastbourne	20db Horn
XY Hull	Slotted Array.
YX Queensbury	Slotted Waveguide

That's all I have room for this time so until December's issue make sure you keep 'in vision'!

*Graham G8EMX*



● Simple 3cm transmitter, showing Gunn diode modulator, waveguide feeder and horn antenna.

# DX DESTINATION

BY ED TAYLOR G3SQX  
C/O PW EDITORIAL OFFICES  
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STATION APPROACH  
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DORSET BH18 8PW

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There's an irony in Amateur Radio, today's equipment is much smaller than earlier rigs, which typically weigh less than 10kg. They can be carried by hand on to an aircraft and their performance is remarkable. They have revolutionised radio at home and when operating portable.

The same can't be said about antennas! Unfortunately, the laws of physics have remained unchanged.

Despite our tricks and turns, an antenna still has to be a significant fraction of a wavelength to radiate any sort of signal. What's more, an antenna should be as high in the air as possible, say 10m or more.

## THE HEIGHT REPORT

Let's think about v.h.f. first and what antennas to use above 30MHz. It's normal to set up a rotatable beam for each v.h.f. or u.h.f. band. For temporary purposes, rotating by hand is usually satisfactory, so you will need a pole supported by guys with slip-rings.

Of course, higher is better, but a well-chosen location will work very well with a beam only five or six metres high. It's possible to use fairly large arrays, provided you can carry them, see Fig. 1.

It's likely you'll decide on a lightweight pole, assembling the antenna in situ. One or two people can readily raise the pole and you'll be on air in a few minutes.

Several Yagis can be stacked on one support, bearing in mind the separation required to avoid interaction. But beware how quickly an antenna can become unwieldy with over-ambitious beams threatening to topple at any moment. Practice beforehand in your back garden!

With a single beam of modest dimensions, you only need one set of guys for a height of up to about six metres. Unless the wind is expected to be strong, three equally spaced guys will be adequate.

Attach a small crossbar at the bottom, so you can easily rotate the system. A base piece will keep the pole from working its way into the ground as it's rotated.

The set-up for 144MHz used by GW5NF and G4VXE for their forays into the hills of South Wales is shown in Fig. 2. David GM4WLL's article (*PW*, June 2001) gave an interesting description of portable operation. He found that a gentle slope away was very good for DX and that a hill top is not necessary.

An eight-element Yagi on 144MHz was excellent for general work and contests. David was able to erect this on his own, but says it is "not for the faint hearted".

You can become quite expert at putting up

antennas if you try out all the equipment beforehand. Don't make the mistake of using new gear on the day you want to operate, in unfamiliar surroundings. Of course, it's always easier if you can take someone along to help.

For s.s.b. (and c.w.), the mode most used for DX working, horizontal polarisation is used. If you want to use f.m, you would need to mount the antenna vertically. You might be able to switch

over the nearest tree, and start transmitting? Well, you can and I've done that, but it will not be as efficient as it could be.

Firstly, the part of the wire that does most of the radiating is not the end of the wire, rather, it occurs some way down (a quarter of a wavelength from the end, to be precise). So the effective height of the antenna is probably quite low. It's a better idea to get the radiating part of

## THIS TIME ED TAYLOR LOOKS AT THE PROBLEMS OF USING ANTENNAS WHEN TRAVELLING. SO HOW DO YOU PUT A LARGE ANTENNA INTO A SMALL SUITCASE?

between the two if you could twist the beam by using a chair or stepladder.

### THE HF BANDS

Sometimes v.h.f. techniques can be used on the h.f. bands. A beam for 28MHz or (more ambitiously) a 14, 21 and 28MHz tri-bander is possible, with careful planning and a dry run.

On the whole, antennas for the h.f. bands present a real problem. For a start, there are so many of them - it's

the antenna as high as possible and transfer power to it with a feeder.

Secondly, with a random piece of wire, you have no control over the impedance that the antenna will present to the transmitter. Rigs are designed to 'see' an impedance of 50Ω and they don't work as well as the value deviates from this. It's possible to predict fairly accurately what the impedance of a piece of wire will be, but it's probably not going to be 50Ω.

Thirdly, the wire in the tree will most likely not work properly without a good earth connection. Antenna designs all require an earth connection of some sort, but single elements, such as verticals and random wires, require special measures to achieve the appropriate earth system and work properly. A counterpoise wire, laid on the ground or just above it, could help, but there's no substitute for an antenna which is properly thought-out beforehand.

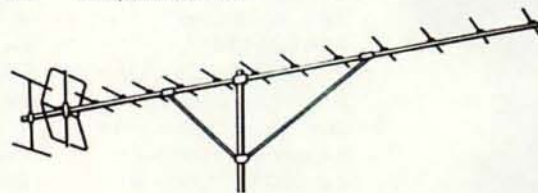


Fig. 1: It's practical to use multi-element beams such as this on v.h.f. and u.h.f.

impractical to take an antenna for each of the nine h.f. bands! When planning your DX holiday, decide which bands you would like to use and whether you can realistically cover them all.

There's no single solution to the question. "What is a good multi-band h.f. antenna"? I'd like to consider some possibilities and suggest factors that will help you to decide. Many of the antennas are also suitable for home station use.

So, what is the problem? In a nutshell, you want to cover as many bands as possible with the minimum amount of lightweight hardware. This means you are likely to be restricted to wire antennas, but that doesn't mean you have to have a puny signal. Some basic theory along with forward planning will stand us in good stead.

So why can't you just throw a piece of wire

### HALF-WAVE DIPOLE

The half-wave dipole is perhaps the single most useful antenna in a Radio Amateur's repertoire. It's simple, effective, and flexible. A half-wave dipole can be put up in minutes and is likely to work first time with minimal adjustment.

On the h.f. bands, the length, as its name implies, is half a wavelength, with an adjustment for the presence of the ground and nearby objects (subtract about 5%). In traditional units, use the formula  $467/f$ , where  $f$  is the frequency in megahertz and the result is in feet.

Any supports can be used for the antenna, see Fig. 3. If they are of different heights, it's not too important. Where the space available is not quite long enough, stretch out the dipole symmetrically and bend the ends down towards the ground. The two halves are connected to the centre and braid

of the coaxial feeder, and an indefinite length of coaxial can be used to connect to the transceiver.

Normally you would make the dipole slightly longer than the formula, and then cut sections off (the same amount each side) until the correct length is achieved. So, how do you know the correct length? You measure the Standing Wave Ratio (SWR), either from the rig itself, or from a separate meter.

An SWR of 1:1 means the impedance is  $50\Omega$ . Transceivers can usually tolerate an SWR of up to 2:1, so as soon as you get between 1.5:1 and 2:1 you should be satisfied.

When you are away from home, you will need to work out a quick way of getting the ends of your antenna up as high as possible. Some people use tennis rackets and fishing lines to help. I'll suggest some other methods for you to try in a future DX Destination, if you have a favourite technique, please let me know.

One of the main advantages of the dipole over a random piece of wire is that it separates the antenna itself from the feedline. The coaxial cable is not involved in radiating a signal, on the

contrary, radiation takes place only from the antenna itself. As long as the dipole is as high as possible, you have maximised the effective overall height.

Therefore it follows that it would normally be undesirable for the outside of the coaxial feeder to radiate, which it may want to do. A straightforward way of preventing this is to use a balun.

At the point where the cable joins the antenna itself, make about half a dozen turns of cable into a coil, around 150-200mm in diameter. Tape up this coil and leave it in place, dangling beneath the dipole.

The choke balun will create enough impedance to reject any Radio Frequency (r.f.) signals which might radiate from the feeder, without affecting the required operation. The word balun means balanced to unbalanced.

So we are taking balanced, or symmetrical device, the antenna, and connecting to an unbalanced feeder, the coaxial cable. This is not the only type of balun, they are also common in feeding v.h.f. and u.h.f. antennas.



● Fig. 2: GW5NF/P shows that v.h.f. antennas don't have to be particularly high for good results.

It's significant that a balun may also reduce the amount of r.f. coming back into the shack, or indeed, being radiated into neighbouring televisions. This could be important if you are operating in a hotel, for example.

## INVERTED VEE

Where there is only one convenient support, the Inverted Vee is a good antenna, see Fig. 4. It's simply a dipole with the center attached to a support (tree, building, pole, etc.).

The best performance is achieved with the antenna as symmetrical as possible, although there's plenty of leeway. The Inverted Vee is less directional than a dipole, but you're only likely to notice this at the higher frequencies (say 14-28MHz).

The angle between the two halves is not critical, but  $90^\circ$  is the lowest reasonable limit. Make sure that the ends are well clear of the ground, so that they cannot be touched by humans or animals as r.f. voltages at the end of a dipole can be high, even when using low power.

The dipole, in straight or Inverted Vee form, is very convenient, but only operates on a single band. An exception is that a 7MHz dipole will work with low SWR on 21MHz, because the impedance of a three half wave antenna is not too far from  $50\Omega$ . Generally speaking, the dipole is a single-band antenna, but, given its convenience and simplicity, you might be satisfied with it for your DX holiday.

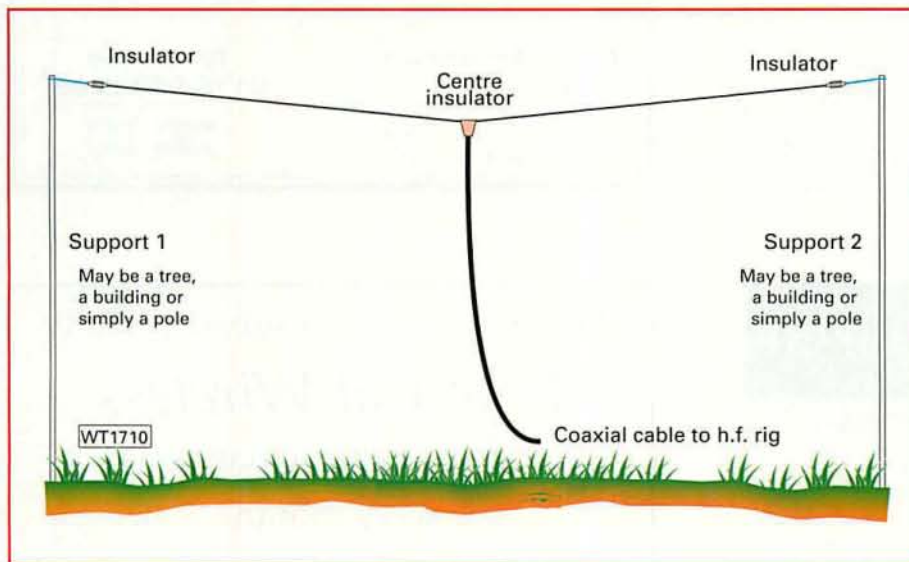
## FINAL WORDS

If you want to read more about antennas, try the *ARRL Antenna Book* or *HF Antennas for all Locations*. Generally speaking, you need to take authors' ideas about home antennas and experiment with them for portable use. There are few antenna descriptions specifically designed for temporary or holiday purposes.

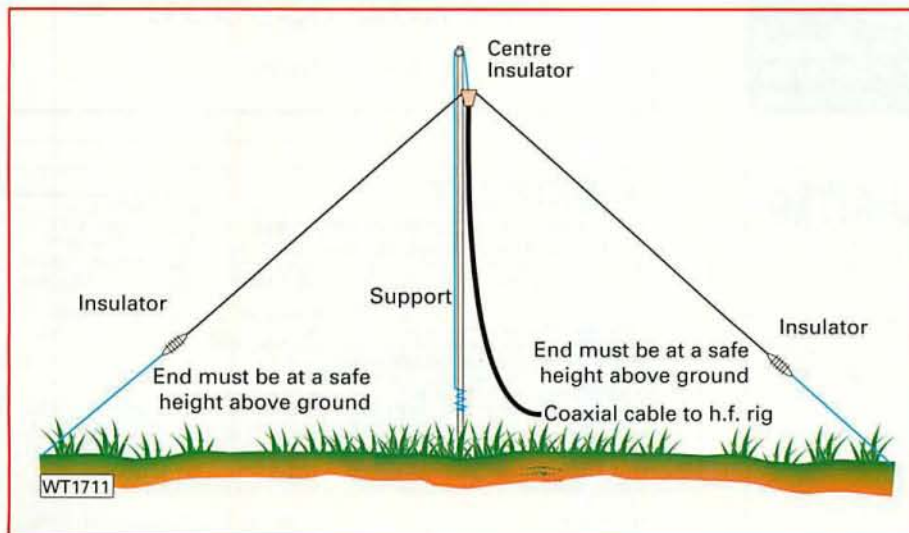
Thanks to GW5NF for permission to his photograph. Next time I'll continue with the topic of h.f. antennas and look at ways of getting on to more than one band.

Write to me at the *PW* offices or E-mail me. The deadline for the January column is the middle of October.

73, Ed G3S2X



● Fig. 3: The half-wave dipole is simple and effective both at home and away.



● Fig. 4: The Inverted Vee dipole takes advantage of a single high support.

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**T**he Voice of Nigeria (VON) is reported to be planning some expansion. Quite ambitious, by the sound of it.

The VON's director general was quoted in a newspaper as saying that to the present range of languages (Hausa, Fulfude, Swahili, French, Arabic, and English) the station will add German and the Nigerian languages Igbo and Yoruba. The repair of three transmitters has improved reception, bringing listeners' letters from as far away as New Zealand. In the past, 7.255, 9.690 and 15.120MHz have been used. Let me know what you can find out.

**Radio Burundi** is back on 6.140MHz it seems. Having been off the air for long periods in recent times, the station appears to be back in business, although as with Nigeria, there is no definite schedule. Anyone got any information to share on this one?

Meanwhile in **Liberia**, Catholic broadcaster **Radio Veritas** has been forced off the air. This happened after the short wave transmitter developed a technical fault. When it was repaired, the Post and

Veritas Asia at PO Box 2642, Quezon City 1186, Philippines or E-mail: [info@radio-veritas.org.ph](mailto:info@radio-veritas.org.ph) or look at the website at [www.radio-veritas.org.ph](http://www.radio-veritas.org.ph)

## BACK IN ROME

Meanwhile, back in Rome, or rather in Vatican City, the **Radio Vaticana** shock-horror-radiation-pollution saga seems to have been resolved. The station was being accused of excessive radiation from its transmitters, which because of urban development, are now close to an area where many people live.

The health of Italian citizens, it was claimed, was being damaged. The Italian government was threatening a court case, which probably would have proved highly embarrassing to the Vatican.

Radio Vaticana uses four 100kW and five powerful 500kW transmitters for short wave at its Santa Maria di Galeria site. They have now brought short wave emissions within the Italian legal limits, by using an antenna located away from built-up areas. But they also run medium wave transmitters with powers ranging from 5 to 600kW.

## RADIO ADJUSTMENT

You can't get far away from the current phase of adjustment in the international radio world. At time of writing, the staff at **Radio Austria International** were still fearing the worst, as funding arrangements were altered yet again, perhaps resulting in no overseas service at all.

In Canada, there were fears from **RCI** people that programming would take a knock from money troubles. In this case, the worry is that the domestic output will be used extensively to replace the specialist overseas programmes. There was at one time a threat that this would happen at the BBC, but this one largely went away.

Will the new management at RCI go down the road of economy by amalgamation? We must wait for a while to find the answer.

The **BBC World Service** shows no sign of relenting in its cut-off of short wave to North America, Australia, New Zealand and the South Pacific, from July 1. As reported last month, **Radio Netherlands** audaciously took over all the BBC's North America frequencies from July 1.

Of course, this couldn't last, but the move was so successful that RNW has added two frequencies to its North America schedule, thus usefully plugging a large gap in coverage. These are marked with an asterisk in this complete North America listing, although this is only valid until 27 October: 0130-0225 on 6.010 (Dutch, Sackville); 0330-0425 on 6.165, 9.590b (Dutch, Bonaire); 0400-0500 on 15.565 (Radio Vlaanderen Internationaal, Bonaire); 0430-0530 on 6.165, 9.590 (English, Bonaire); \*1030-1225 on 5.965 (English, Sackville); \*1430-1625 on 15.220 (English, Sackville); 2130-2225 on 15.155 (Dutch, Bonaire); 2230-2325 & 2330-0026 on 15.565 (RVI, Bonaire) and 2330-0125 on 6.165MHz (English, Bonaire).

It's an ill wind, as they say. Expert opinion seems to be hardening, to say that short wave transmission is always going to be the mainstay of global radio broadcasting, with Internet and other methods being a backup - highly suitable for some, but unable to offer the prime advantages of radio.

They also say, that **information** about broadcasts is best obtained by a system designed to carry information, such as the Internet. Or in print, for instance from the **AIB**. Their *Global Broadcasting Guide* contains the whole range of information for English broadcasts. **AIB, PO Box 4440, Walton CO14 8BX and [www.aib.org.uk](http://www.aib.org.uk)**

## THIS MONTH TOM WALTERS STARTS WITH SOME PROPER WIRELESS-TYPE NEWS AS HE PUTS IT, LEAVING THE MULTIMEDIA STUFF TO THE END.

Telecommunications Ministry refused permission to resume.

The only nationwide radio to be allowed was **Kiss-FM**, owned by the Liberian President, Charles Taylor. Although Radio Veritas continues on f.m. in the capital Monrovia.

**Radio Veritas Asia**, on the other hand, continues to flourish. Based in Quezon City, the station broadcasts in 17 languages (none of them English) for some 25 programme-hours each day. They use three 250 kW transmitters on the frequencies: 6.050, 6.075, 7.170, 7.245, 7.265, 9.505, 9.520, 9.525, 9.530, 9.535, 9.580, 9.610, 9.670, 11.715, 11.730, 11.770, 11.790, 11.795, 11.805, 11.820, 11.850, 15.130, 15.335, 15.410, 15.530 and 17.845MHz. How's that for a complicated list?

They reach well outside Asia, so it's worth exploring, although of course, identification may be a bit tricky. Would you, for instance, recognise Hmong, or Zomi-Chin, or even Filipino? For full information, write to Radio

The Vatican is looking for rebroadcasting arrangements with other countries, with power levels in Italy confined to sufficient levels to reach the first relay. The Italians have compromised too, with help for the re-routing of signals, and limiting further building in the neighbourhood of the transmitter site. So all seems to be well that ends well.

Radio Vaticana's frequencies are: Medium wave (although in light of the above, this may change): 5.27, 1.530 and 1.611MHz. Short wave: 5.880, 6.185, 7.250, 7.305, 7.310, 7.345, 9.585, 9.600, 9.645, 9.660, 9.850, 11.625, 11.715, 11.740, 11.830, 11.910, 13.765, 15.185, 15.570, 15.595, 17.515 and 21.850MHz. Broadcasts are in Arabic, English, Italian, Japanese and various other languages.

Write to Radio Vaticana at: **00120 Vatican City**, or E-mail: [siceng@vaticradio.va](mailto:siceng@vaticradio.va)  
The website can be found at: [www.vaticanradio.org](http://www.vaticanradio.org)

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**Antenna 80-10m (3.5-28MHz) Gap Titan**, vertical centre fed dipole, no tuning or radials needed, great DX performance, includes gap quick-tilt mount, cost new £400, prefer buyer to collect, only, £280 o.n.o. Tel: Worthing (01903) 764599 or E-mail: denzil-roden@lineone.net G3KXF, QTHR.

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**Eagle 6M6** antenna, 6-element for 6m, on 22ft boom, excellent condition, £75. John on (01206) 240700 - evenings please.

**Eddystone 840A** receiver, good working order and condition, £80. G3UIE, Penzance. Tel: (01736) 350885.

**Eddystone EC 958/7 or 7E**, would consider the mark 12 variant. Also required Drake RV7 and RV75. Tony on (01494) 778352 evenings.

**Hewlett Packard** spectrum analyser HP8558B 0-1500MHz, £250. Hewlett Packard test oscillator HPSG50S 1Hz-1MHz, £50. NDS professional satellite receiver CSR820, brand new, £300. PCB pillar drill, £30 - all items plus carriage. Tel: (07881) 914549 - 0700 till 1900.

**Icom 706 MkII**, d.s.p., n.s.s.b. filter, voice synthesiser, mobile kit, never used, mic., boxed, manual, £650. MFJ-259B h.f./v.h.f. analyser, £110. Explorer h.f. amp, 3.5-28MHz, £650. John G4WVP, not QTHR. Tel: Manchester 0161-284 1402.

**Icom 751A** h.f. transceiver, £400. SEM 'Z' Match (unmodified), £45. Kenwood desk mic., MC60A, £60. Diamond CP-5 vertical antenna, £80. Ken G3RFH, Blackpool. Tel: (01253) 407952.

**Icom IC-2340H** 2/70 mobile, as new, boxed, £225. Kenwood TM-731E 2/70 mobile with duplexer, v.g.c., boxed, £150. Neil G7MZL on (01892) 852814 anytime - use answerphone - all calls returned.

**Icom IC-725** transceiver, 100W, all h.f. bands inc. WARCS, p.s.u., mic. and manual, unused since overhaul by Castle Electronics, £350. G3PQP, Birmingham. Tel: 0121-243 6248 anytime.

**Icom IC-T8E** hand-held TXR, transmit on 6m, 2m, 70cm, instruction manual, charger, boxed, excellent condition, 3.5in mag mount, 2m/70cm mobile antenna, £140. details from: M0BDR, QTHR. Tel: (01969) 663313.

**Icom R70** general coverage receiver and Global a.t.u., both in excellent condition, c/w boxes and manuals, £400. Paul, Bury St. Edmunds. Tel: (01284) 764016.

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**Morsum Magnificat** magazines (English), editions 1 to 58, v.g.c., offers? G3KXF, QTHR. Tel: (01903) 764599 or E-mail: denzil-roden@lineone.net

**Pye Westminster**, three crystals, 70MHz, £12. Pye Whitehall a.m./f.m. control box and cable, £25. revex s.w.r./power meter, 1.8-200MHz, 200W, £25. 2m 5-element crossed Yagi, unused, as new, £40. Len GORDV, Kettering. Tel: (01536) 514544.

**Quartz** synthesised communications receiver, Realistic DX-302, 0.01 to 30MHz, a.m., s.s.b., good condition, full working order with manual, £100 o.n.o. Tel: (01223) 246745.

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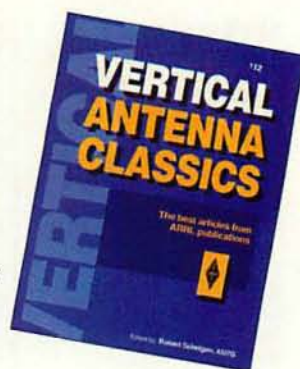
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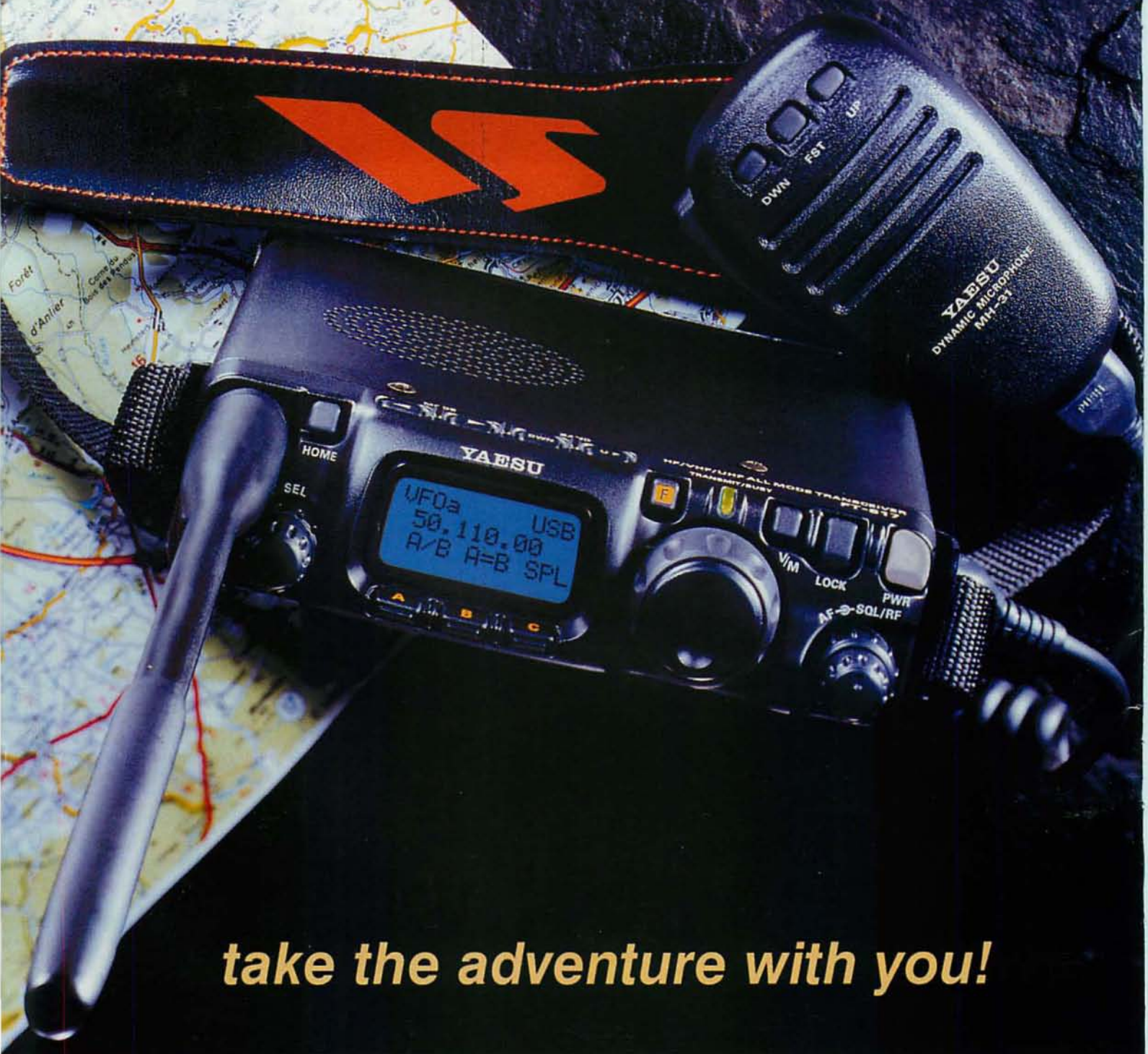
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