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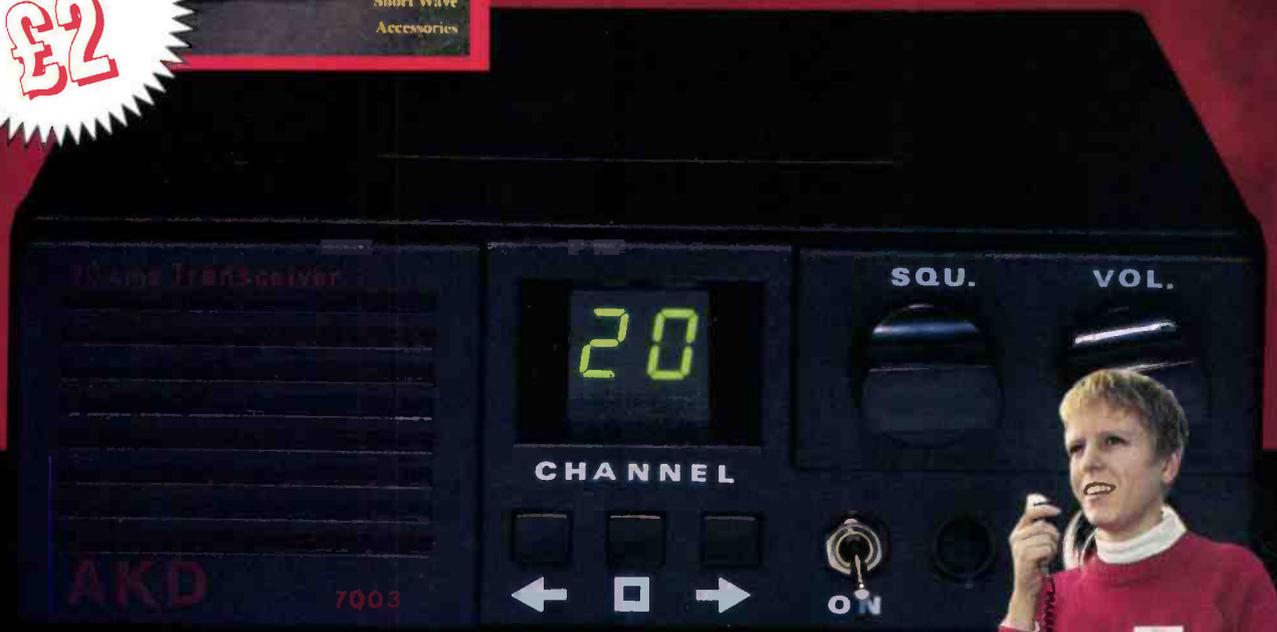
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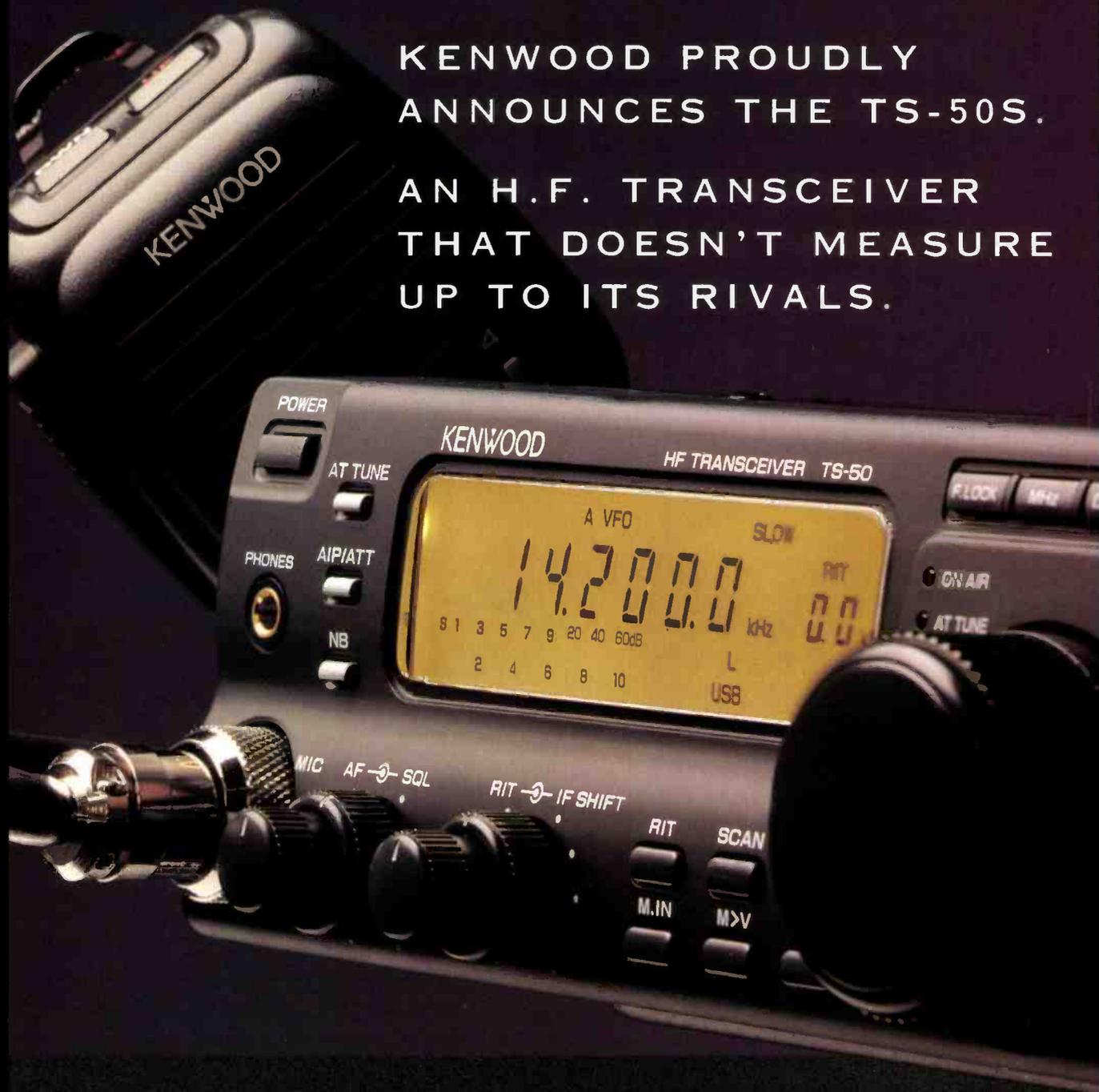
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# practical Wireless

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*Practical Wireless* encourages you to get those tools out and get busy in your shack with a workshop special.

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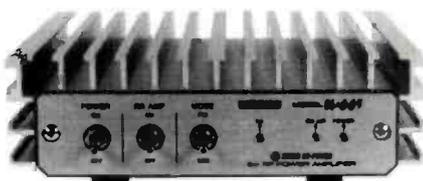
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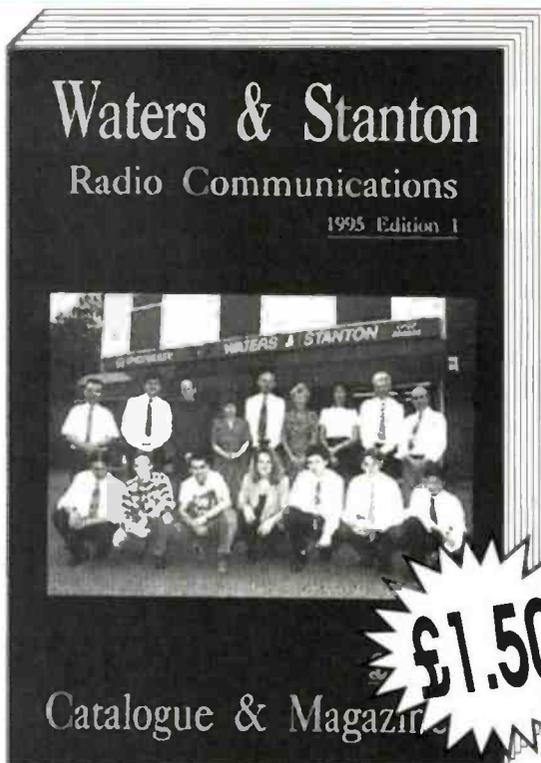
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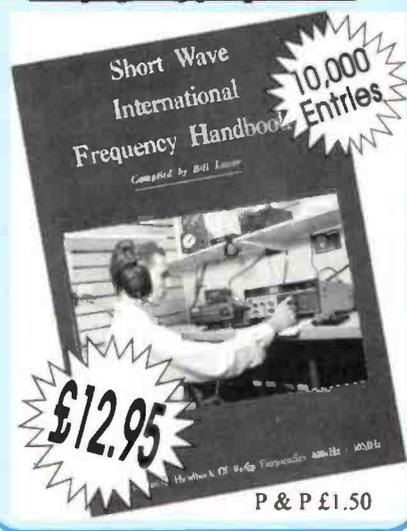


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# EDITOR'S *Keylines*

equipment and had actually talked to pilots on their final approach to an airport.

Even *The Daily Telegraph* (which is in my opinion normally a newspaper known for accurate journalism) reported the incident being caused by an 'pirate radio ham'.

Readers all over the UK wrote in to complain and I had many different press cuttings arrive on my desk. (if you send in a cutting please indicate which newspaper it came from!). As many as possible were followed up but I'm afraid to say that generally speaking journalists insist that 'radio ham' or 'radio amateur' is the term to be used because the journalists involved believe that "this is what the public understand".

One journalist even insisted that he had ensured the hobby was not besmirched because he's used the term 'pirate radio ham'. The fact that amateur radio was not involved and was never even mentioned by the DTI press release did not seem to bother that particular 'journalist'!

Dick Ganderton G8VFN, Editor of *Short Wave Magazine*, Peter Kirby G0TWW (General Manager of the RSGB) and I were busy for several weeks trying to straighten the records with this unwarranted bad publicity. In the end, I wrote to Peter Kirby suggesting that the RSGB and ourselves should approach the Press Complaints Authority to see if we could enter a formal complaint.

My idea is that the Media should be made aware that the hobby of Amateur Radio is in fact recognised by the relevant Geneva Convention. My argument (and complaint) is that the hobby is being grossly misrepresented by the mis-use of the term 'radio ham' or 'radio amateur' when it's used to describe anyone who has obtained and has illegally used equipment to transmit.

The terms 'radio amateur' or 'radio ham' should only be used when the person involved is a Radio Amateur and holds a licence. As far as I'm concerned this is the only way unwarranted bad publicity can be stopped at source.

The ideal solution would be for the Radiocommunications Agency, the RSGB and ourselves to be able to invoke a court injunction on the offending media. They could then be forced to publish a retraction, or better still, check their facts and report accurately (knowing that an injunction is in existence) Unfortunately, we're unlikely to gain such an injunction, but it's a thought surely?

To help the situation Dick Ganderton G8VFN and I have decided to 'do our bit' by formalising the terms we use in *Short Wave Magazine* and *Practical Wireless*. In future we'll be using the term 'licensed radio amateur' to describe someone who holds a legitimate amateur radio licence and callsign.

The term 'short wave listener' will be used to describe anyone who 'listens to' radio transmissions for the sheer fun of it. We hope that our fellow journalists in the media will take notice and will in future at least attempt to provide accurate reports and avoid misleading their readers, viewers or listeners.

*Rob Mannion G3XFD*

I've got to admit it....journalists are generally an ill-informed group of people! I say this because (again) through no fault of our own, amateur radio in the UK has been suffering yet another bout of bad publicity.

The most recent case involving national press coverage involving amateur radio should not have even mentioned our hobby in the story at all. The case involving 'pirate' transmissions was reported in most of the national and many regional (tabloid and broadsheet) newspapers in a very ill informed way.

The latest round of bad publicity involved an incident in the north east of England where some irresponsible idiot had obtained v.h.f.

## SPECIAL PRIZE COMPETITION CORNER - spot The Difference



**WIN The Yeovil 3.5/14MHz Transceiver kit (kindly donated by Walford Electronics) as built and reviewed by Clive Hardy G4SLU in *PW* April 1994 issue.**

In keeping with the DX theme the *PW* team seem to be keen to attract attention by not-quite-aeronautical mobile working. The Editor's navigation is (as usual) out - he was heading for the Eifel Tower - not the Blackpool Tower! There are 12 differences to mark on the right hand version of the cartoon this month, good luck.

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Entries to reach us by Friday 25 November 1994.

COMPETITION CORNER  
NOVEMBER 1994

Send your letters to the editorial offices in Broadstone. They must be original, and not duplicated in any other magazine. We reserve the right to edit or shorten any letter. The views expressed in letters are not necessarily those of *Practical Wireless*.

# RECEIVING You

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## Information On Lowe Receiver

Dear Sir

You were very kind and efficient to send me a review of the Lowe Electronics receiver model HF225.

The article proved to be invaluable in helping me to make the decision to purchase the receiver, and I now look forward to many happy hours of Decode.

May I also congratulate you on two most excellent publications, (*PW* and *SWM*), both of which I purchase on a regular basis. Indeed, my long suffering wife often complains of the many piles of back copies that I tend to hoard in various parts of the house!

The only criticism that I have is the lack of constructional articles. Many people regret that this side of the hobby appears to be in decline. The prospective newcomer to the hobby cannot help but be discouraged from proceeding further by the high cost of the commercial equipment that he or she seems to be expected to purchase.

I know that, over the years, many constructional articles have appeared, but as they seem to be widely scattered, their numbers seem sparse to the occasional reader.

Would it be possible, or indeed desirable, to publish a selection of these back articles in a compendium, as you have done with some of your other topics? I know that the G-QRP Club have done this, and produced a sort of 'Cook Book' of construction projects, many of which I have tried, with great success.

One project I would like to see is a modular-type h.f. receiver, starting with a basic superhet, and gradually building, block by block, to a good quality communications receiver. Most articles I have seen, seem to be either simple receivers (the excellent Sudden, for example) or all-singing, all-dancing synthesised multi-mode transceiver, as appears in *RadCom* on a regular basis.

How about a 1.6 to 30MHz receiver using 10.7 first i.f., and possibly 455kHz 2nd i.f., using standard Toko coils, J. Birkett variable capacitors, Cirkit slow-motion drives, Maplin transistors and Electromail cases? Start with the basic Single conversion superhet, expand the design to include dual conversion. Next add different bandwidth i.f. filters, followed by a product detector. Finally add a.g.c., with manual override and an 'S' meter for good measure. If my knowledge of design techniques was better (a lot better), I would have built it by now!

Once again, thanks for your letter. May your publications go from strength to strength!

**Clive Cosgrif GODZC**  
Lancashire

**Editor's comment:** Clive has some good ideas and I'm pleased to report that we plan to have many more constructional projects in *PW*. In particular, we have a rather special 70MHz project from Mike Rowe G8JVE which will (I've no doubt) appeal to many readers.

## Mobile Microphone Operation

Dear Sir

The requirement for hands-off operation of microphones, etc., whilst driving is regrettably **not** a stipulation of UK law (and Richard Newton GORSN is misinformed, 'The Yaesu FT-2500M Mobile Transceiver', *PW* September 94, page 40).

Rule 43 of the current *Highway Code* advises against holding microphones whilst attempting to drive, and this would be taken into consideration by a court in the event of prosecution or civil action. However, it is **not** law!

Some people are dissatisfied with the situation. I'm one of them, having had several near-misses due to other drivers holding telephones. It was always down to me to take evasive action as the other party couldn't see or had their hands too full to control their vehicle!

So, early in 1991, I corresponded with Douglas French (MP for Gloucester) to support his attempted Private Member's bill which would have made it illegal to hold such devices whilst driving. The bill was defeated! Draw your own conclusions. Meanwhile, we radio amateurs know how to drive safely while operating mobile and should set a good example to less thoughtful road users.

**Dr. Godfrey Manning**  
Middlesex

**Editor's comment:** Godfrey's right to be worried. It's quite alarming to be overtaken by a speeding 'rep' who then answers his car telephone - only to swerve in front of you while trying to do so. They could learn from amateur radio practice!

## Television Interference

Dear Sir

I have been a CB radio operator for some years now. I have finally started studying for the RAE which I hope to sit in December.

I have read *PW* for about a year and have found it to be a well balanced magazine with plenty of interest for those of us at the less experienced end of things.

I was particularly interested to read Ray Petri's article on TVI, as most TVs seem to be particularly susceptible to interference from 27MHz. I have successfully cured all my local TVI problems, but unfortunately, my transmission still causes false triggering of a wireless burglar alarm on the next street, as does any CM/PMR transmission in the immediate vicinity.

The alarm company's engineer arrived, spotted my antenna, blamed me and left without even checking the alarm. It can only be hoped that EMC legislation arrives soon forcing manufacturers to pay more attention to designing protection against r.f.i. into their products as well as all radio transmitter operators cleaning up their outputs.

By the way, the clamp shown in **Fig. 2** on page 31, Tex Swann G1TEX's article 'Antenna Wise Buys' is a standard TV antenna masthead clamp. They can be purchased complete with U-bolts for about a £1 at any TV antenna installation shop.

Many thanks for a well balanced magazine.  
**Alexander S. Wood (hopefully soon to be G7???)**  
Cleveland

**Editor's reply:** The EMC problem surrounds us Alexander! Thank you for your comments and best of luck with your RAE and thanks for the tip on where the antenna clamp G1TEX described can be obtained.

## Antenna Wise Buys - G1TEX

Dear Sir

Reading through the August issue of *PW* I came across the article written by Tex Swann G1TEX on page 31 regarding antenna bits and pieces.

In Malta, unfortunately, we do not have rallies or car boot sales. But we might have something better, we have access to radio and TV antenna manufacturers. These provide us with many antenna parts including boom lengths, elements, boxes, bracket and clips, etc.

In Malta, there are about four antenna manufacturers, and they are only too willing to help us Radio Hams. So, if any of your readers happen to be on holiday in Malta and would like to obtain bits and pieces, I will be only too happy to direct them to the sources.

Thank you for a very informative magazine.

**Charles Tedesco Triccas 9H5DV**  
Malta GC

**Editor's comment:** Charles sent a package of colourful maps and information on Malta along with his letter. If any reader is thinking of having a holiday on this friendly group of islands (we mustn't forget Gozo - the 'garden' of Malta!) we'll gladly pass them on.

## Club Equipment Test

**Dear Sir**

I will always give credit to a manufacturer or supplier, where appropriate. However, I reserve the right to do the opposite as well!

Recently, we held a somewhat unusual evening at the club. Ten receivers/transceivers were lined up behind a curtain, the members not being aware of what the equipments were. Five minutes were allocated to each rig, in order to demonstrate its abilities, or otherwise, on a.m., s.s.b. and c.w.

The same antenna and speaker were used for each equipment and they all ran 'barefoot' in the sense that no filters were switched in. The rigs ranged from a 50 year old AR88D to a TS-980 with everything in between! The outcome was that a receiver produced by one of our major sales outlets came out on top, to the surprise of all present.

As a result of this, a letter was sent to the producer, complimenting them on the result. A few weeks went by and no reply. A telephone call produced the same result. The consequence is that almost a 100 members are aware that there is not much point in expecting a response from a firm that seems to be spending all its time opening new shops, whilst not bothering to answer the mail.

When will they ever learn?

**Tony Tuite GW0NSR  
Clwyd**

**Editor's reply: It's a pity Tony, that following such an interesting experiment that it wasn't backed up by a response from the manufacturer!**

## Subscription Services Ltd.

**Dear Sir**

I would like to back up Mr A. W. Sharp G0JIA/ON9CAS's letter published in the September edition of *PW*.

The renewal date of my Validation Document is on August 15 each year. My direct debit was entered on my British Bank Account on July 25 1994. As I realised on August 18 that I was not in possession of a current Validation Document, and, living very close to the French Border, would not be fully in order in going to France with my amateur equipment installed in my car.

I telephoned the RA on August 18. I was answered most helpfully, by a lady who said, "There is a delay, but I had your Document in my hands today, and will pull it out and send it onto you, without the booklet which will be sent later". The conversation was kept very brief, keeping the cost of my overseas call to a minimum. Furthermore, my Validation Document arrived in the mail today (24.08.94). I would be very pleased if the helpful lady could learn of my satisfaction with her service through your pages.

I have also obtained and kept every copy of *PW* since May 1985. I have a standing order with a local newsagent, because when I obtained it by subscription, there were problems of distribution, which I believe were on the Belgian side.

**Bill Abrahams G0MEU/ON9CGB  
Belgium**

**Dear Sir**

I am writing to you concerning Subscription Services Ltd. having read the letter from A. W. Sharp in the September issue of *PW*.

There are two points which concern me. The first is that the current letter accompanying renewal notice states 'Licence renewal notices will now be sent to Licensees G six weeks before the annual renewal date of a licence'.

I received mine on July 17 with a renewal date of August 18. I raised this with the SSL who said that this is an approximate time and that the notices are a courtesy. I view the six week statement as what might be termed a 'service ? standard' and am surprised that they are not keeping to it particularly as the penalties for a late renewal are now to be treated as a new applicant with all that that entails.

Secondly, this letter goes on to state 'This will enable the Validation Document to be produced and despatched on the renewal date of your licence'. I also raised this point with the SSL who state that "licences cannot be sent out before this unless specifically requested, as that this is the procedure".

I feel strongly that the licensee should have received the Validation Document before the renewal date providing that they have renewed in good time (the renewal notice states "please allow 21 days for the receipt of your new licence").

The holder of other legally required documents (for example) Driving licence, Shotgun certificate, etc.) is required to have them to show, if required. A cheque stub is not sufficient.

In an extreme case, I fear that an amateur awaiting renewal and found transmitting, could have their equipment seized pending enquiries. Surely the procedure can be changed?

**John Sones G8JBK  
Colchester**

## Unattended ATV Operation

**Dear Sir**

In 'Focal Point' (August *PW*), Andy Emmerson G8PTH casts doubt on the RSGB's *Radio Communications* article about the dangers of unattended ATV operation.

As the author of the message, I can assure *PW* readers that the article is genuine. Indeed, I provided you with similar copy. I can also assure you that I was properly briefed.

The article stated that 'ATV stations operating in the 1.3GHz band have been left running unattended.....and have caused severe interference.....to air traffic control radars'. I felt this made it quite clear that the offenders were amateurs and were operating within the amateur band but outside the terms of their licence conditions.

There is no "conspiracy theory meaning" here at all, just a need to draw a real problem to the attention of amateurs who share a band with a prime user which is a safety of life service. Having dealt appropriately with the individual offenders, we felt it important to warn amateurs generally, although of course we recognise that the great majority of amateurs do observe their licence conditions.

The reason why

interference was caused in these cases was because the transmitters were centred on or close to the air traffic control radars own centre frequency, and were within close enough geographical range.

Tracing and closedown was indeed hampered by them being un-notified and unattended. This would not be the case with contest stations as we would know the location of a main station's address and operation from a temporary location, which would not anyway be unattended, has, in accordance with clause 7(3) of the Terms, Provisions and limitations booklet, BR68, to be advised to the local Agency District Manager or the station has to give its location.

I hope this clarifies the immediate position. For the longer term, the location of CAA radars is published information and we intend to work with the CAA and the amateur community so as to provide technical information to enable individual amateurs operating television stations in the band 1240-1325MHz to be better informed about frequency use.

**C. H. Richards  
Radio Investigation  
Service  
Radiocommunications  
Agency**

## Amplifier Project For VHF

**Dear Sir**

I consider a v.h.f. linear amplifier project a very worthwhile one. Although I think a transistorised version would be more popular than a valved version.

I've been looking for such a home-brew project for a long time as my pocket's aren't as deep as they used to be! Congratulations on a good magazine, I especially like the 'Antenna Workshop' section.

**Dave Riddick  
GOLZW  
Hertfordshire**

## Can You Help?

Mr David Collins has a **Koyo** radio without an instruction manual. Features of the radio include: an operating panel below a lift up lid world map, dail light, power tone, b.f.o. and covers l.w., m.w., s.w.1, s.w.2, s.w.3, s.w.4, v.h.f., etc. If you have or know where Mr Collins can get hold of some information on his Koyo radio then write to him at **71 Liverpool Road, Angel, Islington, London N1 0RH.**

# NEWS '94

## Citizens' Band Antenna Restrictions Relaxed

The Radiocommunications Agency have recently informed *PW* of a major relaxation to the restrictions on CB radio antennas. As from September 9 1994, in addition to the antennas already permitted for use with 26-27MHz CB Equipment CB Licence holders will be able to use certain  $\lambda/2$  and  $5\lambda/8$  monopole and  $\lambda/2$  dipole antennas.

This new antenna initiative now allows a "single vertical omnidirectional monopole antenna, the driven element of which does not exceed 6.95m in length or 55mm in diameter, including any loading coils and association circuitry and casings, but excluding any plates, radial wires or rods designed solely to act as a ground plane or counterpoise, which are located at the physical base of the antenna and a single vertical omnidirectional dipole antenna not exceeding 5.55m in length. Because of the potential length of these antennas, they are not recommended for mobile use. The use of loop, Yagi or any type of beam antenna remains prohibited."

All enquiries relating to the new laws for CB antennas should be made to the **Radiocommunications Agency on 071-215 5961.**

## Vine Antennas

Vine Antenna Products Limited, based in Powys, Wales is a new company run by Ron Stone GW3YDX, who is well known among contesters and DXers world-wide.

The Vine range includes everything from N-type connectors to 3-element Yagis for 3.5MHz. Popular brands such as KLM, Cushcraft, HyGain, Force 12 are available from Vine Antenna Products, as are rotators from Emoto, Create and Yaesu. For more information please contact **Ron Stone on (0691) 831111.**

## Pocket Diary Publication

The Radio Society of Great Britain have recently announced the publication of their 1995 *Radio Amateur & SWL Diary*. The diary has been specifically designed with the needs of the radio amateur and s.w.l. in mind.

The one-week-to-view diary includes rally dates, Q codes, Bandplans, contest dates, useful formulae and RSGB Committee details, as well as articles submitted by well known amateurs. Each diary contains a free draw ticket giving the chance to win an IC-728 h.f. all band transceiver worth over £850.

The *RSGB Radio Amateur & SWL Diary* is available for £4.20 plus £1 P&P (UK), £1.75 P&P (overseas) from the *PW* Book Service.

Send in your news, photographs and product information to **Donna Vincent at the editorial offices in Broadstone.**

## Wood And Douglas Are Back!

Chris Rees G3TUX of the QRP Component Company has arranged with Alan Wood to 'relaunch' the extensive range of Wood And Douglas d.i.y. amateur radio products.

The range of products will include receiver preamplifiers, f.m./c.w. transmitters and power amplifiers covering the 50, 70, 144 and 432MHz bands. There will also be a wide range of accessories available. For more information on stocks and literature for Wood And Douglas amateur radio products contact **The QRP Component Company, PO Box 88, Haslemere, Surrey GU27 2RF. Tel: (0428) 641771, FAX: (0428) 661794.**

## Draw Winner

The winner of the Free Prize Draw as featured in the September issue of *PW* is **Mr M. Worrall from Bolton, Lancs.** Mr Worrall wins an MFJ-105B 24 hour 10in diameter quartz wall clock as donated by Waters & Stanton Electronics.

If you place an order for books from this issue your name will be automatically be entered into this month's Free Prize Draw, giving you the chance to win £50! (See Book

Service pages for further details).

So don't delay and order those books you've been thinking about today!

## Can You Help

Mr S. Tranmer Lumb is seeking a wiring diagram and any other relevant information for a **Garrard Music Recovery Module MRM101 (circa 1970).** Please contact him at **6 Nab Wood Grove, Shipley BD18 4HS. Tel: (0274) 592216.**

## Mansfield First

The *PW* Newsdesk has received news of what is believed to be the first 144MHz amateur radio contact between Britain and Algeria. **Mick Cowley G0GAG** of Mansfield, Nottinghamshire made contact with an Algerian station while taking part in the Practical Wireless 144MHz QRP Contest.

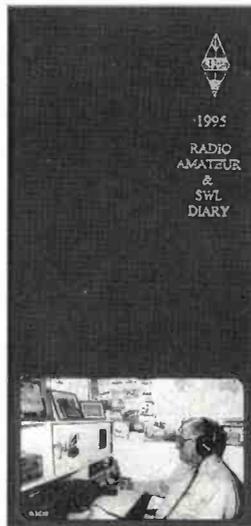
Mick was operating with only 3W of power from his IC-251E fitted with a MuTek front-end amplifier when he contacted 7X2DS in Algeria (JM16SP) over a distance of 1845km at 1058UTC. The contact took place from the Mansfield Amateur Radio Society's contest site on June 19 1994.

The Editorial team would like to pass on their congratulations to Mick in succeeding in making the unusual contact and also for his final result which resulted in him winning the *PW* 144MHz QRP Contest.

## Late News

Just as this issue of *PW* was going to press we received the news that as from October 1 ICS Electronics are no longer the distributors for AEA Products.

**Martin Lynch** and **Siskin Electronics** have been appointed as distributors for the complete AEA range. For more information contact either **Martin Lynch on 081-566 1120** or **Siskin Electronics on (0703) 207155.**

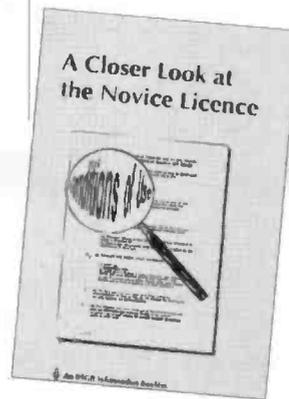
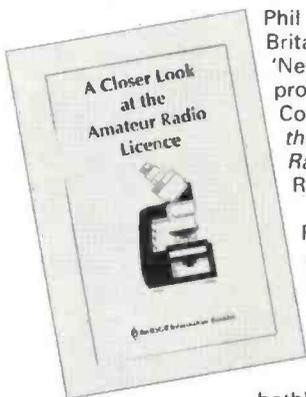


## Training & Education

Phil Mayer G0KKL Secretary for the Radio Society of Great Britain's Training and Education Committee has sent the 'Newsdesk' copies of two new booklets that have been produced to help amateurs understand the Licence Conditions. The A5 size booklets, entitled *A Closer Look at the Novice Licence* and *A Closer Look at the Amateur Radio Licence* have been approved by the Radiocommunications Agency.

Both publications are designed to be used in conjunction with the Amateur Radio (Novice) Licence (A) or (B) Terms, Provisions and Limitations Booklet BR68a/N and the Amateur Radio Licence (A) or (B) Terms, Provisions and Limitations Booklet BR68. The second booklet which covers the Amateur Radio Licence should be of particular interest to anyone who is a newcomer to radio or for those studying for part 1 of the Radio Amateurs Examination.

To obtain copies of *A Closer Look at the Novice Licence* and a *A Closer Look at the Amateur Radio Licence* you should send an A5 s.a.e. (25p stamp for one 38p for both) to **W. G. Turner GW6MNC, 37 Danybryn Avenue, Radyr, Cardiff CF4 8DD.**



## Cobwebbs Spiders and Flytraps

The North Yorkshire based company S.R.W. Communications Ltd., have added three new antennas to their range. These are the G3PTW CobWebb, the Spider and the Flytrap.

The G3PTW CobWebb MkII antenna covers the 14, 18, 21, 24 and 28MHz band as before, measures about 2.5 x 2.5m and produces omnidirectional horizontal polarisation, therefore removing the need for a rotator. The construction method involves a single horizontal glass reinforced plastics (g.r.p) cross (with 1.83m arms) which supports the five separate 'T' matched full size half wave dipoles, each dipole is bent into a 'square halo' shape. All the resonators are pre-assembled so that adjustments are not needed and the horizontal polarisation and co-axial choke balun help to keep interference problems to a minimum. The cost of the CobWebb is £169 inclusive.



The S.R.W. transmission line transformer trap

The G3PTW Spider and Flytrap antennas have been designed to cover the 1.8, 3.5, 7 and 10MHz bands and can be used to

complement the CobWebb. This means that all nine h.f. bands can be covered with just two 50Ω coaxial cable feeders, one for the CobWebb and one for the Spider or Flytrap.

The Spider antenna has eight legs and is made up of four parallel connected dipoles with a common ferrite choke balun and 50Ω coaxial feed. The Flytrap has two legs and uses very low loss transmission line transformer traps to enable operation on all four bands using the minimum amount of wire. Prices for the Spider and Flytrap range from £79 to £137.

For more details on the CobWebb, Spider and Flytraps contact **S.R.W. Communications Ltd., Astrid House, The Green, Swinton, Malton, North Yorkshire YO17 0SY. Tel: (0653) 697513.**

## Radio Equipment Stolen

While on holiday in the UK at the end of July, **Mirek Holik OK2VZE** from the Czech Republic had various items stolen including his bicycle, tent, sleeping bag, passport and his **Alinco 144MHz hand-held transceiver DJ-51E serial no. 0006860**. All the items were taken

while Mirek was in the Newton Street, area of Manchester.

The Alinco hand-held was only two weeks old and Mirek had paid 6000 Czech Crowns for it, which when you consider that the average wage for a skilled worker in the Czech Republic is about 5000 Crowns per month, is a great loss for him.

Anyone who can offer information to help recover the stolen Alinco DJ-51E should contact **Newton Street Police Station, Manchester CID** and quote the crime reference number **0277985T/94**.

## Satellite Construction Fund

The Radio Amateur Satellite Organisation of the United Kingdom (AMSAT-UK) are currently seeking donations for the AMSAT-UK Phase 3D Satellite Construction Fund. Phase 3D will be the next major satellite to be launched for Amateur Radio and will be the largest, most complex and most expensive Amateur Radio satellite ever built.

The Phase 3D Satellite Construction Fund has been set-up to enable those with an interest to donate money for use in the construction and launching of the satellite which is costing in the region of five million dollars. It's reported that to date only 5% of the AMSAT membership have donated to the fund which is very short of the necessary cash to get Phase 3D built, launched and maintained.

The launch date for Phase 3D is **July 16 1996**. If the date is missed it will mean that there will be no replacement satellite for OSCAR13 which re-enters the atmosphere

in early 1996 and that it will be quite a while before another launch date will be possible.

If you would like to get involved in helping with this next stage in new communication technology or want to find out more about becoming a member of AMSAT-UK contact **Ron Broadbent G3AAJ, 94 Herongate Road, Wanstead Park, London E12 5EQ. Tel: 081-989 6741, FAX: 081-989 3430.**

Existing members will be interested to know that for any reasonable donation they make to AMSAT-UK in addition to the membership donation will result in them receiving a 1995 Organizer Pocket Diary.

## Competition Winners

### January 1994 Spot The Difference

**Winner:** H. E. Ritchie, Heswall, Wirral.

**Runner-up:** James K. McDonald, Galashiels, Selkirkshire.

### February 1994 Wordsearch

**Winner:** Mr V. Saunderson, Liskeard, Cornwall.

**Runners-up:** Mr D. Bradley, Lancing, West Sussex; Mr D. Johnson, Worthing, West Sussex; Mr E. West, Calne, Wiltshire; Mr E. McPheat, G40EC, Bridgewater, Somerset; Mr E. Owen, Reigate, Surrey.

### March 1994 Spot The Difference

**Winner:** Thomas Blest, Littleover, Derby.

**Runner-up:** Mr R. McClade, Blaydon, Tyne & Wear.

### April 1994 Wordsearch

**Winner:** Mr C. G. Millican, Blyth, Northumberland.

**Runner-up:** R. Cuncliffe, Co. Tyrone, Northern Ireland.

### May 1994 Spot The Difference

**Winner:** J. Savage, Kersley, Coventry.

**Runner-up:** P. Smith, Maidstone, Kent.

### June 1994 Wordsearch

**Winner:** T. Grice, Wallsend, Tyne & Wear.

**Runner-up:** A. A. Corps, South Benfleet, Essex.

### July 1994 Spot The Difference

**Winner:** Vanden Eynde F, Wilsele, Belgium.

**Runner-up:** John Davison, Liverpool.

### August 1994

#### Wordsearch

**Winners:** G. M. Parkin, Newstead Village, Nottingham; Neville Brown, Tamworth, Staffordshire; Neil Plant, Wallingford, Oxon; Mr R. F. Cottingham, Aylesford, Kent; S. Thompson, St. Austell, Cornwall.

#### Live '94 Competition

**Winners:** G. J. Hughes, East Sussex; Ivor Nathan, London; E. Thomas, Gwynedd; Carol Holdway, Cambs; S. J. McKinnon, West Midlands; A. G. Morrison, Wolverhampton; A. J. Duck, Gwent; John Simpson, Carlisle; Ian Brothwell, Nottingham; B. C. Ballam, Devon; Roger Rousseau, Ireland; T. G. Jones, Swansea; D. W. Allan, West Yorkshire; Kevin Smith, Surrey; T. W. Foster, Northants; K. P. Blanshard, Herts; J. Sones, Colchester; Jon Hall, Marlow; D. A. McKenzie, London; D. Heywood, London.

## Scout Stations

On July 16 six amateur radio Novice Licensees manned the special event station GB2BS at the 1994 National Scout Band Station. The station was operated from Bescott Stadium, Walsall and was set-up to demonstrate amateur radio to the 2000 Scouts who attended.

The Scouts who operated GB2BS included Matthew Kiteley 2E1CVC, David Hazeldine 2E1CVB, Nick Massey 2E1CSW and Venture Scout Philip Lewis 2E1AQQ, all of who are from the Stourport and District Scout Amateur Radio Group and the Hasbury Scout Group, Halesowen.

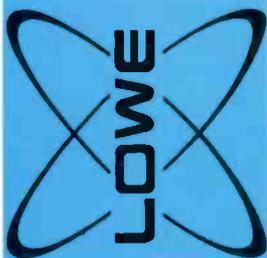
The Scout Association is very active in the hobby of Amateur Radio, particularly around this time of year with Jamboree On The Air (JOTA). This year is the 37th JOTA event and is being held over the weekend of October 15 & 16th.

The JOTA event is a world-wide event allowing stations to operate for 48 hours from 0000hours on Saturday 15th until 2400hours local time on Sunday 16th. Members of the World Association of Girl Guides and Girl Scouts (WAGGGS) are also invited to join in the event.

If you are interested in finding out more about JOTA you should contact **The Scout Association, Gilwell Park, Chingford, London E4 7QW.**

**Matthew 2E1CVC, one of the operators for the GB2BS station.**





## TH79E - Small wonder!

The new Kenwood TH79E has been with us for a month or so now and what a winner it is proving to be. Just how do they fit so much into such a small space! I'm sure my first mobile radio had a bigger microphone! Many of the features of the TH79E are hidden away, not even revealed in the manual but trust Lowe to take care of that for you. Everyone buying a TH79E from any branch of Lowe Electronics or by mail will get absolutely free of charge our wonderful booklet 'The secret life of the TH79E', detailing all the modifications and hidden functions in this marvellous little transceiver.

## We have the power



The Manson is back! We've increased our orders once again for these superb power supplies but you just keep on buying them! Sorry to keep so many of you waiting. If you don't yet know what all the fuss is about check this out! The EP925 is a variable voltage PSU that gives a continuous 25A current, peaking on 30A. Twin meters give you current and voltage readout and the thermostatically controlled fan keeps things cool, ideal for powering any of today's HF transceivers. When you check out the price of a matching power supply for your rig, you'll see just what great value it is at just £99.95.

If you don't need all that power then the EP815 may be the one for you. Case size and style is the same as the EP925 but without the metering. Output is 13.8V at up to 15A, just right if you use your mobile radio at home. Ideal too for running all your shack accessories, like your Packet or GTOR equipment, backlighting your Diamond SWR meters or even a stand alone transverter or VHF linear amplifier. Like its big brother it is superb value for money and you get change from seventy quid!

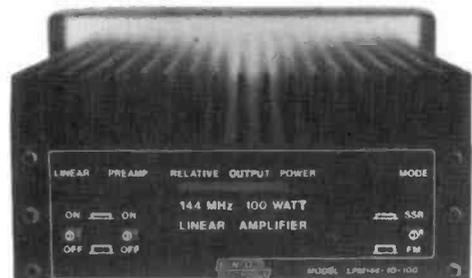
## New!

Half catalogue, half price list - why not get your copy of our new *Catalist!* Just send us four first class stamps and we'll send you one by return. Crammed full of interesting new products and some good old favourites as well.

## BNOS VHF and UHF linears - for the serious Dxe

What is the difference between a power amplifier and a linear? Try a BNOS and compare it with some of the other products that call themselves 'linear' and you'll soon find out! If you are going to work that DX you need to be loud and clear and BNOS linears will give you both. Models available with or without pre-amps and all can be RF switched or hard switched depending on how you like to work. Full specs available on request.

- CLP14410100 2m Linear with pre-amp; 10W drive; 100W output.....£255.00
- CLP14410180 2m Linear with pre-amp; 10W drive; 180W output.....£439.00
- CLP1441050 2m Linear with pre-amp; 10W drive; 50W output.....£169.95
- CLP1443100 2m Linear with pre-amp; 3W drive; 100W output.....£289.00
- CLP144350 2m Linear with pre-amp; 3W drive; 50W output.....£289.00
- CLP43210100 70cm Linear with pre-amp; 10W drive; 100W output.....£439.00
- CLP4321050 70cm Linear with pre-amp; 10W drive; 50W output.....£255.00
- CLP432150 70cm Linear with pre-amp; 1W drive; 50W output.....£289.00
- CLP43225100 70cm Linear with pre-amp; 25W drive; 100W output.....£375.00
- CLP5010100 6m Linear with pre-amp; 10W drive; 100W output.....£289.00
- CLP501050 6m Linear with pre-amp; 10W drive; 50W output.....£169.95
- CLP50350 6m Linear with pre-amp; 3W drive; 50W output.....£169.95
- CLP7010100 4m Linear with pre-amp; 10W drive; 100W output.....£289.00
- CLX14410100 2m Linear; 10W drive; 100W output.....£219.00
- CLX14425180 2m Linear; 25W drive; 180W output.....£345.00
- CLX1443100 2m Linear; 3W drive; 100W output.....£255.00
- CLX43210100 70cm Linear; 10W drive; 100W output.....£399.00
- CLX4321050 70cm Linear; 10W drive; 50W output.....£219.00
- CLX432150 70cm Linear; 1W drive; 50W output.....£255.00
- CLX43225100 70cm Linear; 25W drive; 100W output.....£345.00



If you'd like all the secrets of the top Dxers, we've a great book written by the experts themselves. It's called the VHF UHF DX Book and contains chapters on propagation, antennas, transceivers, transverters, linears, pre-amps, accessories and most importantly, the techniques you should use to get the most out of VHF and UHF operating. Its bang up to date.

# SPEED THRILLS

If you haven't yet upgraded to 9600 baud packet, now is the time. It's been a long time coming but now you can get to 9600 of the shelf - complete radio and TNC packages with no mods to do and no extra boards to add in - just plug in and go - at high speed!

## The radio end...

Check out Kenwood's twin FM transceivers - The TM251E puts you straight on to 2m or the TM451E for 70cms. Both run more than enough power to get you right into the network and feature dedicated data ports tailored to the needs of high speed packet.



## The TNC end...



The new Kantronics KPC9612 is fast becoming the new standard in TNCs and when you see what it can do you'll know why! This is the only dual speed, dual port TNC on the market. It will let you connect two transceivers to it for working on two bands, or two frequencies on the same band if you prefer. One port is 1200 baud and the other can be configured to 4800, 9600 or 19k2 as standard! If you are already on Packet, imagine doing what you are doing already but eight times faster! With many new 9600 baud user ports fast becoming available on many BBS's this is the way forward! The new KPC9612 is available direct from Lowe Electronics, the Kantronics distributor - who better to buy from! If you want a complete package, we can supply you with everything from the power supply to the antenna and all the bits in between, including all the interconnecting leads. We can't supply the computer but we've got some great software we can offer! Ask now if you are considering upgrading, we're doing super deals on trade-ins and some great package deals on complete 9600 baud stations. Don't miss out!

Why not send us four first-class stamps and request our DataComms information pack and we will also give you a free copy of the Lowe Packet Radio ideal for beginners to get going or a useful reminder to those with more experience.

## Lowe takes away the pain of mobile operating!

These days so many cars are just not conducive to operating mobile! Fewer and fewer places to mount a radio and when you do find someplace, someone breaks in and nicks it! Many people today are using handhelds in their vehicles which presents two problems - how do you operate it safely and where do you put it? Trust Lowe to solve the problem!

The QS200 is a superb little gizmo that everyone will want to buy for two reasons - it is so good and it is also so inexpensive! Just look at the picture. The QS200 holds the radio in a convenient place on the dash where you can still see the display and operate the major controls be it a handheld transceiver or a scanner. The QS200 mounts into the vents of your car dashboard with no drilling or cutting and your handheld just slots into it using its belt clip - fits in seconds and you can remove your handheld just as fast when you want to take it from the car - beats any quick release mount! Get one now while stocks last!



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**SOUTH WEST**  
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**EAST ANGLIA**  
152, High Street,  
Chesterton,  
Cambridge,  
Tel 0223 311230

**Elaine Richards G4LFM starts off this month by asking the question *When is a Novice not a Novice?* and later goes on to introduce a new section, 'First Steps' to her column.**

# NOVICE Natter

*For Radio Beginners of all Ages.*

**Elaine Richards G4LFM, PO Box 1863,  
Ringwood, Hants BH24 3XD.**

**W**hen is a Novice not a Novice? There has been quite a bit of confusion recently regarding the word Novice when applied to this column, if the post bag is anything to go by.

According to my dictionary, a novice is "someone who is not experienced at the job or activity that they are doing". In the hobby of radio we are all novices of one sort or another and I hope I can help all novices in this column.

Just because you are not studying for the Novice exam or are just awaiting your new Novice callsign doesn't mean that I can't answer your questions!

In fact, the Editorial Office (bless them) have decided to create a new section within

## Ever Explored CB?

I've had a letter from 12 year old **John Swarbrick** passed to me from the Editorial Office and he's asked about a subject I've never explored - CB. John would like to see tests, or at least mentions, of new types of CB rigs as he believes not all CB users drive around in articulated trucks, swearing and shouting down the radio waves.

Well, to be honest with you, CB is an aspect of radio I've never experimented with. I know it's been the starting point for many radio amateurs and some still dabble in both aspects of radio.

I would like to hear your views on CB, what's about, what's good and what's bad. I am a firm believer that there is room for all kinds of radio in this world, just because it's something I've never tried doesn't mean that I ignore it. Please drop me a line if it's something you're involved with and I'll see if I can pass on the information.

this column, just for the true beginner - **First Steps**. Thanks to **Alan Clayton G7HZZ** for the title. This month I'm looking at your log-book entries and what it must contain and what useful information you should also be keeping.

If you have any questions you'd like answered in **First Steps**, drop me a line. No question is too simple. I hope that I can then cover more difficult topics for all levels of novices in the main part of the column.

## Packet Radio

It seems to me that you can't do or read anything about amateur radio these days without tripping over the words Packet Radio. What on earth is Packet and why do people use it? Well, I thought I'd have a go at describing the theory behind Packet and see if that gives us any clues as to why people use it.

Most amateurs will have heard of Packet, but there seems to be very little information around to help the complete beginner get an understanding of what Packet is about and how to get started. I hope I can go some way

to put that right here. I can hardly give a complete tutorial in the space available, but I can at least whet your appetite.

Let's start at the very beginning with data transmissions. There are a number of modes that transmit text or data over radio. The most basic of these is good old Morse code.

With Morse, the information to be sent is converted to a series of dots and dashes that turn the transmitter on and off. At the distant end the process is reversed either by a human or computer decoder.

If you want to send information between two computers, a similar conversion and decoding process has to take place. When you type letters at the keyboard, the computer produces numbers to represent the letters. The standard used for this conversion is known as the American Standard Code for Information Interchange or more conveniently ASCII (pronounced Askee).

To give you an idea of how the letters are converted to numbers, here are the first three letters of the alphabet and their respective numbers: A(65), B(66), C(67).

Unfortunately, computers can only understand binary numbers, so the letter A(65) actually becomes 01000001. Don't worry too much about the maths as you don't need to understand all the technicalities to use Packet.

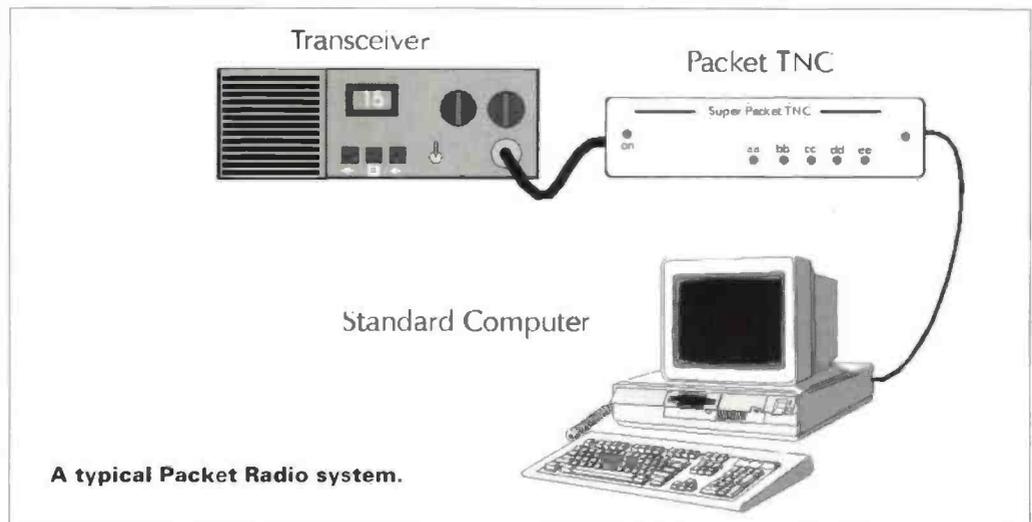
To send these binary numbers over radio they are first passed to a special converter unit known as a Terminal Node Controller or TNC where they are converted to two tones, spaced apart by about 200Hz. These tones can then be coupled to a standard transceiver through the Mic socket.

At the receiving end, another TNC takes the tones from the speaker socket. Then it converts the tones back into numbers for presentation to the computer. As well as converting the binary number to tones the TNC adds some extra information and splits the information into neat packets or bursts.

One of the problems with some of the simpler data transmission systems such as RTTY, is their susceptibility to corruption from noise and interference. Packet radio largely overcomes corruption problems by sending the information in specially created bursts or packets.

Each of these packets has some extra numbers added at the beginning to say where the information should go and a special number called a Frame Check Sequence (FCS) at the end. The FCS is calculated from the transmitted data so it can be used by the receiving station to check that all has been received without error.

If all is well, the receiving station sends an acknowledgement back to the transmitter and waits for the next packet to arrive. If there's any interference effecting the signal, the receiver will ask for the packet to be sent again.



**A typical Packet Radio system.**

## Process Repeated

The process is repeated until all the information has been sent. Obviously, as you're dealing with two computers this exchange only takes a fraction of a second.

From this you can see that using Packet to communicate between two stations results in virtually error free transmission. The system is so good it can be used to successfully send computer programs over the air.

One other big advantages of Packet transmission is that several stations can share the same frequency. This is because each packet has an address at the beginning (callsign) and the FCS correction number at the end. If any transmissions 'collide', the receiving station will just ask for the last packet to be sent again.

Starting in Packet radio is extremely easy and you just need a computer, radio and a TNC. A look through the adverts in *PW* will reveal many people selling TNCs with a variety of facilities.

If you want to have a go, I would suggest you start by chatting to one or two of the local Packet operators and see what sort of system would suit you. Ask around at your local radio club to see who's on the air.

Once you've started on Packet, there's a wealth of information available on the many bulletin board systems along with a very effective messaging system. I'll talk more about bulletin boards next month.

*That's all for this month, keep sending in your letters and don't forget if you're unsure of those First Steps to take drop me a line with your queries.*

*Elaine G4LFM*

## First Steps

To start off the new **First Steps** section of this column I've decided to look at the Logbook and its uses. If you have recently obtained your Amateur Radio Licence and are unsure of what steps to take now, how you should set-up your shack or any aspect of what to do now you are able to get on the air, then drop me a line and I'll see what I can do to help.

### Your Logbook

There are lots of companies who make logbooks for the radio amateur and these often provide the cheapest method using a logbook that fulfils the legal requirements. The legal requirements for a logbook are:

- The date of transmission
- The times in UTC (or GMT)
- The frequency
- The mode of transmission
- Power used
- All CQ calls, even if no-one replies
- The callsign of any station you talk to

The legal requirements cover the basics for your base station log. Usually a commercial logbook contains a notes column, one for recording the sending and receiving of QSL cards and one for recording the report you exchange.

There are lots of other details which can be very useful to record that a commercial book doesn't give space for. So you can either make your own log book (which can be very time consuming) or create a computer or card filing system.

I think it's really nice to make a note of things like the other station's name so at least you can refer to them by name if you get a chance to speak again. Also it can be very useful to make a note of the antenna you were using as this provides you with reference material if you try a few experiments.

How about logging the weather conditions? as this can also have an effect on the radio signals. Things like this can start to build up as a reference work on all the different things that affect your signals.

Don't forget to make some notes on what you talked about. Note where they live, what job they do, names of their family or anything else that could be the starting point to a good radio friendship.

I must confess, when I was first licensed my log-keeping was quite detailed, in those days you had to keep a log of mobile contacts too! But, over the years things have got less detailed and there are times when I regret not having made better notes!

I'm not going to bother with a drawing of a logbook as I'm sure most people will have seen them, if not a few pounds sent to one of the many advertisers who stock them will solve that one. Instead, here's a few ideas for a card system you could adapt for your own.

Callsign		Name		
Date	Weather	Antenna	Rig	Frequency

## The CATS Whispers

*CATS Whispers* is the cleverly titled newsletter of the **Coulsdon Amateur Transmitting Society**. The newsletter takes the format of four printed A4 sheets and contains details of club matters, recent and forthcoming events, items for sale and other clubs events.

The Coulsdon ATS hold their meetings on the second Monday of every month at St. Swithun's Church Hall, Grovelands Road, Purley at 7.45pm.

The contact for the Coulsdon Amateur Transmitting Society is **Andy Briers GOKZT**. Tel: (0737) 557198.

## Aylesbury Vale Radio Society

The **Aylesbury Vale Radio Society** is a well established and friendly club that meets on the first and third Wednesday of each month at 8pm at Hardwick Village Hall, three miles north of Aylesbury on the A413 Buckingham Road

The club's members include licensed amateurs and short wave listeners (s.w.l.) of all ages with a range of interests including h.f. operating, satellites, ATV and home construction. The club holds regular talks inviting external speakers and also organise visits, quizzes, competitions, Morse practice and lots more.

If you fancy joining the club

or finding out more about them, why not contact **Martyn Jones G4XZJ, Club Secretary** on (0296) 81097.

## Vale of White Horse Amateur Radio Society

The **Vale of White Horse ARS** meet, fairly informally, on the first Tuesday of every month at 8pm at the Fox, Steventon.

Club nets are held every Sunday at 8.15pm on 145.200MHz. Occasionally the club holds Special Event Stations, 144MHz DF Contests and BBQs, etc.

If you are interested in joining the club you can contact **Ian White G3SEK, 52 Abingdon Road, Drayton, Abingdon OX14 4HP** for more information.

# CLUB Spotlight

*Moved into a new club room? Won a contest? Got a funny story or news of a special event?*

*Send your information to the 'Club Spotlight' newshounds  
Donna Vincent and Zoë Shortland at the PW Offices.*

## Membership 123

The current membership of the **Hastings Electronics & Radio Club** is 123 and over a number of years, the club have run RAE classes and Novice courses since the introduction of the licence. The Hastings Electronics & Radio Club is also registered with the City & Guilds Institute as an examination centre for both the Novice & RAE exams. They also hope to begin a further course in Morse for beginners and those with some knowledge.

The present headquarters of the Hastings E & RC Club are at St Leonards Sea Anglers Association, 16 Grand Parade, St Leonards-on-Sea, East Sussex where there is a top floor shack for h.f. and v.h.f. gear. However, the main meetings are held at the West Hill

Community Centre on the third Wednesday of each month, at 7.30pm. There is also a social/chat night each Friday at the Sea Anglers Club.

The Hastings Electronics & Radio Club issue a certificate for the '1066 Award'. To qualify for this certificate you have to work (or for s.w.l.s, hear) eight club members, or six members and the club station G2LL, G6HH or G1HHH. The cost of this award is only £1.50.

For more information on the club and details of activities, you can contact the Secretary **G3YYF, QTHR** or on (0142) 4830454.

## Saltash & District Amateur Radio Club

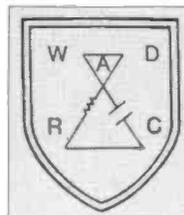
The **Saltash & District Amateur Radio Club** was officially formed on November 6 1964. This year the club plans to celebrate its 30th year in existence with a buffet reception at The Rodney Inn, Saltash. This will be held on the 10 November at 7.30pm. Members and their partners and especially all past members and office holders will be very welcome to attend. For further information on the club you can get in contact with **Brian G7SSH** on (0752) 844321 (evenings).

## Worthing & District

The **Worthing & District Amateur Radio Club** meet every Wednesday at 7.30pm for 8pm at the Parish Hall, South Street, Lancing.

A few events coming up that may be of interest to you are: November 2 a Video DXpedition to the North Pole and on the 9th there is a Junk Sale.

If you would like to join the Worthing & District Amateur Radio Club you can 'phone **Roy Bannister G4GPX** on (0903) 753893 for more details.



## North Wales Radio Rally

**Tony Tuite GWONSR** of the North Wales Radio Rally Club has recently informed the Club Spotlight of this year's North Wales Radio Rally, the dates are November 5 and 6 1994. The

## Yeovil Festival Of Transport

On August 13/14 1994, the callsign GB2YFT was once again activated by members of the **Yeovil Amateur Radio Club** at Barwick Park Showground, on the outskirts of Yeovil.

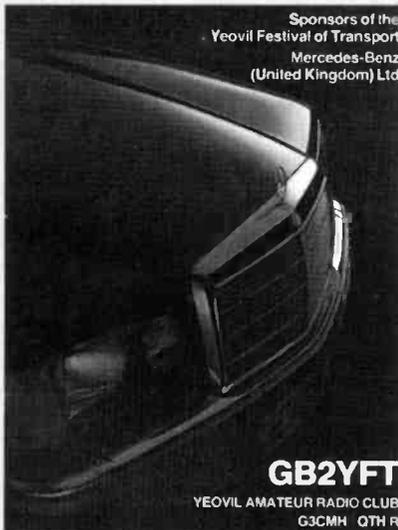
The Special Event Station was held in support of the Yeovil Festival of Transport, which boasts one of the finest displays of vintage, classic and modern transport of all kinds in the British Isles. All donations from the show were donated to local charities.

The Yeovil Amateur Radio Club have been associated with the Festival of Transport for many years, and on many occasions has received a lot of interest from the general public. Operation of the Special Event Station was from the club's tent, close to the Show Ring and in spite of the noise from the many vehicles being demonstrated, more contacts were made than in some previous years.

A dual-band collinear for v.h.f., at the top of a 12m portable mast was kindly loaned and erected by G7SDD. A G5RV antenna was suspended at its centre from the mast. This provided the somewhat basic antenna system for the station.

However, the antenna system proved most effective and contacts were made on 144, 7 and 3.5MHz. A brief excursion onto 14MHz provided contacts with eight other continental countries. Although conditions were poor, the Yeovil Amateur Radio Club hope to run the special event station again in 1995!

If you fancy joining the club, members meet every Thursday at 7.30pm at The Red Cross Centre, 72 Grove Avenue, Yeovil. Further details can be obtained from **Cedric White** (Club Secretary) on (0258) 473845.



rally will be held in the Aberconwy Centre, Llandudno with all the usual trade stands, Bring & Buy and refreshments.

The North Wales Radio Rally Club (NWRC) meets every Thursday at 7.30pm at the YMCA Building, Colwyn Bay, Clwyd, Wales. The club is a City & Guilds Approved Examination Centre and their regular activities include h.f. and v.h.f. stations on the air, Novice and Morse instruction as well as an active involvement with RAYNET activities.

Anyone who is interested in joining in with the activities of the NWRC is welcome to go along and sample the coffee and biscuits! If you want to know more you should contact **Tony Tuite GWNSR on (0492) 513246.**

## Gambia DXpedition

From October 23 to November 7 1994 the **Whitton Amateur Radio Group** will be mounting a DXpedition to The Gambia (C56) in West Africa and will be operating under the callsign of C56/G0MRF. While on the DXpedition the club will be taking part in the CQWW contest during the weekend of October 29 & 30, using the callsign C56DX.

The Whitton ARG are intending to concentrate on activity on the most wanted fre-

## Radio Lifeboat

The members of the **Poole Radio Society** recently set-up and worked one of a series of Special Event Stations in connection with the Worked All Britain (WAB) Lifeboat Station Award. The award has been set-up by the WAB as part of its 25th anniversary to raise £10000 to provide a Class D Lifeboat for the RNLI. To qualify for the award, stations had to work 10 of the h.f. special event stations or five of the v.h.f. stations and send a minimum donation of £3 towards the appeal with their application.

Using the callsign GB2LHQ (Lifeboat Head Quarters, very appropriate as Poole is the headquarters for the RNLI) the members of the Poole Radio Society made over 400 contacts during the weekend of July 16 & 17th. Many of the contacts were made from the main station on 3.5MHz but some were also made on the 7 and 430MHz bands using portable equipment.

The Chairman of Poole Radio Society, David Mason G3ZPR said that the running of the station provided a chance for all the club members to get on the air. The station GB2LHQ gave Natalie Doherty 2E1CSF her first introduction to h.f. operating (under supervision).

Poole Radio Society meet on the second Friday of each month at the Poole site of the College of Further Education, Lady Russell Cotes House, Constitution Hill Road, Poole, Dorset. For more details contact **Vernon Cotton G3BCI on (0202) 762110.**

**Natalie 2E1CSF being given some guidance on operating GB2LHQ.**



## Club Logos

When sending in items for inclusion in 'Club Spotlight', if your club has a logo we would appreciate a copy, so that it can be used when featuring your club. If there is a history behind your Club Logo we'd like to know about that as well.

quencies and modes. The station will be located a few metres from the sea, which is hoped will help to give good results on 1.8 and 28MHz.

Along with h.f. equipment the use of 144, 430MHz and 2.4GHz equipment will allow C56 to be worked on amateur

satellites. The Gambia is very rare on satellite and this will be the first operation on mode S from the location. To benefit the expedition, the international controllers of AMSAT OSCAR13 have changed the satellite's schedule.

All QSLs for this DXpedition

should be sent via G0MRF direct or via the bureau.

Don't forget, a full 'Club News' listing is available from the *PW* Editorial Offices for a stamped, self addressed envelope, marked 'Club News' Sheet.

\*October 21 & 22: Leicester ARS at Granby Halls, Leicester. Doors open at 10am each day (9.30am for disabled visitors) All the usual facilities. Please note the date **Frank G4PDZ on (0533) 871086.**

\*November 5 & 6: The Eighth North Wales Radio & Electronics Show is being held at The Aberconwy Conference & The Bew Theatre, Llandudno. The show opens at 10am both days, entrance is £1.50 for adults, children under 14 free. **B. Mee GW7EXH on Tel/FAX: (0745) 591704.**

November 12: The All Micro Show B, Radio Rally & Electronics Fair is being held at the Bingley Hall, Staffordshire Showground, Weston Road, Stafford (A518 Stafford-Uttoxeter Road), AA signposted from Junction 14 on the M6. Doors open at 10am to 4pm. Entrance fee is £2 for adults and children under 14 free. As usual, there will be the local charity stalls, a licensed bar from 11am, refreshments, and free parking. **(0473) 272002.**

November 13: The Donegal/Tie Connall Radio Club will be holding their annual mobile Rally and junk sale in Jacksons Hotel, Ballybofey, Co. Donegal. Doors open at 12 noon and admission is £1. There is ample parking available. Also a bar, refreshments and food available all day. **Raymond E19DM on (073) 37152.**

November 13: The Bamsley & District Amateur Radio Club will be holding its fourth Amateur Radio Rally at the Metrodome Complex in Bamsley Town Centre, less than two miles from Junction 37 M1. This is a new venue, all on one level with excellent disabled facilities, a licensed bar/restaurant and a separate cafeteria. The Rally will have all the usual amateur radio and computer dealers with radio clubs, specialists groups and a Bring & Buy. **Ernie G4LUE, QTHR. Tel: (0226) 716339** between 6-8pm and 6-7pm on Monday evenings.

November 13: The Midland Amateur Radio Society are holding their Radio/Computer Rally at Stockland Green Leisure Centre, Slade Road, Erdington, Birmingham. Doors open 10am, usual traders, local clubs, special interest stands, bring and sell tables.

# RADIO Diary

## \* Practical Wireless & Short Wave Magazine in attendance

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.

The Editorial staff of *PW* cannot be held responsible for information on Rallies, as this is supplied by the organisers and is published in good faith as a service to readers. If you have any queries about a particular event, please contact the organisers direct.

refreshments available and free car parking. Admission is £1. For further details contact **Norman G8BHE on 021-422 9787** or **Peter G6ORN on 021-443 1189** evenings.

November 20: The Bishop Auckland Radio & Computer Rally will be held at the Newton Aycliffe Leisure Centre, Beveridge Arcade, Newton Aycliffe, Co. Durham DL5 4EM. Doors open 11am (10.30am for disabled visitors). **Mike Shield G0PRQ on (0388) 766264.**

November 27: West Manchester Radio Clubs 'Winter Rally' will be held at the usual venue of the Bolton Sports & Exhibition Centre, Silverwell St., Bolton (town centre). All the usual trade stands (over 75) societies, Bring & Buy etc., all at pavement level, with

facilities for the disabled. Bar and refreshments available all day. Doors open 11.00am, 10.30am for disabled visitors. Admission £1, children free. **Dave G110D on (0204) 24104** evenings only.

\*November 27: The Bridgend District Amateur Radio Club are holding their radio rally at the Bridgend Recreation Centre, Bridgend. Doors open at 11am (10.30am for disabled visitors). Food and refreshments are available all day. There is also a large Bring & Buy and talk-in on S22. Further details from **Mike GW7NLS on (0656) 722199.**

December 4: Leeds & District ARS Christmas Radio, Electronic & Computer Rally will be held at Allerton High School, King Lane, Leeds. Doors open at 11am, 10.30am for disabled. **Phil Robinson on (0532) 680006.**

\*December 11: The Verulam Amateur Radio Club will be holding its Verulam Christmas Rally at the Watford Leisure Centre, which is located less than five minutes drive from the Junction of the M1 and M25 motorways. Trading will be from 10am to 4pm. **(0923) 222284.**

## 1995

January 28: The Lancaster Radio & Computer Rally is being held at the University of Lancaster. There will be all the usual traders, refreshments, a bar and a Bring & Buy. There is excellent access to this rally, five minutes from either Junction 33 or 34 on the M6. Admission is £1. Doors open at 10.30am for the disabled and 11am for everyone else. Further details from **Sue on (0524) 64239.**

February 5: The South Essex ARS Radio Rally is being held at The Paddocks, Long Road, Canvey Island, Essex. (The Paddocks is located at the end of the A130). Doors open at 10.30am. Bring & Buy, trade stands and home made refreshments are available. Talk-in on S22. Admission is £1. Free car parking. **Roger G0LTO on (0268) 693786** or **Ken on (0268) 755350.**

April 23: The Bury Radio Society will be holding their annual rally at the Castle Leisure Centre, Bolton St, Bury. Doors open at 11.00am (10.30am for disabled visitors). There will be a Bring & Buy, a bar and refreshments. Talk in on S22. Further details are available from **G4KLT on 061-762 9308.**

May 21: The 11th Yeovil QRP & Construction Convention is being held at the Preston School/Centre, Monks Dale, Yeovil, Somerset. It will be preceded by a Morse Funrun on each evening from Monday 15 to Friday 19 May. Further details can be obtained from **G3CQR, QTHR. (0935) 813054.**

More rally details next month.

# SUBS CLUB

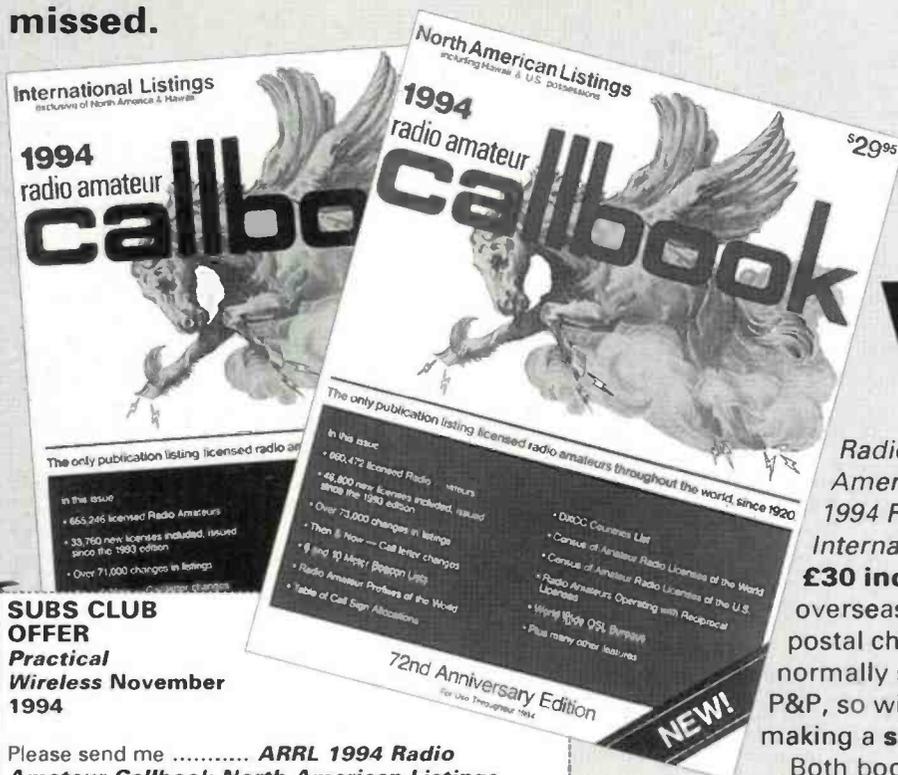
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RADIO

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# COASTAL COMMUNICATIONS

AMATEUR RADIO FOR THE RADIO AMATEUR

## Christmas made easy



2m FM Compact mobile  
50W 70cms Rx.  
Pkt connector  
9K6 Data ready



2m All mode  
detachable front 40W,  
FM, CW, SSB 13.8V



70cms all mode  
detachable front 35W  
FM, CW, SSB 13.8V



70cms FM compact  
mobile 35W, 13.8V.  
Packet connector  
2m RX 9K6 Data ready



2m & 70cms 50W &  
35W 72 memories  
Full cross-band duplex.  
Detachable front panel



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Dualband mobile  
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*Elaine Richards  
G4LFM has taken a  
little time off from her  
'Novice Natter'  
column to try out a  
budget priced  
430MHz f.m.  
transceiver which (it  
seems) could well  
find its way into  
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stockings this year!*



The AKD7003 f.m. transceiver.

**W**ith so many young 'novices' joining amateur radio, there's definitely a need for good quality, no nonsense, equipment that's not going to break the bank.

The latest release from AKD, the 7003 appears to fit the bill very well. It has a simple layout with a selling price of just £193.74 and what's more it's British!

## Well Packaged

The AKD7003 came very well packaged. It arrived complete with microphone and power lead-albeit a rather short one.

Rather than use a plug and socket arrangement for the power connection, AKD have opted for straightforward flying leads. These are for you to connect to your 12V power supply.

The flying leads are about 450mm long and include a 2A in-line fuse. New users will be pleased to hear that the AKD7003 includes full protection just in case you connect the supply up the wrong way round!

The 'wrong way round' protection is essential as it's very easy (even for experienced engineers) to make that simple mistake. In this case the protection is a rectifier diode connected across the supply leads. If a power reversal happens, the rectifier conducts and blows the in-line 2A fuse.

## Base Station

If you're using the 7003 as a base station, use the flying leads connected directly to your power unit. And, as the power output of the AKD7003 is limited to the 3W maximum allowed in the Novice licence, the power supply requirements are very modest at 13.8V ( $\pm 10\%$ ) at 750mA maximum.

Although it's tempting to use a cheap plug-top power unit to power the AKD7003, I would strongly recommend that you use a properly regulated unit designed for the job. This is an ideal project for home construction using the skills learnt during the Novice training.

Having said that, I note that AKD have a plug-top p.s.u. available as an option! If you're using the rig for both mobile and base station operation you can very easily fit a simple plug and socket for a quick change-over.

## Antenna Connection

The antenna connection on the transceiver uses a standard SO-239 socket. These, although not my favourite choice for u.h.f., are perfectly adequate.

One advantage with this SO-239 type of connector is that the plugs are both cheaper and easier to fit than the more sophisticated BNC and N types often used at the higher frequencies. The use of the PL-259 plug does, however, mean you have to take that much more care to ensure you have a very good r.f. connection.

Although the internal 40mm speaker is fine for most situations, you can use an external speaker. You connect this via a standard 3.5mm jack mounted on the rear panel.

As is standard practice, the internal speaker is automatically disabled when this jack is in use. The only point you need to watch when using an external speaker is that it must be 8 $\Omega$  or greater.

You could get caught out with the speaker impedance as many proprietary external units are only 4 $\Omega$  impedance. If you do connect a 4 $\Omega$  speaker, it may not damage the rig, but the sound will probably be distorted.

## Microphone Socket

The only remaining connection on the AKD7003 is the standard four-pin microphone socket on the front panel. The rig comes complete with a suitable microphone, though the use of a standard socket makes it easy to change to a microphone of your choice later.

The ability to choose another microphone is particularly relevant for mobile operators. They will doubtless want to use one of the many headset assemblies that are available. And they're well worth every penny they cost in the interest of safer motoring.

Audio input requirements for the AKD7003 transmitter are just 60mV into 600 $\Omega$ . This

should prove just right for most moving coil microphones.

One point to note however, is that there's no d.c. supply available at the microphone socket to power electret type microphones. You'll need to provide that some other way.

As well as the microphone input and ground connections, there are the usual press to talk (p.t.t.) and an audio output. This audio output is particularly useful for Packet operations as you could make all the necessary connections via the microphone socket.

The audio output level is fixed at 400mV into 47k $\Omega$ . So this should be fine for most Packet TNCs.

The only point you may have to watch is that the audio output from the TNC doesn't overload the microphone input. This can be very easily corrected with a simple resistive attenuator that you should be able to mount in the microphone socket itself.

## Helped By Manual

Getting on the air quickly is helped by the very simple operating manual. This is a ten page A5 booklet that even contains a useful 432MHz band plan showing the conversion from frequency to channel number.

As well as the usual specification and layout description, the manual includes a simple step-by-step guide to using the features of the AKD7003. Although this is contained on just one page it is quite enough even if this is your first radio.

The manual also has plenty of advice on installing the AKD7003. This includes its use for Packet and RTTY.

## Under the Bonnet

Let's now take a look 'under the bonnet'. And, in line with its simple image, the AKD7003 uses basic constructional techniques and access to the electronics is via the plastics top and bottom panels.

The main mechanical strength is provided by the aluminium rear and side panels. The main p.c.b. is a good quality double-sided glass fibre unit that takes up most of the

cabinet space. The front panel carries another p.c.b. that's used for the display and control electronics.

As with most channelised rigs, synthesis techniques are used to control the operating frequency. The preset information for all the various channels is contained on a socket mounted Erasable Programmed Read Only Memory (EPROM) for the uninitiated!

As well as holding the basic frequency information, the EPROM also controls the start-up frequency. The factory default setting for this was the f.m. calling channel S20 or 433.5MHz.

If you're operating an unattended Packet station you really don't want the rig to start on channel 20. If it did, you could end up sending Packet signals on the calling channel following a power break!

Fortunately, AKD have thought of this problem and can supply replacement EPROMs set to start the rig on a channel of your choice. The EPROM was designed for exchange by the operator as it uses a conventional socket, but please be very careful when making the change.

### Easy To Use

As you've probably already guessed, the AKD7003 is a really easy rig to use. This has a number of advantages particularly for the mobile operator who isn't in a position to fumble with complex controls.

The key to much of the 7003's simplicity is the use of a simple channelised display. This method is employed instead of the more

conventional frequency display.

The AKD7003 shows the channels using a very clear two digit display mounted right in the centre of the front panel. Immediately below the display are the three frequency controls.

There are no fancy keypads or tuning knobs: just a simple up and down button plus one other. The function of this third button depends on whether you're tuned to a simplex or repeater channel.

If you're operating simplex, pressing the third button immediately returns you back to the calling channel. For the repeater operator this key lets you listen on the repeater input.

Returning from listening on the input is done by pressing any key - ideal for mobile operation. I was pleased to see that all three of these control push buttons had a very clean action with a positive click to indicate operation.

### Operating Through Repeater

When operating through repeaters you need to be able to send an accurate 0.5 second burst of 1750Hz tone. The AKD7003 includes this when ever you press the p.t.t. twice in quick succession. And, just to give you confidence that a tone burst has been sent, the display blanks momentarily.

The remaining controls on the front panel were for squelch, volume and power. The On/Off switch was a little unusual in being a simple toggle as opposed to being combined with the squelch or volume control like many other rigs.

### Joy To Use

Following my review session on the rig, I must say that the AKD7003 was certainly a joy to use. And I found the very basic, but simple controls were trouble free.

The audio quality was very punchy with the 2W of audio proving adequate even for mobile operation, though this can be improved by using a well placed external speaker or headset.

The very simple approach adopted by AKD has resulted in a rig that does all it needs to without any of complexities that can end up making an otherwise good rig difficult to use. The appeal of the AKD7003 is likely to be very wide.

The 'novice' will doubtless be attracted by the combination of price and performance whilst the experienced operator will see it as an ideal second rig. I can see that the Packet operator could well decide to buy one as a dedicated Packet rig.

My thanks go to AKD of Unit 5, Parsons Green Estate, Boulton Road, Stevenage, Hertfordshire SG1 4OG. Tel. (0438) 357591 for the loan of the review unit, which they can supply for £193.74.

PW

### What the (✓) means!

When we have a rig in for review in PW, we check the rig on our test equipment to see how well it measures up to the manufacturer's quoted specification. The specification figures we feel are important to you, the reader, we check out and highlight with our PW (✓). We use the (✓) sign after a measurement figure, to mean that the reviewed rig is matched (within measurement limits) the quoted specification. We use a (✓+) sign to mean the rig bettered the specification by a good margin. The ultimate accolade is a (✓++) sign, meaning the margin was excellent.

G1TEX

## Manufacturer's Specifications

### General

Modulation	f.m.(✓)
Frequency range	432.5-434.975MHz (✓)
Supply voltage	13.8v ±10% (✓)
Channel spacing	25kHz (✓)
Speaker	8Ω internal (✓)
Operating temperature range	-10 to +50°C
Frequency stability	±1.5kHz (✓)

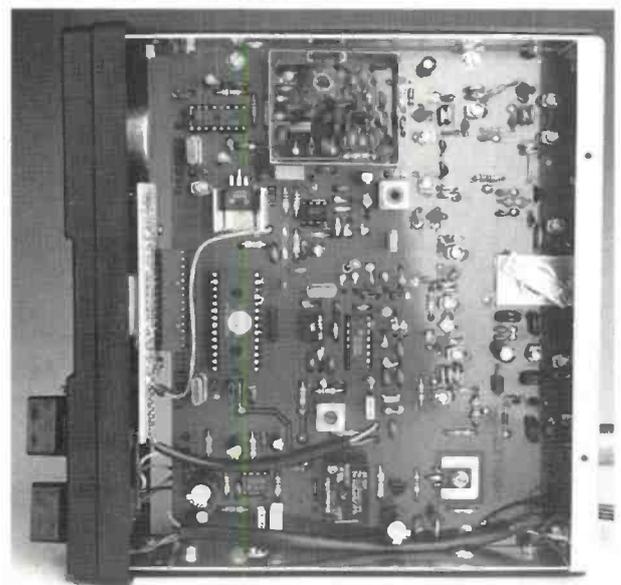
### Transmitter

Power output	3W (for 5W d.c. input) (✓)
Current consumption	750mA (800mA)
Harmonic content	<1μW
Audio distortion	<3% (✓)
Audio response	6dB/octave pre-emphasis (300-3kHz)
Deviation	±4kHz (±5kHz)
Tone burst	0.5s of 1750Hz ±2Hz (✓)

### Receiver

Sensitivity	>0.25μV for 12dB SINAD (0.3μV)
Spurious response	>70dB (✓+)
Image response	>60dB
Audio output	2W
Standby Current	200mA (✓)
Connections	
Antenna	SO-239 socket (✓)
Supply	In-line fused 2A (✓)
Microphone (with p.t.t.)	Socket on front panel (✓)
External speaker	Socket on rear panel (✓)

Fig. 1: Internal view of the AKD7003.



# Repeaters - What They Are And How To Use Them

Tex Swann G1TEX provides a guide on repeaters, and tips to help you 'get on the box'.

**M**any amateur repeater stations cover the country. Usually located on or near the top of hills, they all do similar functions, but for various modes of transmission.

For this overview I'm only going to consider 144MHz voice repeaters. The repeater's job is to take a small signal (say from a hand-held rig) and retransmit it again at a higher power level, usually on a different frequency. This allows two users with low powered transmitters to communicate over a wider area than they could without a repeater.

In the 144MHz band the repeater 'listens' on frequencies between 145.000 and 145.175MHz (25kHz spacing). These channels are known as R0 - R7.

The repeater's transmitter output frequency is 600kHz higher than its receive frequency. That's in the range of 145.600 to 145.775MHz, the frequency chart Fig.1, gives the details.

All voice repeaters work in f.m. mode. So when the repeater receiver's squelch opens, signifying an incoming signal, the audio is used to modulate an f.m. transmitter that operates 600kHz higher in frequency than the receiver.

To set your f.m. rig to use a repeater, you dial in, or set up the output frequency of your local repeater, and then set your rig to repeater shift. Some newer rigs automatically select repeater offset when tuned to a repeater channel.

So, your rig's transmitting on the repeater's input channel. For example, our local repeater (GB3SC) on R1 listens on 145.025MHz to my transmitter. As I speak, the received audio (my voice) is used to modulate the repeater's

transmitter on 145.625MHz.

Repeaters often use only one antenna, which means that the transmitters and receivers have to be of excellent quality. That in essence, is how a repeater works. Let's now look in more detail of what is needed.

Most repeaters need a short (500ms) burst of 1750Hz audio tone (known as the tone-burst) to start it up from 'cold'. This signal, along with the lifting of the receiver's squelch, means 'I'm being used'. So the transmitter starts up and the receiver's audio is retransmitted on the output frequency for all other listeners to hear.

At this time you can give the callsign of the person you're trying to contact and your own callsign and say you're going to listen out. Stop transmitting and the repeater receiver's squelch closes. However, for the time being it keeps the transmitter on but without audio.

After a short time, usually one to two seconds, it will transmit a 'K' in Morse (Dah-Di-Dah). The person you called may now reply to your call, and his (or her) voice should be heard on all receivers tuned to the repeater output frequency.

The period when you're transmitting via a repeater is normally known as an 'over', and it's good manners to keep them fairly short. About two minutes is considered a maximum transmit period. Exceeding this period could cause the repeater to 'time out'. The repeater's response to this state varies from repeater to repeater.

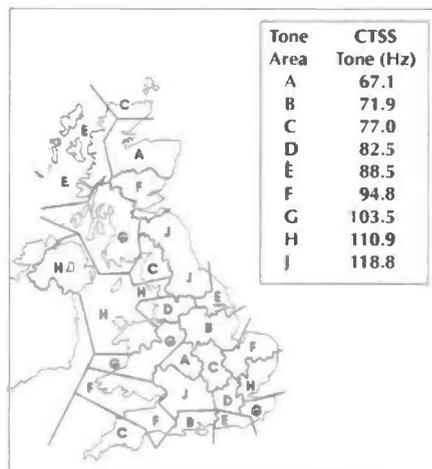
A repeater may transmit a Morse 'T' (Dah) instead of the normal 'K' after a 'timed out' transmission. Other repeaters seem to be 'more tolerant'. The main thing to remember is that **you will not hear your 'timing out'.** Be warned.

Let's assume you haven't talked for too long. At the end of an 'over', after the 'K', the repeater is said to be 'open' and any signal on the right frequency will be retransmitted. No further tone burst is usually necessary to use the repeater once it has been 'opened'.

If, though, a few seconds after transmitting the 'K', no further signal is detected on the input frequency, the repeater will assume that it can resume 'listening watch' again. To signify it's going back to waiting for a call, a repeater will normally transmit its callsign in Morse characters at about 12 words per minute, before turning the transmitter off.

Because there are only eight repeater channels, repeater management requires that care must be taken when choosing a repeater channel. This is done so as not to cause interference to nearby repeaters.

Sometimes, however, in good conditions, the user of a distant repeater on the same



The plan to be used when a repeater uses CTCSS access.

(reproduced by courtesy of RSGB).

channel, will unknowingly 'open' another repeater. As an example, my local repeater, GB3SC is on channel R1, the same as GB3MH located on the Malvern Hills. In 'lift' conditions it's not unusual to hear GB3MH, or GB3WL during SC's quiet periods.

To help reduce this type of interference the use of Continuous Tone-Coded Sub-audible Squelch (CTCSS) tones has been allowed on both v.h.f. and u.h.f. repeaters. The CTCSS tone used, is one of nine low audio frequency tones in the range 67.1 - 118.8Hz. These frequencies are outside the 'normal' (300Hz to 3kHz) passband of most transceivers and so don't find their way into the loudspeaker to be heard by you.

A CTCSS tone (and only one tone is used for the repeaters in one geographic area) is another signal recognised by the repeater that it's 'in use'. Any repeater that has the CTCSS facility will add one of the letters: A, B, C, D, E, F, G, H, or J after its Morse callsign transmission.

Now that you know what they are and how to use them, look out for the PW 144MHz Repeater Datacard to be given away FREE, courtesy of Martin Lynch, with the next issue of *Practical Wireless*. It's always a popular issue, so order your copy now! PW



Coming soon: watch out for our free repeater datacards.

Fig. 1

Channel Number	Input MHz	Output MHz
R0	145.000	145.600
R1	145.025	145.625
R2	145.050	145.650
R3	145.075	145.675
R4	145.100	145.700
R5	145.125	145.725
R6	145.150	145.750
R7	145.175	145.775

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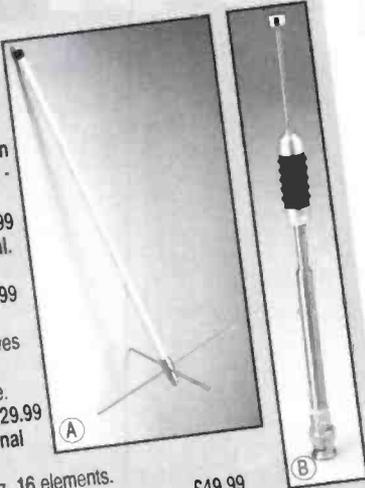
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# Practical Wireless 1994 144MHz QRP Contest Results

*It's time once again for our hard working adjudicator Neill Taylor G4HLX to present the results of the QRP contest.*

Variable propagation and weather conditions characterised the 12th PW 144MHz QRP Contest on June 19. The weather made it an interesting day for the 91 stations who entered.

Those who made the best of conditions achieved some very good results indeed with their 3W. And there were pleasant surprises for some in the DX that they worked.

## The Winner

**Mick Cowley G0GAG/P**, who achieved leading single operator position last year, this year excelled himself from his portable site on Harboro Rocks in Derbyshire. Mick achieved overall first place with a staggering 10989 points.

Winning the PW contest is not a new experience for Mick. He was a member of the Mansfield Contest Group which won three times in 1990 - 92, but now he has done it as a single operator.

Mick Cowley will receive the prestigious PW Winner's Cup, as well as the special prize of a Kenwood TH-22E 144MHz hand-held transceiver donated by **Trio-Kenwood (UK) Ltd.**

## North Wales Wafflers

In second place are **The North Wales Wafflers GW0NWR/P**. They are a group who have been creeping up the results table over the last four years.

Their efforts from their mountain top near Llangollen this year win The North Wales Wafflers the second prize of a flexible solar panel unit donated by **Bob Keyes of Key Solar Products**.

The Tennamast Trophy for the leading Scottish station, provided annually by Tennamast, is won by the **Menstrie Morse Group GM1RZB/P**. This group, two of whom are also members of Stirling and District ARS,

operated from Common Edge Hill in Clackmannanshire.

Despite the GM1RZB group's belief in the use of c.w., activity on this mode in the contest was very low as usual (but see later), so resort to telephony was made!

## Leading Stations

Leading stations in the various other certificate-winning categories are shown in the table. See also the table of the leading stations in each square, each of whom will receive a certificate.

Particularly worthy of note is the result of the **Wicklow DXers EI3GF/P**, the leading Irish station. They have achieved this several times in the past, but this year their position of 13th in the overall results is the highest ever attained by an EI station, proving what can be done even when sited remotely from the main centre of activity. Congratulations to them!

The full detailed results table will be sent to all who submitted an s.a.e. with their entry. Alternatively, they may be obtained by sending an s.a.e. now to the PW offices.

The table will also be distributed via the packet radio BBS system shortly after this issue is published. So, you can look on your local BBS for bulletins from G4HLX (use the command `L< G4HLX` to search for them).

## Propagation Abnormal

Propagation on 144MHz was certainly abnormal at times during the contest. The logs show many entrants working more continental stations than usual for this contest. But the lift varied during the day and from place to place.

For example, **G7NRO/P**, comments that "conditions at first seemed to be not very good at all, but changed after about an hour and a half. There was a rumour going round that someone had worked a 7X (Algeria) station". That rumour was correct, for the real opportunity for DX in this contest came from bursts of Sporadic-E.

Only two lucky stations managed to work 7X2DS, in JM16 square. One was the winner, **G0GAG/P** who made the contact at 1058 UTC, the other was **GW8ZRE/P** some 13 minutes later.

Dave **GW8ZRE/P**, has entered the contest many times before from various locations and with various success rates (in 1992 he managed only one contact as **EA6/G8ZRE!**). His achievement this year, 6th overall and 3rd in the single operator list, is by far his best result.

I think he's entitled to his comment: "What a fantastic contest! Working 7X2DS in Algeria was a real surprise, from just 3W with an HB9CV antenna at



**French entrants to the 1994 QRP Contest F1ROW/P used c.w. for their first contact and reported that there was nothing between them and the UK except "beautiful scenery and the sea".**

only 2m above ground. Is this a first GW-7X QSO on 144MHz?" (It now seems almost certain that it is).

There were several periods of Sporadic-E (Sp-E) during the day, but these two contacts with Algeria seem to be the only DX contacts completed by contest stations.

Unfortunately **G0OVA/P** was called by an HA3 station which disappeared before a contact could be made. Meanwhile **G4URT/P** heard but didn't manage to work CN8 and FT5, and **GW4SOC/P** noted EA beacons audible before the start of the contest.

Non-contest stations could be heard working some of the DX on Sp-E. But it's easy to miss short openings if, as a contest entrant, you are sticking on a fixed frequency calling CQ.

Perhaps a quick tune around every now and then would have paid dividends. Particularly as there seems to have been an awareness in many parts that there were lifts in propagation going on, although very brief.

Commenting, **Ann Stevens G8NVI** says "I gather I missed an opening while I was having my lunch". Well, Ann, you could almost have missed it by blinking, as **G0GAG/P** remarked that "only 20 seconds of Sp-E was experienced, during which time the Algerian station was worked!"

## Common Feature

Whilst the weather varied across the British Isles from "very good overall" at **G14OWA/P** to "very poor, with driving rain" at **G6OUT/P**, a common feature experienced by portable stations was the very strong winds.

For many, the strong winds made erecting



**Fig. 1: Keeping his location secrets under cover, G0MDV/P improvises a shelter in the true spirit of amateur radio 'field day' operation.**

continued on page 32

# LEICESTER

**MARTIN**  
G4  
**THE AMATEUR RADIO**  
**SHOW**

*Wouldn't You Rather Buy From Martin Lynch? If you*

## LEICESTER FOR LESS !!

At the LEICESTER SHOW, not only will we pay you to visit our stand, (spend over £100 with us and get your entrance fee refunded - in cash!) but I will personally guarantee the BEST price versus QUALITY of SERVICE, anywhere in the trading halls!

For those of you who have never visited the famous GRANBY HALLS at Leicester, come along on Friday or Saturday, 21 & 22nd October and see all the latest releases from the major manufacturers. Instant finance is available to those of you who would rather spread the financial load up to a whole six to eighteen months. A driving licence and a bankers/credit card is generally all that is required - so don't forget to bring them with you. See you there!

**REMEMBER REMEMBER**  
**the 26th of NOVEMBER**

Last year was the opening of the new shop, this year we're celebrating the first anniversary and what a day that will be! More news next month, but make a note in your diary NOW. Nearly a thousand people poured through the door and grabbed tens of thousands of pounds worth equipment at virtually trade prices. Further more, they were fed and watered for free. ARE YOU SURE YOU'RE BUSY THAT DAY? What ever you've got on - cancel it and come to MARTIN LYNCH. Make him sweat and give yourself a big grin - grab a bargain!

### YAESU

#### FT-900



It's catching on fast, the latest HF Base and mobile radio from YAESU is a real piece of engineering. The head can be removed for remote control of the entire rig, making mobile operation a real synch.

Yaesu FT-900AT List Price £1499  
Leicester Price: Super Low!

#### FT-990



It amuses me that after a couple of years people are still finding out for the first time, just how good the FT-990 HF transceiver really is. No other employs digital filters. Both this and the Icom IC-7367 continue to attract the majority of our used HF stock as part exchange.

Yaesu FT990DC List Price: £1899  
Leicester Price: Super Low!

#### FT-840



When you consider the performance offered for so little, it beats me that the price is constantly slashed to bits to make it "more attractive". Perhaps other retailers don't realise just how good a performer the FT-840 really is. Compare it to the "Flagships" and it will stack up well. I've bought FIFTY pieces so I can offer this gem to you at a much reduced price and still leave me enough profit to give you after care.

Yaesu FT-840 List Price: £879  
Leicester Price: Unprintable!

#### FT-890



Yes it really is an FT-900 without the removable front panel. A full feature HF Base station the size of a Mobile. Available with or without internal Auto ATU.

Yaesu Special offer price:  
FT-890 £1049.00  
or with ATU £1249.00

#### FT-1000



The FT-1000 has worked its way into most of the UK's top HF DXers home this year alone. If the feel of quality and performance is enough to persuade the masters of DX, why are you still standing out in the cold?

Yaesu FT-1000 lists at £3495.00  
Leicester Price: How low can I go?

#### FT-747GX



Old fll admit production is now finished. Guess what I've found another ten pieces. I've also located a very limited supply of matching Yaesu FP-700 power supplies with speaker.

Yaesu FT-747GX £649.00  
(List £829)

Yaesu FP-700 £159.00  
(List £229)

VCI ATU £129.00  
(List £169)

Yaesu Mic FREE!! List £ 29

YOU SAVE £319.00!

Deposits from only £219.00

Total £937.00

CAN YOU GET ON H.F. FOR LESS??

#### FT-736R



Remember last month when you could buy an FT-736R and get a SIX METRE CARD for only £100, from Yaesu U.K.? Couldn't quite afford it then, but wish the same deal was available now? It is. The first TEN customers who buy for cash or finance before the end of October will have the same deal. Further more, I'm still offering the FT-736R at an amazingly low purchase price and producing a finance plan that would make bank managers queue for!

Yaesu FT-736R list price £1699.00  
Leicester price: Not even close!

#### FT-5200/FT-5100

The best value dual bander around, the competition can't cope. If you require 50 watts on 2 and 35 watts on 70 all for a price UNDER £600, then these two are for you. The difference? The FT-5200 has

a "quick" release front panel the other hasn't. Only £20 difference in cost. You choose.

Yaesu FT-5100 List £629.00  
FT-5200 List £649.00  
Leicester Price: Much less!

#### FT-2500M



"M" for military, (or is that Macho?), this beastie will run 50 Watts of 2M FM without even a murmur. Its built like a tank and hasn't got loads of fiddly knobs or Christmas tree displays. The Land Rover of 2M radio!

FT-2500M List £359.00  
Leicester Price: FREE CTCSS BOARD!!

#### FT-2200



The ideal slim-line 2M mobile, I've bought too many, so grab a bargain whilst I save up for that hot meal I promised myself at the end of the month...

FT-2200 List £369.00  
Leicester Price: FREE CTCSS & MOBILE SPEAKER!

#### FT-530R



I've got TEN pieces left out of crate loads so grab one quick before you miss the only Dual Bander to offer CTCSS as standard. Are Yaesu in step with todays requirements - I should say so!

Yaesu FT-530R List £499.00  
Leicester Price: £399.95!!

#### FT-416G

The only 2M handle to be offered with a massive FIVE WATT battery pack as standard, together with a charger included! then there is the Lynchey "Never Knowingly Made a Profit Price!"

Yaesu FT-416G List £349.00  
Leicester Price: £269.00.

#### FT-11R/41R

Either for TWO or SEVENTY, the new breed of Yaesu Handles, certainly showed the others where to get off. Just hold one, and feel the build quality

Yaesu FT-11R List £299.00  
Leicester Price: FREE CTCSS!  
FT-41R List £329.00  
Leicester Price: FREE CTCSS!

Special offers on all Yaesu Products, including the FT 290R/690R/790R, FRG-100 and many more. As Yaesu's largest U.K. dealer, we get the best deals and pass them on to you. Super Low Finance a pleasure!

### KENWOOD

#### TS-850S



It's been around some four years now, but sales haven't slowed down one bit. The TS-850S is one hell of a hard act to follow, and at my Leicester show price, even more so!

Kenwood TS850S (without ATU) Lists at £1699.00  
Leicester Price: Elowert!

Kenwood TS-850SAT with auto ATU Lists at £1849 - Much lower!

#### TS-450S



The TS450S seems to have lost its way a little recently but to remind you once more, it really is a scaled down version of the TS-850S. Save yourself some cons of the realm and take a closer look at this classic TS-440S replacement.

Kenwood TS-450S or "SAT" (with/without ATU), lists from £1399.99  
Massive saving at the show!

#### TS-50S



They are so good even I talked myself into using one mobile on HF. If you were one of the few that were sold a TS-50S for exclusive home use, then it definitely wasn't my company. Ideal for what it was designed for, the TS-50S still has no competitors in size versus performance. Employed as a mobile, portable or "second rig", the TS-50S is still unbeatable. Ask about our improved SSB selectivity mods too!

Kenwood TS-50S Lists at £999.00  
Leicester Price: Who knows!!

**140-142 NORTHFIELD AVENUE, EALING**

**MARTIN LYNCH**  
HKS  
RADIO EXCHANGE CENTRE

**SHOW STOPPERS**

# STOPPERS

*...do, I'll pay your admission to the show!*



.....  
**TS-950SDX**



Despite its price tag of nearly four grand, the TS-950SDX still finds pride of place in many an HF DXers shack. If you can find £1000, I'll loan you the rest over eighteen months. FREE OF INTEREST at only £150 per month. Part exchange on the yacht welcome.

.....  
**TH-79E**



My goodness, what a masterpiece! If it were female, her name would be Michelle Pfeiffer (is that spelt right?). The visual appearance and 'feel' is incredible. The new dual band handle from Kenwood is stunning. If you haven't owned a Dual Bander before, because you haven't wanted one, then give in. Its that good. Take it from Martin this is the next best thing to a Magnum Ice Cream except you can keep it in your INSIDE pocket without making a mess. The price is right too. No doubt there will be a few loonies given 'em away at the show. I'll charge you a bit more and give you FREE CTCSS AND WIDE BAND COVERAGE PLUS a LOT MORE piece of mind, buying from someone you can trust. Just ask your friends.

Kenwood TH-79E lists at £449 + £32.95 for CTCSS.  
Leicester: £LESS!

.....  
**TM-733E**



Yes I know Kenwood have bought out YET ANOTHER DUAL BANDER, but have you seen this brilliant piece of kit? Quick release front panel, inexpensive accessories, loads of features. It retails at over £700, but I've put a package together that you may find interesting.

Kenwood TM-733E list: £729.00  
Kenwood DFK-3B list: £29.95  
(Remote panel kit)  
Total Price: £758.95

Deposit: £129.00 12 payments of only £50, total £729 it's cheaper than FREE FINANCE. ZERO APR!

.....  
**TM-251E/451E**

Just to confuse you, these two offer receive only on the opposite transceive band. If you buy the TM-251E, which gives you 50 watts on 2 metres, then you get a FREE 70cm receiver thrown in. Don't ask me. It seemed like a good idea at the time and what's better it's the same price as its predecessor without the fac-

ty. Who says Kenwood aren't tops for value? Don't forget the 9600 Baud packet input either!

Kenwood TM-251E lists at £389.95, the TM-451E at £429.95.  
Leicester, come and talk to mamma

.....  
**TM-255E/455E**



So you wanted a remote head single bander, didn't you? FM only? Blast! They thought you said MULTIMODE Listen, if they are good enough for Barry, G4USK believe me, the pair are good enough for anybody. The successor to the TR-751E & 851E, these two are so loaded with features and BRILLIANT receivers they are worth a closer look. Just ask Barry.

Kenwood TM-255E (2m) lists at £899, the 455E (70cms) at £999.  
Ouch!  
Talk to me at Leicester.

.....  
**TH-22E/42E**



The smallest, neatest, lightest wireless thingy in the world. Its so small it seems people can keep it under their hat! If you want a single band handle with no frills then take a closer look. Today.

.....  
**TM-742E**



The top of the shop in dual/triple banders, the TM-741E is the ONLY radio to offer that important THIRD BAND, as an option. Its a 2.70 dual band FM machine, but add any of the optional 6/10 or 23cm modules and you turn the TM-742E into a pretty unique mobile transceiver.

Kenwood TM-742E lists at £829.00, Leicester. Loads off.

**Super Low Finance Available On All Products**

.....  
**Icom**

**NEW NEW NEW Icom IC-738**



It's so new I haven't even had time to sling one to Mr Lewis, G3GIC for a "First Impressions" review. Identical in appearance to the IC-737A, but with some of the IC-736 enhancements like R.F. Gain, larger RT/TXT tuning range, more comprehensive metering showing ALC, SWR etc. No internal PSU or 6M coverage.

NOW AVAILABLE FROM STOCK  
Icom IC-738 lists at £1549.00  
On show for the first time at Leicester!

.....  
**IC-736**



The first Amateur Radio Transceiver to give you 100 watts from Top Band to Six, built in PSU and an Auto Tuner! This new exciting machine from Icom has achieved the ultimate in accolades - a brand new example has found its way into Mr Famous himself, Henry Lewis's own shack. You know what they say, if its good enough for Henry...

Icom IC-736 lists at £1849.00  
Leicester price, very low. Oh yes.

.....  
**IC-820H**



The latest Dual Band Multimode Base Station, the IC-820H has a 1Hz synthesiser that convinces me Icom are showing off yet again. When I was a mere lad, Icom introduced the first decent synthesised 2m Base rig. (You can't count the Multi 2000). The rest of the playing field have been trying ever since to catch up with their "diabolical mixing free" designs. If you're serious on VHF DX then take an IC-820H home with you this winter.

Icom IC-820H lists at £1699. I'll offer a finance (or cash) deal that will knock your BNC's off!

The rest of the fabulous Icom range is always available. Call for details.

**USED EQUIPMENT LISTS**  
Don't forget MARTIN LYNCH carries the widest range of good clean USED GUARANTEED Amateur Radio Equipment. If you have a FAX machine, call us for an up to the minute computer generated print-out. Part exchange against any new or used stock item, a pleasure!

**STOP PRESS!!**

Yupiteru MVT-7100 - Only a few left at this special price!!  
I'm offering these brand new and boxed, (no 'greys'), The Yupiteru MVT-7100 'does everything' Scanner at only £319.00. Save a massive amount and buy one. They make an excellent shack monitor!  
ONLY £319.00 COMPLETE!!

.....  
Full Range of DSP FILTERS always available  
W9GR, £299.00 DSP-9, £169.00 DSP-59, £299.00 JPS NTR-1, £199.00 JPS NFR-7, £279.00 JPS NIR-10, £169.00.

**NEW LOW PRICES ON AEA PRODUCTS !!**

From the first of October, MARTIN LYNCH is pleased to announce factory appointment for the famous AEA brand of products.  
Take a closer look at the reduction in prices too!

AEA PakRat PK-232 WAS £385.00	£329.95	PK-900	£479.95
NOW ONLY	£329.95	PakRat-windows	£79.95
AEA PK-88	£149.95	Next month see the full list of RF Products	
NEW AEA PK-12	£139.95	including the AEA range of power and SWR	
NEW PK-96	£199.95	meters and antenna tuning units.	

Phil Bridges of Siskin will be there at the open day to discuss or take orders for any of the packet range.

**CUSHCRAFT ANTENNAS**

Since SAS started making his own "Eagle range" of VHF antennas, the famous Cushcraft brand for a while was hard to get. No more! The best part of Mr Cushcrafts range are available from stock and specials are usually only 3-4 weeks away. Here's some of the current holding:

R7 Vertical, 40-10M now in its mk2 state, it really is a winner.....	£369.00
R5 Vertical 20-10M, as above, no radials required with this one either.....	£279.00
A4S 4 ele Beam, for those who take H.F. seriously.....	£428.00
A3S 3 ele Beam, almost as above!.....	£349.00
A3WS 18/24MHz 3 ele beam.....	£275.00
D3W 10/18/24 MHz rotary dipole.....	£179.00

£10 Carriage On All Large Items



**LONDON W13 9SB 0181-566 1120**

New After Hours Number: 0973 339339  
Fax: 0181-566 1207

the antenna mast a real struggle. It resulted in a late start or reduced height antennas.

At G0RTL/P, for example: "after four attempts we dropped the height by about 3m which made them much easier to raise". At G2HR/P "the antenna was at a reduced height, the wind doing its usual trick of gusting at the wrong time".

At G7NBP/P they found that "heavy rain and very strong gusts of wind conspired to make setting up take three times as long as in the trials at home".

Across the channel at F1ROW/P however, there was a different story. "The weather was very fine, on the hill top with nothing between us and UK stations but the channel and very fine scenery".

## Morse Mode

It has often been pointed out that the Morse mode is very well suited to QRP operation, although it has been little used in past PW contests. And it was good to see that there was some Morse activity this year.

Commenting on c.w. activity G0RTL/P says "taking the key along was worth it, scoring two squares (IO86 and IO71) on c.w."

Both operators at F1ROW/P are learning Morse "to pass the exam at the end of this year and become F5 operators on the h.f. bands. During the contest we worked GW2OP/P with c.w. and it was our first successful QSO this way". Indeed it seems that GW2OP/P spent much of the day on c.w.

"General level of operating was very good and signals nice and clean" reported GM3IDS in common with several others. Although overcrowding of frequencies at times made G0OVA/P wonder "why do people only work on exact frequencies, e.g. 144.225 or 144.320? Why not spread out a bit more"?

## Problem Frequencies

One problem, however, did rear its head for the first time in this event, and that's of operation on normal calling frequencies. The rules quite clearly prohibit the use of the f.m. and s.s.b. calling frequencies 145.500 (S20) and 144.300MHz, as well as other frequencies in use for non-contest purposes (e.g. GB2RS).

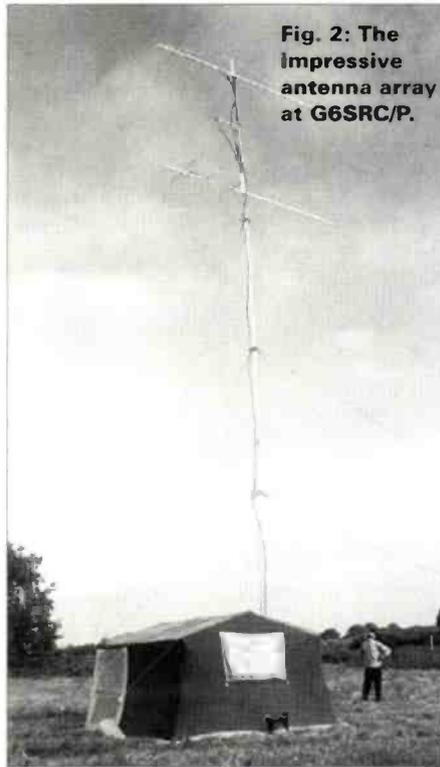
Sadly, though, there were some comments made about contest activity being heard on S20. One particularly strong complaint was received from a non-contest station who found it difficult to use the normal f.m. calling channel during the day.

As it has not been possible to substantiate any specific allegation, I haven't taken any action this time. But next year it may be necessary to penalise or disqualify any entrant who ignores this rule.

It's quite reasonable to allow other users of the 144MHz band to be affected as little as possible by contest activity. The level of activity in the QRP contest is not high enough to justify taking over large sections of the band.

On the other hand, contest stations in remote parts of Britain away from the main activity may need to go on to the f.m. part of the band to get their number of contacts up.

I've read that some people would like to see more restriction on the frequencies which are used for the contest, maybe keeping all activity below 145MHz. I would welcome views on this (from both regular contesters and others) before possibly changing the rules for next year.



**Fig. 2: The impressive antenna array at G6SRC/P.**

## Making Improvements

Most stations who enter the QRP contest year after year make a resolution after each event to do better next year, and spend time making improvements to their station. Or finding a better site!

The group operating G6SRC/P, for whom last year's event was their first experience of a contest, said "we have certainly learnt a lot about contesting in a year and have made many improvements" resulting in a 60% increase in their score this year.

The operators at G6SRC/P added that they "could now write a book about how to get an 18m scaffold mast in the air, and back down without destroying the antennas. "There was a Post Script:" (we have written off three this year)!"

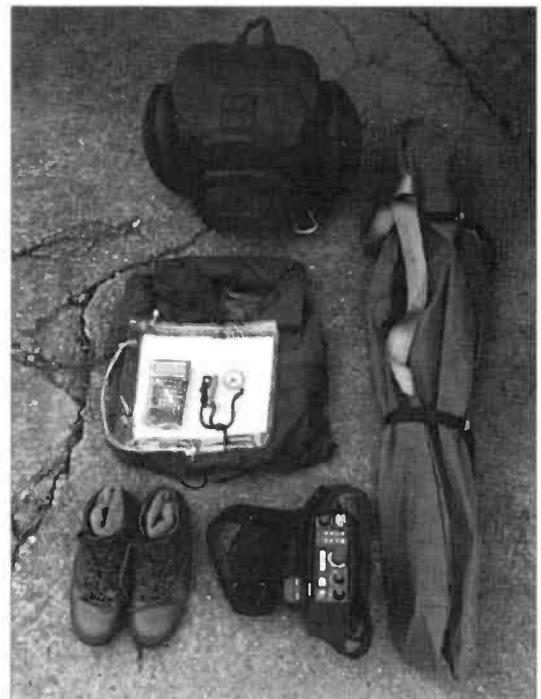
At G0LAR/P the antennas stayed in the air satisfactorily, until they had to be brought down to check why so few contacts had been made after several hours. It turned out that the phasing harness feeding the two 12-element ZL-specials was connected wrongly!

The mistake resulted in the two antennas cancelling each other out! Once this was rectified, things suddenly went much better.

## Common Distraction

A common enough distraction was experienced by G7NBP/P: "As my station (on Caer Caradoc) was only 3m off the main path across the summit, the QSOs were punctuated by descriptions of amateur radio, contesting and the

**Fig. 3: Someone, G7NBP/P, believes in going well equipped - even to the extent of using computer logging via a Psion 'Organiser'!**



meaning of life to a good number of interested parties. Next time I will take a colleague along to take care of the PR work"!

Over in Eire E13GF/P also found themselves distracted at the start of the event. They were celebrating a win for Ireland in a World Cup match!

## Highlight Of The Year

There are many things that make the PW 144MHz QRP Contest what G3NPB calls "the highlight of the year's operating". For many, as G0OCE/P puts it "as always we are amazed at the distances achieved on low power".

The hope of winning may seem beyond many entrants. But there are more localised 'competitions within the competition'. This could be either for a certificate as leading station in a locator square, or as at G0TMT/P, where "a certain amount of friendly rivalry exists between us and another Norfolk station - there is a very satisfying feeling from beating our rivals to a distant station"!

Operating from more outlying parts can be rewarding too. For example G0RTL/P found that "many stations thanked us for activating what, in this contest, is a rare square (JO03)". This is of course why we reward such stations with a PW certificate, even if there are no other entrants in the square.

The team spirit is another attraction when operating in a group, even if, as at G0OCE/P "the class Bs ran the station and the class As made the tea"!

## Enjoyed Themselves

Whatever the reasons, everyone seems to have enjoyed themselves, like G0PJY/P: "We all had a great day despite the tent nearly blowing off the hill". "The PW QRP Contest continues to be an enjoyable event" says G0LAR/P, "it encourages experiment in efficient communication".

Proud Dad G0TAR asks "I wonder if you realised it was Father's Day? My daughter came home, some 33 miles drive, to keep asking 'Where's Dad'? When is he coming down to see me"?

Well Brian, the contest has often coincided

# FEATURE

with Father's Day. In fact many would see it as a special treat for Dad to be allowed to play with his radios all day long!

So, warn your daughter that it may happen again next year, as the 13th *PW* 144MHz QRP Contest is scheduled for Sunday June 18 1995.

## Thank You All

Finally, I'd like to thank you all. Thanks to all the entrants for taking part, G4XPE for his check-log, the donors of prizes for their support, and the *PW* staff for their enthusiasm for the contest and hard work in sending out the results and certificates.

I also send my congratulations to all prize and certificate winners. And remember, now's the time to start planning for next year!

**PW**

## Practical Wireless 144MHz QRP Contest 1994

Pos.	Callsign	Points	Pos.	Callsign	Points
1	G0GAG/P	10989	47	GW7RMN/P	1386
2	GW0NWR/P	6880	48	G8NVI	1260
3	G10RC/P	6048	49	G0LIY/P	1220
4	GW4UDE/P	5124	49	G14OWA/P	1220
5	G4SRS/P	5010	51	G3BPK/P	1206
6	GW8ZRE/P	4725	52	G0BNC/P	1173
7	G30AP/P	4344	53	G0SRC/P	1136
8	G1DPL/P	4293	54	G0ADH/P	1120
9	GW20P/P	3937	55	G0SYK/P	1105
10	G4LCQ/P	3775	56	G3PIA	1104
11	G1POS/P	3768	57	G0LAR/P	1071
12	G6PHJ/P	3762	58	GM6FPX/P	1054
13	EI3GF/P	3725	59	G4NVM/P	1040
14	G6SRC/P	3570	60	G1JGE/P	1026
15	G00VA/P	3510	61	GW0SYG/P	1008
16	G8D0Y/P	3404	62	G7PLR/P	1007
17	G0SEA/P	3102	63	G3WSC	966
18	GW1IKN/P	3045	64	G0FUW/P	912
19	G3WOR/P	2700	65	F1ROW/P	901
20	G4RSE/P	2640	66	GW1CXK/P	880
21	G7FOX/P	2596	67	G8HFW	799
21	G7OKV/P	2596	68	G4JBR/P	792
23	G4URT/P	2424	69	G17JK/P	770
24	G0PJ/P	2299	70	G0TAR	756
24	G7LQD/P	2299	71	G4ZHI	727
26	G0DVB/P	2204	72	GM3IDS	714
27	G00CE/P	2178	73	G0JEK	690
28	G7GUC/P	2162	74	G0RRC	675
29	G0PZE/P	2121	75	G17CMC/P	624
30	G1MDG/P	2088	76	G3NPB	520
31	G8PNN/P	2079	77	GM4YEQ/P	490
32	G0PCX/P	2071	78	GW3LNR/P	480
33	G4RVR/P	2052	79	G0TPH/P	468
34	G7NNN/P	1989	80	G0ECP/P	420
35	G7RAU	1840	81	G7HIA	385
36	E16ARB/P	1800	82	G2HR/P	370
37	G0RFM	1728	83	G0TMT/P	336
38	G0CRW/P	1691	84	GW0NCN	324
39	G0RTL/P	1680	85	G8BM/P	308
40	G4SKM/P	1634	86	G6EDB	286
41	G0HDV/P	1530	87	G7NRO/P	240
42	G60UT/P	1482	88	GW1YQM/P	196
43	G8NTD/P	1472	89	G0GCI	180
44	G7NBP/P	1425	90	G2FKO	161
45	GM1RZB/P	1408	91	GW3AWT/P	91
46	GW4SQC/P	1400			

## Leading Stations

<b>Overall Winner</b>	Mick Cowley	G0GAG/P
<b>Runners Up</b>	North Wales Wafflers	GW0NWR/P
<b>Leading Single Operator</b>	Mick Cowley	G0GAG/P
<b>Runner-up Single Op.</b>	Mike Ellis	GW4UDE/P
<b>Leading Fixed Station</b>	David Edwards & others	G7RAU
<b>Leading English Station</b>	Mick Cowley	G0GAG/P
<b>Leading Welsh Station</b>	North Wales Wafflers	GW0NWR/P
<b>Leading Scottish Station</b>	Menstrie Morse Group	GM1RZB/P
<b>Leading N. Ireland Station</b>	Gerard Elliott	G14OWA/P
<b>Leading Eire Station</b>	Wicklow DXers	EI3GF/P

## Leading multi-operator stations

Pos	Name	Call	score	QSO	Squ	Loc	Ant	asl,m	Tx/Rx
2	North Wales Wafflers	GW0NWR/P	6880	215	32	I082IW	14Y	560	FT221R
3	Oldham Radio Club	G10RC/P	6048	224	27	I093BJ	2x9Y	635	FT290R
5	Stroud District ARS	G4SRS/P	5010	167	30	I081WS	2x11Y	265	IC2751E
7	BBC Rampisham Aerial RG	G30AP/P	4344	181	24	I081FF	3x17Y	460	FT736R
9	Pembroke & District ARC	GW20P/P	3937	127	31	I071OW	13Y	535	IC271E
10	Atherstone Radio Club	G4LCQ/P	3775	151	25	I092FM	17Y	155	FT736R
13	Wicklow DXers	EI3GF/P	3725	149	25	I062XX	2x13Z	120	FT290R
14	Swale ARC Contest Group	G6SRC/P	3570	119	30	J001JG	2x11Y	140	IC275E
17	Far Canal Contest Group	G0SEA/P	3102	141	22	I092NP	4x9Y	225	FT221R
18	The Two Musketeers Cymru	GW1IKN/P	3045	145	21	I081JS	8Y	450	FT290R

## Leading single operator stations

Pos	Name	Call	score	QSO	Squ	Loc	Ant	asl,m	Tx/Rx
1	Mick Cowley	G0GAG/P	10989	333	33	I093EC	16Y+7Q	380	IC251E
4	Mike Ellis	GW4UDE/P	5124	183	28	I082IS	2x10Y	370	FT736R
6	Dave Hewitt	GW8ZRE/P	4725	175	27	I083JA	HB9CY	560	TR751E
8	Martyn Beer	G1DPL/P	4293	159	27	I080AR	14Y	430	FT290R
11	Jon Page	G1POS/P	3768	157	24	I092CA	14Y	300	FT480R
12	Peter Daines	G6PHJ/P	3762	171	22	I093AD	11Y	470	FT221R
15	Tony Crake	G00VA/P	3510	135	26	I091GI	13Y	290	TR751E
16	Peter Thompson	G8DDY/P	3404	148	23	I090JO	19Y	225	FT221R
25	Mike Baguley	G7LQD/P	2299	121	19	I093AD	17Y	455	FT290R2
26	John Morris	G0DVB/P	2204	116	19	I091CL	9Y	260	FT290R2

## Leading stations in each locator square

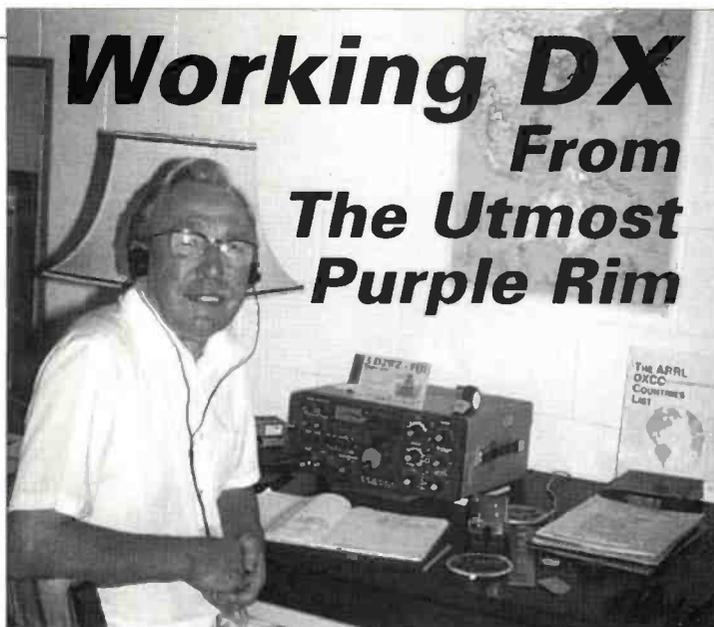
Square	Name	Call	No. entrants in square
IN99	Eric Rulier	F1ROW/P	1
IO62	Wicklow DXers	EI3GF/P	1
IO63	John O'Sullivan	E16ARB/P	1
IO64	Gerard Elliott	G14OWA/P	2
IO70	Poldhu Amateur Radio Club	G0PZE/P	2
IO71	Pembroke & District ARC	GW20P/P	5
IO74	Noel & Matthew Moore	G17CMC/P	1
IO76	The Glasgow VHF Contest Group	GM6FPX/P	1
IO80	Martyn Beer	G1DPL/P	3
IO81	Stroud District ARS	G4SRS/P	9
IO82	North Wales Wafflers	GW0NWR/P	4
IO83	Dave Hewitt	GW8ZRE/P	5
IO84	David Andrew & Michael Dent	G60UT/P	2
IO85	Galashiels & District ARS	GM4YEQ/P	1
IO86	Menstrie Morse Group	GM1RZB/P	2
IO90	Peter Thompson	G8DDY/P	3
IO91	Tony Crake	G00VA/P	11
IO92	Atherstone Radio Club	G4LCQ/P	12
IO93	Mick Cowley	G0GAG/P	10
IO94	Hambleton ARS B Team	G0LIY/P	3
IO95	Northumberland Contest Group	G8PNN/P	1
JO00	Peter John Hutcheson	G4URT/P	1
JO01	Swale ARC Contest Group	G6SRC/P	7
JO02	Kim Johnson	G8NTD/P	3
JO03	John Flowers & Mick Pell	G0RTL/P	1

## Leading Stations using a single antenna

Pos.	Name	Callsign	Antenna
2	North Wales Wafflers	GW0NWR/P	14-ele Boomer
6	Dave Hewitt	GW8ZRE/P	HB9CV
8	Martyn Beer	G1DPL/P	14-ele yagi
9	Pembroke & District ARC	GW20P/P	13-ele Tonna
10	Atherstone Radio Club	G4LCQ/P	17-ele Tonna
11	Jon Page	G1POS/P	14-ele MET
12	Peter Daines	G6PHJ/P	11-ele yagi
15	Tony Crake	G00VA/P	13-ele Tonna
16	Peter Thompson	G8DDY/P	19-ele MET
18	The Two Musketeers Cymru	GW1IKN/P	8-ele laybeam

**Editorial Acknowledgement:** The Editorial team, publishers and contestants are as usual very grateful for the excellent work which Dr. Neill Taylor G4HLX puts in for the QRP Contest. It's much appreciated Neill and the event relies on your hard work, perseverance, goodwill and enthusiasm. Thank you. **Rob Mannion G3XFD.**

# Working DX From The Utmost Purple Rim



*Retired schoolteacher Ray Baldwin G3WZ is a keen globetrotter. And although most of us can't join him, we can at least enjoy his story about DX operating at the utmost purple rim in Fiji and imagine those stunning sunsets over the Pacific Ocean!*

It really helped to have a family member abroad to cope with the legwork and red tape of exotic radio licences! My much travelled 20kg of FT-901D transceiver came round on the luggage carousel. The next 20 minutes were spent persuading Fijian Customs that it was not being imported for good, and I should not pay import duty!

The family reception party then joined in the wrangle. But finally we were away in the tropic night, slowing down for the larger villages which have unlit 'sleeping policemen' at each end!

Our destination, 150 miles away, was the hill overlooking Suva. This is where the government radio station is magnificently sited.

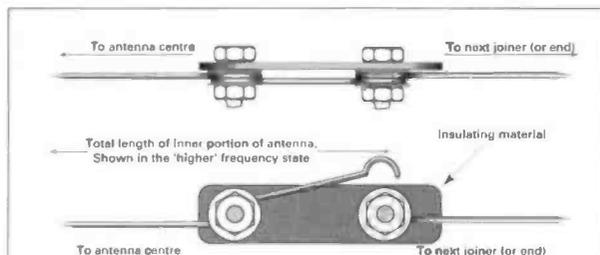
But our house was below the steep sided hilltop. It had a small swimming pool area as its only antenna space - on the third storey down and screened from the east.

## Papaya And Flowers

On the west slope downwards, palms, breadfruit, papaya and tropical flowers fell away to mangrove swamps and the Tamavua river. The house was roofed in metal sheeting and great box girders (not good for propagation purposes) bedded the structure into limestone.

Available material consisted of 18 feet of aluminium pole lashed to the wood corner of the terrace, and a lodgement three floors up on the roof. These supported a sloping dipole with a central balun.

On each side were open-and-close gaps for 28, 21 and 14MHz. This was achieved by having a quick release joint system shown in the diagram, Fig. 1.



**Fig. 1: Diagram showing the 'switching' system used on the G3WZ 'no trap' h.f. antenna system used during his Fijian operations (see text).**

The strips were cut out from a piece of polythene drainpipe as suggested by Les Moxon G6XN in his book on *HF Antennas For All Locations*. A band change involved opening and closing of gaps and this can be done in a minute or so. A listener might well contrive a set of specialist wavelength dipoles on this 'no trap' system.

## Rare Call

You might think that the world is still a continual oyster for the rare call. Unfortunately you'd be wrong!

I think that the general opinion is that in good conditions, an antenna of 'wet string' and using QRP are enough. But on bad days with good gear, nothing goes, is correct!

Certainly on Fiji, it was possible to call in vain on certain days, just as it is for common European calls. To help, you can check with the ARRL Morse propagation bulletins on W1AW around 1500Z on the DX amateur bands.

For those just beyond picking out CQ calls in the teeming world-wide amateur Morse, it's good to listen before getting your fist on a Morse key! When you do, try to imitate it, and get the equivalent of both a Harvard and Oxford Morse key 'accent'!

## Daily Log

Daily log records showing QSO numbers over three lots of three months helped. They were enough to show the 30 day approximate time for good conditions to recur with the rotation of the sun.

On a good day with many DX contacts, I regretted being hauled away from the rig by the

family. I often had to suffer being baked in a mental vacuum of burning beach or for doses of sweltering sightseeing!

Many DX operators tend to run contacts with only an exchange of calls and RST. But I've always preferred to exchange QTH, names and sometimes rig and power details.

However, the rush starts when you are putting a signal into both North and South America. The cascade of callers forces the contacts to be the

shortest, as with contests, it's the only way to handle pile-ups.

The 5-element h.f. beam operator and the 1kW man, king of the heap, gets disposed of first. Otherwise you can't hear the 100W operator with a general purpose antenna.

Ending each QSO with the request 'h.f. 2kHz' or whatever you decide, will cut some of the callers on your own frequency.

## Good Conditions

In good conditions, stations announcing themselves as QRP with about 3W will with waiting, manage to get through. Especially so if the DX station tries to lessen the crush by restricting the use of their own callsign, so that in the end, there's peace, perfect peace!

The rare CQ call tempted VK and ZLs into the queue and they would then happily embark on a c.w. chat. They would inquire your return date and generally expect to relieve their tedium for a quarter of an hour or so! This took place in conditions when half the Pacific was listening impatiently (or so it seemed) because c.w. operating from the islands is rare.

My advice for transmitting beginners, don't send long CQs! It's the mark of the tyro or the absolute lid!

In both Barbados and Fiji it was found that directional CQs (requesting calls from a particular area or country) were a total waste of time. They always got an ultimate answer from anywhere!

For trying to work difficult US States it was best to enter a contest, for this is when operators from the wilder or tinier areas identify their locations.

## Deluge Of Mail

On returning home from an exotic location, you have to be prepared for a deluge of mail from your 1000s of contacts! You also get involved with QSL card design and printing expenses.

Checking the QSL cards involved endless hours of log searches. It's helpful to type out calls, bands and log pages in label form. They can then be cut up and sorted and can be made into a helpful index - but it's still quite a job!

Expense is largely cancelled out by international reply coupons (IRCS) and dollar notes. All should get a direct reply from a mail request - Russians for instance generally cannot get dollar notes or IRCs.

At times you may think it's not worth the trouble. But you know really, that given the chance, you will risk your precious rig again.

PW

# Notes From A QSL Manager

Dave Simmonds G3JKB surfaces briefly from under a pile of QSL cards to tell you how to make life easier for the QSL Manager at the other end of the contact.

Some three years ago an old school friend of mine who is also a radio amateur was posted by his Educational Authority for a year's service on St. Helena - ZD7. While discussing his proposed visit over dinner one evening, he told me that he planned to take along some gear and operate a DX call and I volunteered to be his QSL Manager.

During the past two years since then, I've gained a lot of experience at the other end of the QSL. Because of this I felt it would be useful to you if I listed a few basic do's and don'ts. It might even increase your chance of a returned QSL card!

Let me first set the scene so that you can visualise the QSL Manager's situation more easily. These 'rules' also apply, should the operator be his own QSL Manager.

Once the station becomes active, QSL cards start to arrive directly or via the bureau. In our case there were many delays, receiving copies of the logs. So, sometimes I was unable to respond to these for up to 12 weeks at a time. The island of St. Helena has no air service and everything goes by a lengthy boat trip.

When I went on air, stations frequently chided me for their return QSLs. I'm sure many thought I wasn't telling to the truth when I said I was unable to reply as I didn't have the logs.

I found this particularly annoying when on the h.f. bands I was 'interrogated' at least once every six QSOs, by someone wanting to know why they'd not received their card.

## Develop And Automate

During my stint (or should it be 'sentence'?) as a QSL Manager, I found it essential to develop good clerical practices and automate as much as possible. These include simple things like crossing off in the log those QSLs sent and received - because operators frequently send several cards for the same QSO.

Sorting the enormous piles of incoming cards, received every few weeks, into chronological order, some were put aside awaiting the arrival of the logs. Then I set about writing out and returning the actual QSL cards.

## Useful Points

Now, here are some useful points that will help ensure the best possible chance of receiving a QSL card for that DX you've just worked. When looking at your QSL, as a QSL Manager, I am not interested in the following information:

Your age, when you retired, when you hope to retire, how many children you have. Neither, as a QSL Manager, am I interested in what you do for a living, how much you need the card for DXCC!

And, (whilst it's very nice of you to say so) I'm also not (as a QSL Manager) interested in: How good an operator I (he/she) am (is)!, and what a fine job I do as a QSL manager (believe



Let me first set the scene.....

me I already know).

Other bits of 'unwanted information' are: What an outstanding signal I (he/she) have (has), how I'm your very dear friend, and that this is the umpteenth card you've sent. Nor do I want to know you and your wife (+other family etc.) are anxiously awaiting the card, or that you are very disappointed, since you both thought English gentlemen were honourable. I can however, say that I was really motivated by this last one!

Another extraneous (though possibly artistic) point is the skilful design of your QSL card. This may include: an incomprehensible design for your call sign, undressed ladies, flashy motorbikes, or combinations of these (a JA special), full colour views of you in your shack QTH, pool, etc.

## Which Month?

I don't like using my imagination working out that you're not using GMT (UTC) or, to work out in which month the QSO took place. Does '3-4-90' mean 3rd April, or does it mean 4th March?

You shouldn't test my skill at deciphering your handwriting. Neither should you send in a card for a QSO you think you had.

## Needs And Interests

What are my needs and interests? My short list would include:

- 1: Your call sign.
- 2: The correct date.
- 3: The exact time of the QSO (using UTC).
- 4: The frequency used.
- 5: My report.

That's all, and please - write the information **all**

on the same side of the card. Put whatever else you like on your QSL card. Decorate it how you will, but make these five things stand out in such a way that they are clear and easy to read.

Now to the vexed question of financial 'inducements'. If you're sending a card direct for a quick response, it'll certainly attract attention if there's money in with it. To cover the return postage, ideally use a US dollar bill. The second best is an adequate number of IRCs.

I don't know what other managers do, but in my own case I found that collecting the IRCs and the dollar bills together would pay both for those who had sent them and for others who sent envelopes without postage.

This subsidy, by the honest operators, seemed the most equitable solution. At least it seemed better than spending the excess on something for the shack!

## Final Truth

A final truth about QSLing, please write clearly and accurately on your card for a QSO that really happened. Send it off, then exercise **PATIENCE**.

And finally, I have the answer to the question 'where do the best QSLs come from?' It's without any doubt - JA (Japan). Japanese QSLs are always clear, always accurate, time to the exact minute, decorative cards to boot. The worst must remain secret (Don't worry, it's not close to home).

Now that I've got that off my chest, I'll get back to the latest pile of cards, received this morning for ZD7KM, who closed down in July 1990. Ah good, this pile is only four inches thick. I'll soon have it done.

PW

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```

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B 433.2500
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```

```

SCAN  AM
A 119.4000
A00 MAN APF
S [signal strength bar]
    
```

```

2VFO  A NFM
A 145.3125
S [signal strength bar]
    
```

```

REMOTE
BPS 9600
DELI CR, LF
END
    
```

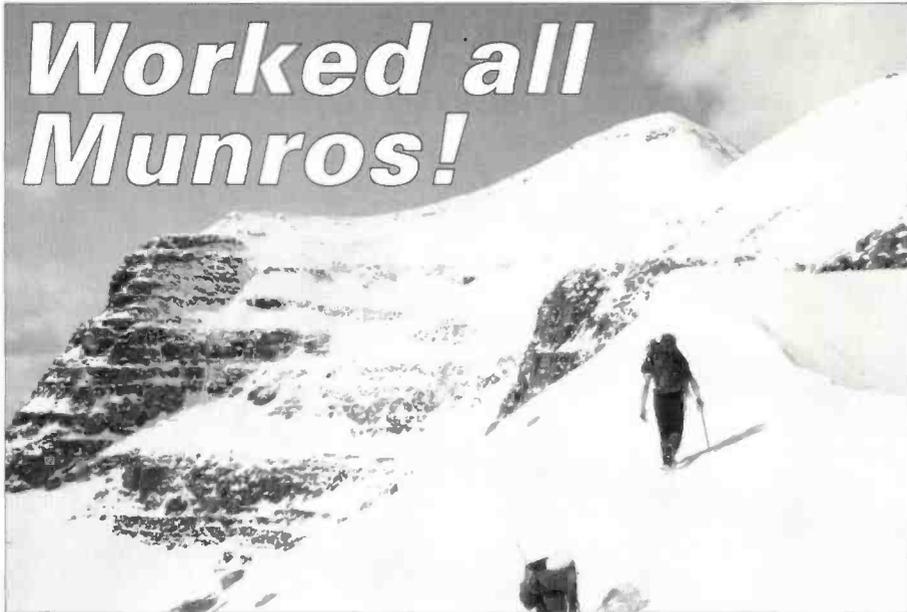
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# Worked all Munros!



**W**hen I first became licensed in 1984, I was also gaining interest in hill walking. With the two interests I soon became fascinated by the long distances it's possible to work using amateur radio from high ground.

Scotland contains virtually all the land above 900m in the British Isles. It was a challenge, not only to visit all of Scotland's mountains, but to have a v.h.f. QSO from each one.

In Scotland, there are 277 hills over 3000ft (914.4 metres to be precise). There are a further 240 subsidiary 'tops', which are points significant enough to be listed but not mountains in their own right, now widely known as 'The Munros'.

The list, now maintained by the Scottish Mountaineering Club, is largely unchanged since 1891. This was when it was first published by the Baronet Sir Hugh Thomas Munro.

Munro's list created quite a stir in climbing circles, as it was the result of many expeditions into the countryside and thorough research. It's sad that Munro himself never completed his 'Munros'.

The weather and the 'Inaccessible Pinnacle' on the Island of Skye were Munro's downfall. And, to this day, many people's dream of becoming a 'Munroist' will end 20m or so below the summit of this unique hill in Skye.

## First Munroist

The honour of becoming the first 'Munroist' goes to the Reverend A. E. Robertson, in 1901. But it was to be 1950 before 15 people had completed the round. However, the explosion in the interest in hill walking post-war meant that over 300 had completed the 'Munros' by 1983.

Railways and road improvements have eased the task of climbing the Munros in the last 100 years. Despite this it's still a considerable challenge to visit 277 of Scotland's highest, wildest, and most remote

spots. So, what could be better than to combine the challenge with an attempt to activate them all on 144MHz?

Most ascents take about three hours to reach the top over rough ground. The routes traverse heather, peat and rock often without paths, and less well marked with cairns.

Mist can quickly descend, so the ability to navigate in featureless terrain with map and compass is essential. In these conditions, the walker needs to have complete faith in his navigational abilities. It's also necessary to wear stout boots and to carry sufficient warm clothing and food.

## Camping Overnight

Some mountains can only be practically reached by camping out overnight. On such trips, everything must be carried, food, cooker, sleeping bag and tent.

Water is normally taken from streams and care must be taken to ensure its purity. Despite making a heavier pack than for a day walk, camping out is an ideal way to fully appreciate the mountains in summer.

The load when 'back-packing' can be reduced by leaving out the tent and sleeping in bothies. A bothy is an open mountain refuge, usually owned by the landowner, and often maintained by the Mountain Bothies Association.

Bothies provide very basic shelter out of the elements, and a place to sleep on a wooden floor or bare dirt. They're open to



*James Gentles GM4WZP describes how he has combined his interests in amateur radio and hill walking to explore mountains in Scotland, putting many of them on the air in a long series of mini DXpeditions using 144MHz and a lot of will power!*

anyone in the hills, and everyone is expected to leave the bothy as they found it.

Once, when I visited the Sinclair Memorial Hut in the Cairngorms, I read the bothy book. Recorded there were the comments from two men who had stumbled into the bothy in a storm. The hut had almost certainly saved their lives, never had anyone been as glad to sleep on its concrete floor!

## Delights And Dangers

Winter brings a whole new set of delights and dangers. The cold air still brings views as clear and almost as far as can be worked on 144MHz.

The beauty of the mountains is greatly enhanced with their icing layer of snow. However, all this has to be balanced against the increased dangers, so only experienced and well equipped walkers should venture into the hills in the winter.

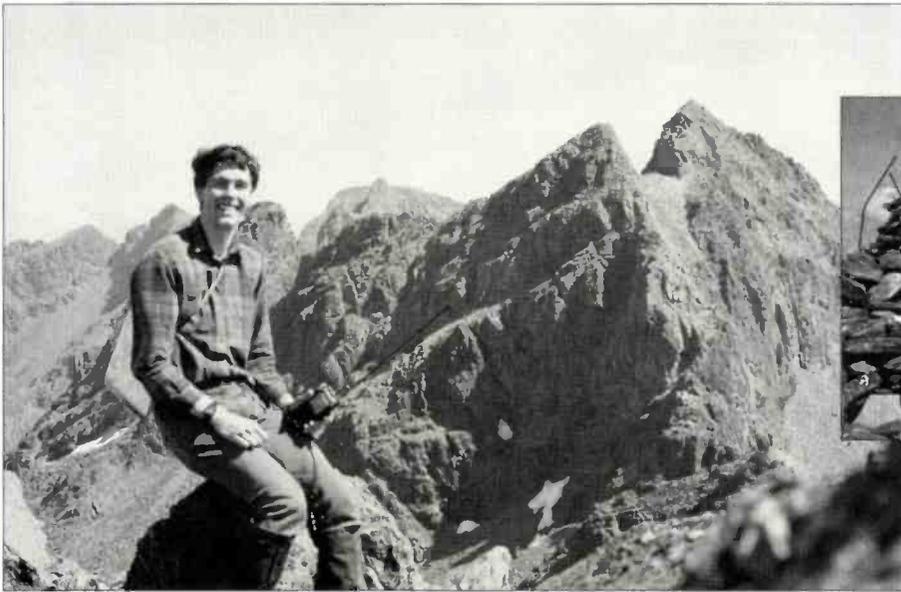
Shorter days, poor weather, the cold and snow conditions should be considered when planning. Crampons and ice axes are essential equipment and you should know how to use them properly.

It can snow in Scottish hills from September to June and there are often overhanging cornices for the unwary walker to fall through. And, although we think of avalanches as being associated with alpine terrain, avalanches big enough to kill happen annually in Scotland.

I'll never forget climbing Liathach in Torridon (Ross-Shire) in April. My companion and I looked back and see our tracks 100 metres below obliterated by a small avalanche!

Another winter danger is the white-out, a word often associated with falling snow and blizzards in weather forecast. In mountains, a

**James Gentles GM4WZP on An Socach near Loch Mullardoch. This little mountain is overshadowed on all sides making 144MHz contacts extremely difficult.**



**Below: Taking advantage of some of the (all too rare!) summer weather at Meall Cuaich, Drumochter.**



**Left: Brave GM4WZP/P on the breathtaking Coulin Ridge mountains on the Isle of Skye. Contacts via the GBHI (Isle of Mull) repeater were possible from this spectacular site.**

white-out can occur without snow falling or wind blowing.

If mist descends the snow covered ground merges into the white sky rendering the walker blind. Unable to see anything ahead, it's often impossible to determine whether the ground is rising or falling in front.

So, in mist the walker frequently stumbles over the ground and into soft snow. Extreme care must be taken as navigation is extremely difficult, and people have been known to walk over cornices.

Operating in such conditions requires that summit stops be kept to a minimum. This is to prevent cooling down, especially your hands.

In winter I normally use a pair of fingerless inner gloves and outer mitts. These have a slit in the palm for finger access without removing the whole glove.

## Summit Stops

After all the effort it's not unusual for summit stops to be only five minutes. That's the longest time that could be tolerated.

On some tops Ordnance Survey 'trig' (triangulation) points or cairns of rocks can afford some shelter. But on other tops I have resorted to lying on the ground to operate the rig, or sheltered behind a 'human wall' of masochistic companions!

Despite their seemingly bleak and inhospitable nature the mountains are home to many wild creatures. Dotterel and Snow Bunting are small birds seen in the summer and winter respectively.

Ptarmigan (highland grouse), Raven and birds of prey can also be found. Small mammals are extremely shy, but in winter the tracks of fox and wild cat can be seen in the snow.

The most majestic and largest animal is the red deer, found extensively in mountain areas. I have seen herds of over 100 hinds, but stags with their spectacular antlers live in smaller groups. In the Cairngorms, the red deer live alongside a small herd of Reindeer, re-introduced to Scotland in 1952. They provide a very unusual sight!

## Summer Days

The summer brings longer days and bigger expeditions to the hills. The Letterewe Forest south of Ullapool is a case in point.

Letterewe is a vast area with no access by road or by Land Rover track. Even the Ordnance Survey were prevented from surveying the area properly in Munro's time by a very insular land owner. Later two extra mountains over 900m were found!

The circuit of the six Munros in the Letterewe area is one of Scotland's longest walks. It takes two and a half hours from the nearest road just to the start of the walk at Shenavall Bothy!

Along with my friend Neil, I spent the night at the bothy. On the following day we walked the 30km distance and climbed the 2420 metres over the six summits.

On four tops a 5-element beam and mast was erected to get a contact. We arrived back at remote Shenavall Bothy 13 hours later, to spend another night before the two and half hour walk out.

## Team Effort

It was quite a team effort to keep moving all day and keep the summit stops to a minimum. Whoever was going strongest to each summit would carry the 5-element beam, erecting it before the second caught up to save time.

Unfortunately, the remoteness of your location is often not appreciated by other radio amateurs especially on the longer walks. It was not uncommon to hear 'Fine business OM, got your QTH, I didn't realise there was a car park up there!'

Letterewe was a great success despite our long walk. But there were other walks that were less successful.

Again, with Neil as companion I set out to walk round the 12 mountains surrounding Loch Mullardoch in June 1987. These are near Cannich to the west of Inverness.

We planned to take three full days and sleep in our tent for two nights. This is because it's a remote area with difficult access.

The first day started well, with full back packing equipment we walked over five mountains, but Neil had a slight stomach upset. This was not helped as the weather deteriorated, we ended up camping at 750m in the fresh snow!

The second day Neil felt better, so we continued over another two mountains. But he was very slow, and his condition was deteriorating. We were now at the furthest point from the start at the wrong end of the loch!

Fortunately, I knew of a boatman on the loch. I had his telephone number, and GM4OIJ in Inverness tried in vain to contact him for us. So, we started walking back towards the loch over another Munro - the only way out.

Unfortunately, the boatman could not be raised on the telephone, so we thanked GM4OIJ and descended out of 144MHz radio contact. There are no tracks along Loch Mullardoch and we had a long slow walk out along the shore.

It took six hours to walk the length of the loch. It was very heavy going as the loch level has been raised by a hydro-electric dam and the steep hillsides just drops into the water.

At one point, we saw the boatman, but couldn't attract his attention. We reached the car at 10pm after walking all day, glad to be back!

The radio could have saved us quite an effort in walking back if the boatman could have been contacted. However, I'm sure that if we'd been in danger we could have called for assistance.

## Excellent Radio Sites

The remoteness of the Munros is emphasised by the fact that despite their excellent radio sites, only two are used for permanent radio communications to my knowledge.

On top of the fifth highest mountain, Cairngorm at 1245 metres, there's a radio relay station and an unmanned weather station.

The weather station, run by Heriot Watt University uses a 1W v.h.f. radio link with a folded dipole antenna to transmit the weather telemetry. The weather is so severe that the station only exposes the instruments for four minutes every half hour.

Originally, the Cairngorm telemetry signals was received in Aviemore, 13km to the north west. It was then sent by landline to Edinburgh. However, it was soon realised that the 3W signal could easily be received in Edinburgh, 138km away, thus simplifying and reducing the cost of the data link.

## Active Deflector

There's other radio interest on the Munros and on the ascent of Beinn Sgritheall I stumbled on an interesting u.h.f. television 'active deflector'. This provides u.h.f. TV for the tiny west coast village of Arnisdale.

Providing television for such a small hamlet, the repeater was of very low cost construction. From the two domestic yagi antennas the 'active deflector' changes the incoming signal (*most probably the incoming signal is from the Skriag u.h.f. relay near Portree on Skye. This is itself a high power Band IV Group A relay, receiving its feed from the main transmitter, Eitshal, on the Isle of Lewis. Editor*) from vertical to horizontal polarisation.

The 'active deflector' was powered by a tiny windmill. There was also an old chest freezer, which provided ideal accommodation for the u.h.f. amplifier and the batteries for the unit.

## Most Spectacular

By far the most spectacular mountains in Great Britain are on the island of Skye. The Black Cuillin ridge has 11 Munros along its length, a climber's paradise of rock and cliff.

The mountains are all on one long north south running ridge. It's precipitous along its whole length and only one of the mountain tops is not guarded by cliffs.

The Cuillins are hills where the walker must consult the guide book studiously before setting out. This is because there are only a very few walking accesses.

Fortunately, Skye is close enough to the GB3HI repeater that I did not take my 144MHz beam onto the ridge. I had enough on my plate scrambling over the rocks carrying a rucksack! In the event a simplex contact was achieved on all but three Skye summits.

There is one mountain on the ridge that cannot be scrambled on the top of, the Inaccessible Pinnacle of Sgurr Dearg. This is a 20 metre high blade of rock which rises above the rest of the mountain.

This is the only Munro that requires rock climbing skills to reach the top. Most walkers will request the help of a climbing friend to lead them up.

I took the bare minimum equipment to the top of Sgurr Dearg, just my 144MHz hand-held and its helical antenna. I hate to think what my operating was like from there as I was excited at having reached my goal, and worried about abseiling back down!

## Choice Of Equipment

The correct choice of radio equipment for use in the hills was not difficult for me and 144MHz was the only band I considered! Using h.f. would have guaranteed a contact on each

summit, but the size of equipment and especially antennas is a major drawback.

So, I started with my trusty Icom IC02E 144MHz f.m. hand-held. In the end it was the only piece of equipment that accompanied me to all tops.

On various occasions a Yaesu FT-290R and a Mizuho SB2X were also carried to provide 144MHz s.s.b. But their size meant that they were more often left at home.

Normally two sets of NiCads were carried and one set of alkaline cells. All three sets clipped onto the base of the IC02E.

The two NiCads were 8.4V at 350mAh and 7.2V at 500mAh. They gave enough power for an average day (15-25 minutes operation each).

When backpacking an external battery pack giving 9.6V at 2Ah was also carried. A 1/4 wave whip was used on the hand-held with a helical antenna carried as a spare.

## Glasgow To Aberdeen

All the Scottish Munros are north of a line from Glasgow to Aberdeen, and are in the central and western areas. The major populations being to the south and east.

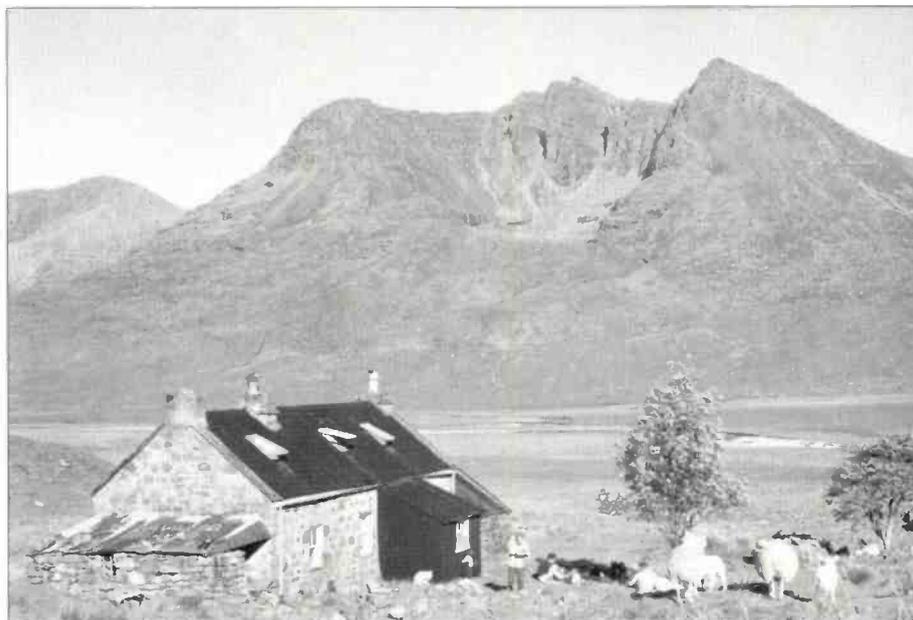
So, at least around the south-east edges of this area it's possible to reach highly populated areas for either repeater or simplex QSOs. As you get further away from the major areas of population, reliance on repeaters increases.

It was when I ascended my 50th Munro that the repeaters ran out! Tony GM1GEW (now GM0DHD) and I climbed a small Munro, A'Ghlas-bheinn in Kintail on 17th June 1985.

I was very lucky to work a station simplex that day, GM4RCE/M had left his rig in the car and forgotten about it. As he sat in a car park in Gairloch surrounded by high hills, I think he was just as surprised as I was to hear someone on S20!

From then on I began to realise that I would have to carry some sort of beam. I could at least try and increase my chances of obtaining a QSO in these more remote locations.

## A really isolated 'shack'. The remote mountain bothy which provided the start and finish point for the GM4WZP/P Letterewe (Ullapool) Munro DXpedition.



## Standard Yagi

I purchased a standard J-Beam 5-element Yagi. The front element and reflector were modified so that they clipped onto the main beam with metal pipe clips.

The mast consists of two pieces of plastics pipe, 3/4 inch and 1/2 inch, both the same length as the yagi's boom. The smaller radius is exactly the correct size to fit inside the larger, thus the mast when assembled is approximately 1.5 times the length of the beam, with the complete assembly weighing only 2kg.

Normally the mast was used as a mono pole and the antenna held by a companion's hand. But if a vertically sided Ordnance Survey triangulation point was available, we used that!

On over 130 summits, often the mast was inaccessible and remote, the portable beam was carried, much to the amusement of other hill walkers and amazement of other radio amateurs. The antenna often made friends for me!

One chap greeted us warmly like an old friend. I was very embarrassed as I hadn't a clue who he was. Finally, he said "We met in Glencoe 18 months ago, I don't recognise you, but I recognise that big aerial!"

My wife, Lyndsay, has accompanied me to the top of over 100 mountains. At times we must have looked comical to onlookers as I idly chatted on the radio whilst Lyndsay held up the 5-element beam and kept the log!

I found many people would ignore us and only a few would ask questions. I did my best to explain what I was doing and to try to promote amateur radio. On one hill top I found myself giving a 10 minute impromptu lecture on 'The Radio Ham' to a party of ten walkers!

## Temperature Problems

Occasionally, when the temperature fell below -10°C we had problems with the NiCad batteries. It was so cold that water bottles were turning slushy!

Under the icy conditions the radio worked fine on receive. But when p.t.t. was pressed, the rig appeared to die, then a few seconds later started to transmit.

Analysis of NiCad characteristics shows that at very low temperatures the internal resistance of the cells increases. This is due to the difficulty of ionic flow through the increasingly viscous electrolyte.

I think that a self heating effect clears the problem after a few seconds. I know that on large mountaineering expeditions that use hand-holds to communicate between different camps, radio batteries are often heated on stoves before skeds.

The Icom IC02E I used extensively performed very well. The rig continued to work when compact cameras and broadcast radio receivers failed.

The IC02E was one of the first push-button hand-holds. And it's this feature which makes it ideal for operating in difficult conditions.

## Radio Contacts

As I climbed more mountains I was always surprised by the radio contacts I obtained. It can create quite a pile up with the 'flat landers' in Holland when, under good tropospheric propagation conditions, you announce that you are /P at 900m!

But good tropospheric conditions are by far the exception. Normally I would rely on the superior height provided by the mountains to make contacts possible.

For example, from Mount Keen on the 26 July 1986, located 50km inland from Stonehaven with 'flat' conditions, I worked GB8TFL and his wife G1INI. This was to Berwick on Tweed, line of sight.

Many contacts were also obtained simplex, but they are difficult to collate into meaningful statistics. Repeaters being fixed and always 'on air' are a much better barometer of possible contacts from a summit.

The most often heard repeater is GB3HI with its good location of the Island of Mull. Then GB3BI and GB3SS come next with their location to the east of the main mountain areas.

Next most often heard are the Central Scotland repeaters that are only accessible from the southern-most hills. Repeaters further afield can be worked from selected locations with a good take-off in the right direction, or with a

**Not the ideal place to cause TVI!**  
**James Gentles GM4WZP discovered that the remote community of Arnisdale, near Loch Hourn, is served by this typical low-cost community 'active deflector' u.h.f. television station. Powered by a small wind-driven generator the station receives its incoming signal from a main station (in this case on the Isle of Skye). On this station the incoming polarisation is vertical (Band IV) group A and the unit re-transmits a low power horizontally polarised signal to its restricted coverage area. The transmitting antenna is visible on the right of the photograph (receiving antenna sited some distance away).**

'little lift' and a good example of this is GB3AY that can be received well from the Crianlarich and Loch Lomond area.

Looking at my log, on 90 summits no contact could be made through the repeaters that were accessed, but a simplex contact was obtained. On the other hand it was not unusual for a CQ on S20 to get no results, but after a contact through a repeater, another contact was then established simplex.

On five summits no contact was made at all despite strong repeater access. Two of these were on second ascents, the first ascent having achieved a contact. The others were activated on a second ascent only and the vast majority of contact were via simplex using 1/4 wave antenna

I managed to get a number of more interesting contacts involving other Munros, working stations outside Scotland using the five element beam. These included GI, EI and G worked in 'flat' conditions and GW and PA with tropospheric lifts.

The best DX on f.m. was GW3SR, 400km away in North Wales and on s.s.b. I worked PA0EHA, 800km in Maastricht. Both these contacts were achieved using only 3W and a 1/4 wave whip antenna.

By contrast some Munros had surprisingly dull characteristics. Most notably among these was Ben Nevis, at 1344 metres, the highest mountain in the British Isles.

Despite its height, Ben Nevis is surrounded by other mountains. Even Fort William at the bottom of the hill is partially obscured by a shoulder of land making simplex contacts difficult. Only GB3HI and GB3BI can be heard well from the summit.

## Final Munro

On the 30 June 1990, I set off with my wife Lyndsay and 10 friends to climb Loch Lochnagar in Deeside, my final Munro. It was not the kind of day I would have chosen for the final ascent!

Cloud shrouded the hill, and if it wasn't raining, it was trying its best to oblige. Lochnagar has a spectacular summit cliff, but all we could see was cloud and rain. I reached the

summit with a lot of mixed emotions as this was the end of a six year journey.

The speed record for climbing the Munros now stands at 67 days. I had taken (a little!) longer, but have more memories of my series of mini-DXpeditions to cherish.

On the radio, I contacted GM0DHD and GM4HQU. Both were radio amateurs I had walked with in the past. I also raised GM1GGP, a station often worked from eastern hills. And I believe that I'm the first person to have unscheduled two-way communications from all of Scotland's Munros.

It's customary to have a celidh (party) on completion of the Munros. So we made the most of the bad weather with photographs and congratulations, mostly inside a lightweight emergency tent because of the weather!

We then gave a toast to Hugh Munro with champagne. It was then time for the 12 of us, wet and cold, to descend.

## The Other Operator

No contact is complete without the other operator and I'm indebted to the Radio Amateurs who made the other half of the QSOs. To each person who came back to my call I say thank you.

I'm especially grateful to those in the north of Scotland, around GB3HI, GB3BI and GB3SS who talked to me, some on numerous occasions. These are sparsely populated areas, and I was impressed by the Radio Amateurs who promoted their hobby in small communities with difficult v.h.f. conditions.

I have special reason to say thank you to the amateurs of Fort William who invited me to their meet on several occasions. They made me most welcome.

I still carry my hand-held rig when out on the hill. But nowadays the 5-element beam is usually left at home!

Only a few weeks ago I heard Norwegian voices on the radio whilst on the hill. Unfortunately that LA contact from a Munro still eludes me. But there we are, amateur radio is just unpredictable and surprising as the hill walking itself!

PW



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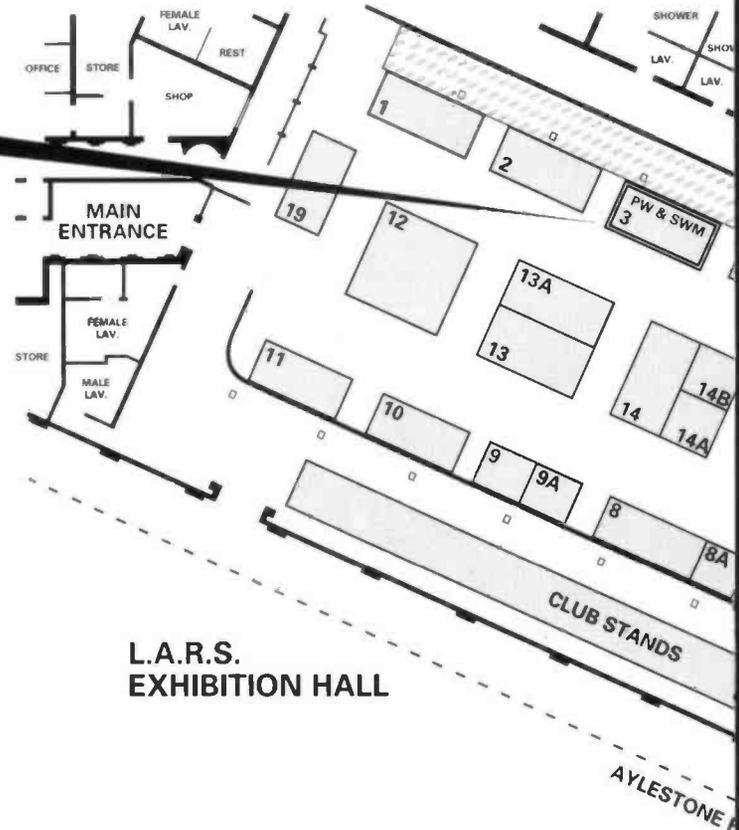
## Sales Hall

1/2	Gemini Electronics
3	Taurus Electronics
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6a	Lake Electronics
7	KM Publications
8	South Midlands Communications
9	JPE
10	Timestep
11	Sandpiper Communications
12	Weirmcad
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6a	R & D Electronics
7	Siskin Electronics
8	Electrocomp
8a	Poole Logic
9	Jandek
9a	Howes Communications
10	Alan Hooker
11	Videoequip
12	Lowe Electronics
13	Rich Electronics
13a	T W Wraith / T/A Mailtech
14	Haydon Communications
14a	R A Kent
14b	Field Electronics
15	HRS Electronics
15a	Tennamast
15b	Commtech Electronics
16	Dataphone
17	Venus Electronics
17a	Microgenesis



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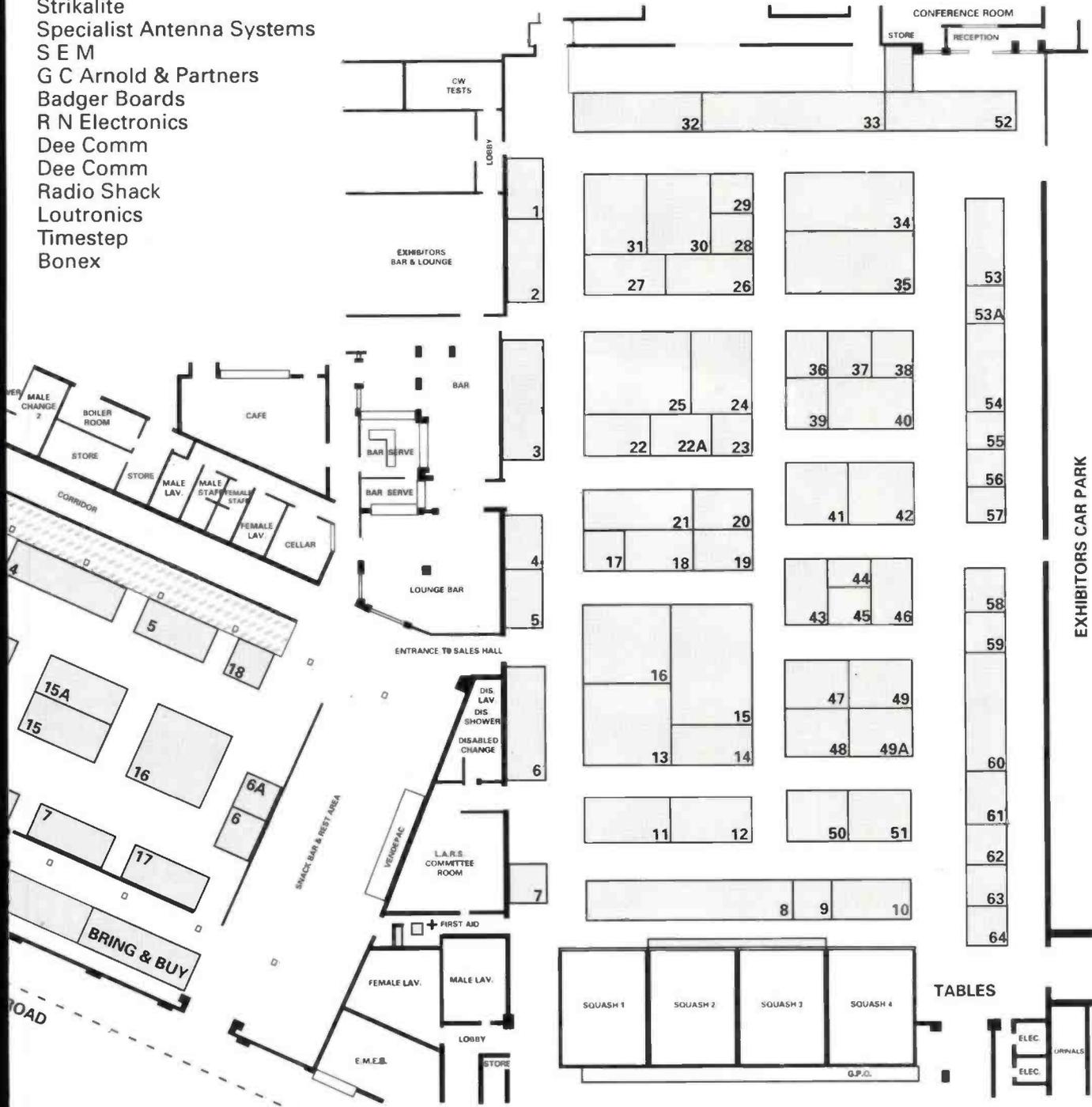
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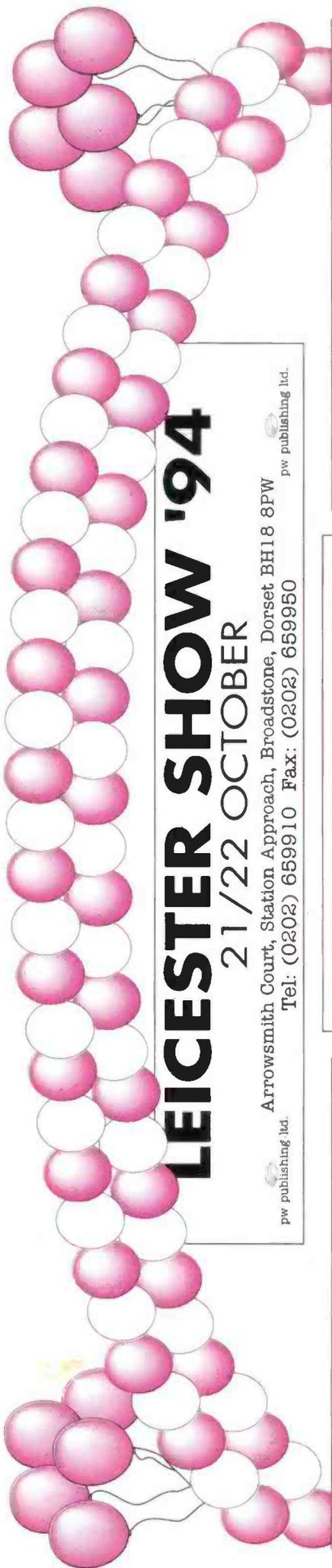
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# LEICESTER LAUNCHES

It's nearing the time of year again when exhibitors attending the Annual Leicester Amateur Radio & Computer Show launch new products and offer special deals on their equipment. The idea of this feature is to give you an idea of some of the equipment and people you can expect to find at this year's Leicester Show (October 21 & 22).

Of course even if you're not planning to visit the show, this feature should give you an idea of what will be available from dealers in their showrooms after the show. If your product or company is not mentioned here please accept our apologies, we've tried to squeeze in as many as possible!

## Kenwood UK



Trio-Kenwood UK Limited will be exhibiting their products on **Stand 35** in the **Sales Hall**. Kenwood will only be demonstrating their products, not selling. They will have a full range of h.f., v.h.f. and u.h.f. equipment on display and a number of their appointed dealers will be attending the show should

you wish to make a purchase.

The new **TH-79E dual-band v.h.f./u.h.f. hand-held transceiver** will be introduced at the show. The TH-79E features include simultaneous receive and dual frequency receive with automatic band change, 80 channel alphanumeric memory, DTMF, DTSS and Page functions as well as a MOSFET power module designed to give a longer battery life.

The TH-79E will be available for £449.95 from any of Kenwood UK's appointed dealers.

## J. A. B. Electronic Components

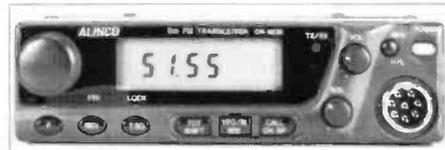
If you visit stand **21** in the **Sales Hall** and mention this feature you will be able to pick up a copy of the 1994 J. A. B. Electronics Components & Kits Catalogue free!

Birmingham based J. A. B. will be displaying the full range of their aluminium folded boxes together with their range of custom made ready punched boxes. They will also be displaying the range of Hands Electronics kits which they now distribute. The Hands range will include the **RTX206 multi-band h.f.**

**transceiver** which features a digital display, variable power 4-16W and a second variable band-width filter. The **RTX206** is ideal for QRP operation or for driving a QRO linear. Sheldon Hands will be on the J. A. B. Electronics stand to offer advice and technical assistance.

## Waters & Stanton Electronics

Jeff, Peter and the team from Waters & Stanton will be exhibiting at the Leicester Show for the 19th year running and as usual will be on **Stand 15** in the **Sales Hall**. This year they promise a packed stand with products from ADI, Adonis, Ameritron, Diamond, Optoelectronics, Ten-Tec and Yupiteru to name a few.



Specific things to look out for include the full Alinco range including the new **DR-M06 50MHz 10W f.m. mobile transceiver** priced at £299. You will also be able to see display versions of the Cushcraft R7 and A3-S antennas on the stand, together with the new **MFJ-784 DSP tunable filter**, priced at £249. The new 96 page Waters & Stanton catalogue will also be available.

## Harwood Trading



Frank Harwood of Harwood Trading would like you to pay him a visit on **Stand 4** in the **Sales Hall** where he will be selling surplus components, second-hand test gear and other radio and computing equipment. Frank doesn't have a shop and relies mainly on trading at rallies as well as a small amount of mail order trade. Rallygoers have commented in the past that the selection offered by Harwood Trading is by far the most varied and interesting so, why not go along and see what's on offer?

## C. M. Howes Communications

Northants based C. M. Howes Communications are launching a new communications receiver kit at the Leicester Show. The **Howes DXR20** is a direct conversion



receiver designed to cover the 3.5, 7 & 14MHz bands as standard. There is a provision for a plug-in 'band module' so that additional short wave bands can be added.

Features of the DXR20 include a

double balanced mixer, active audio filtering and eight pole r.f. bandpass filters with a separate f.e.t. v.f.o. Howes Communications say they have designed the DXR20 to appeal to the amateur who is looking for a short wave receiver kit that can cover any frequency band in the shortwave spectrum.

The DXR20 will be available as an electronics only kit or with the optional HA20R hardware pack from **Stand 9A** in the **Exhibition Hall** at a very special launch price.

## Haydon Communications

You will be able to find Mike Haydon and staff on **Stand 14** in the **Exhibition Hall** at the Leicester Show where they will be selling a wide range of amateur radio and short wave equipment. Haydon Communications will be displaying their full range of mobile and base antennas, offering discounts on selected end of lines, reducing prices on h.f. transceivers and offering p.s.u.s for half price. They will also be launching a new range of low price accessories for Kenwood, Icom, Yaesu, Alinco products as well giving free extras on all hand-held and mobile scanners sold.

## Sandpiper Communications

Sandpiper Communications will be selling their 'self tuning' mobile antenna, designed for use on the 7, 14, 21 & 28MHz bands at the special price of £70 instead of £85. They will also have on offer their dual band vertical antenna, model no. SN 2X4 (similar to the Diamond X50) for £60 which is 25% off the normal price. To take advantage of these savings visit Sandpiper Communications on **Stand 11** in the **Sales Hall**.

## Videoquip - The Video Specialists

Leicester based company Videoquip will be attending the Leicester Show for the third consecutive year and will be offering a host of video equipment and related accessories at discounted prices.

Available items will include Canon ION Still Video Cameras at £299.95 instead of £499.95, Camcorder batteries at £9.95, Video tripods from £19.95 and brand new Camcorders from £399.95.

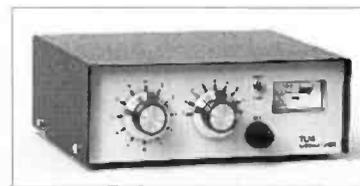
There will also be a selection of used equipment available from them on **Stand 11** in the **Exhibition Hall**.

## Lake Electronics

Lake Electronics have superseded their TU2 MkII antenna tuner with the new **TU4**. The **TU4**, which will be available on **Stand 6a** in the **Sales Hall**, retains all the main features of the TU2 and can be configured into any of three different arrangements, making it easy to match a wide variety for transmitter/band/antenna combinations.

The main feature of the TU4 is the new PLANAR™ inductor which is in a flat rectangular form instead of the traditional helix. There are several advantages of this inductor including the fact that the unloaded Q is around 60, measured at 5MHz, self capacitance is low and that the tapings are easily arranged in exponential increments of inductance.

Other specifications are a frequency range of 1.5 - 30MHz, power rating of 80W c.w. and a built-in s.w.r. meter. The price for the TU4 is £68 for the kit or £88 for the ready-built version.



## Microgenesis Limited

Microgenesis Ltd., have been trading in computer hardware and software for the last seven years and will be exhibiting their products on **Stand 17a** in the **Exhibition Hall**. Microgenesis specialise in IBM, CDROM, Sega Nintendo, Sony and Amiga. They also deal in the second-hand market and offer part exchange, software swaps, servicing and upgrading. Microgenesis will have some items on special offer at the show so why not pay them a visit and have a look at their range? PW

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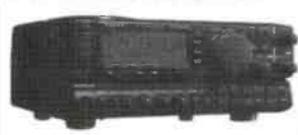
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FT-690RII	6m All mode	£499	£399
FT-290RII	2m All mode	£499	£399
DS-180	2m H/Held	£229	£209
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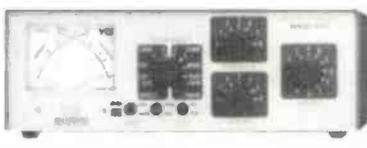


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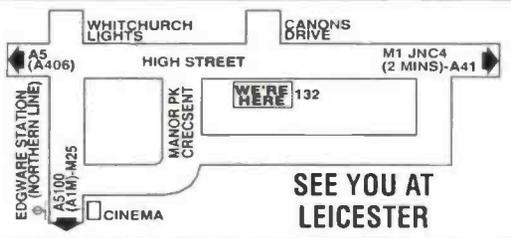
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# Basic QSOs In Italian

## Part 2

English	Italian	Pronunciation
<p><b>Rig And Antenna (continued from Pt 1)</b></p> <p>With horizontal/vertical/circular polarisation.                      With a gain of ...                      A quad/a long wire/an end fed Zeppelin/a centre fed Zeppelin.                      The antenna is about ... metres above ground level.                      The QTH is ... metres above sea level/at sea level/below sea level.                      The antenna has a rotator.                      I'll turn the antenna on you during the next over.                      I rotate the antenna by hand.                      The antenna is in the garden/attic/on a ... metre high mast.                      I am testing the rig.                      I am glad of your report.                      I like my ... I want to change my ...                      How do you like your ...</p>	<p>Con polarizzazione orizzontale/verticale/circolare.                      Con un guadagno di ...                      Una cubica/a filo/una Zeppelin alimentate agli estremi/al centro.                      L'antenna é a circa ... metri dal suolo.                      Il QTH é a ... metri sul livello del mare/al livello del mare/sotto il livello del mare.                      L'antenna usa un rotore.                      Girerò l'antenna su di te al prossimo cambio.                      Giro l'antenna a mano.                      L'antenna é in giardino/attico/su di un tubo portante alto ... metri.                      Sto provando l'equipaggiamento.                      Sono contento del rapporto che mi hai dato.                      Mi piace il mio ... Voglio cambiare il mio ...                      Quanto ti piace il tuo ..</p>	<p>Con polarisatione orizontala/vertikalay/tshirkolaray.                      Con wn gvadano dee ...                      Wyna kwikala/feelow/ wna Tsepelin aleementata alli estraymee/al tshentrow.                      Lantenna ay a tshirka ... metri dal swolo.                      Il Kwayha ay a ... metre swl livaylo del maray/al livello del maray/soto ill livello del maray.                      Lantena wza wn rotoray.                      Djireow lantenna sw dee lay al prosseemow kambeow.                      Djirow lantenna a mano.                      Lantena ay in dijardeeno/atico/sw dee wn twbo portantay alto ... metre.                      Shio provando lekwpadjiamentow.                      Sono contento del raportoy kay me ay dato.                      Me peatshay il meeo ... volio kambearé il meo.                      Kwanto tee peatshay il two.</p>
<p><b>Weather And Radio Conditions</b></p> <p>Today the weather is fine/sunny/(very) cold/hot/misty/windy. It is raining. It is snowing. The snow is 30cm thick. The weather has been fine.                      Today/yesterday/during the weekend it has been raining. It has been snowing.                      Spring/summer/autumn/winter has come.                      The wind has been strong. There has been thunder and lightning.                      Working conditions are poor/bad/moderately good/very good/excellent.                      All the bands are open. The 10, 15, 20 metre band is open/closed to North/Central/South America/Eastern/Northern/Southern/Western Europe/Asia/Australasia/Africa/The Far East/Japan.                      I have just heard a ...                      I can hear but cannot work a ...                      There is an opening on 2 metres.                      The lift is getting better/worse. Let's hope it lasts.                      Nice to speak to you under lift conditions.                      It is ... o'clock approx here local time/GMT.                      What time is it in ...</p>	<p>Oggi il tempo é bello/soleggiato/(molto) freddo/caldo/nebbioso ventoso/Piove. Nevica. La neve é alla di trenta cm. Il tempo é stato bello.                      Oggi/ieri/durante il fine settimana ha piovuto. Ha nevicato.                      E arrivata la primavera/l'estate/l'autunno/l'inverno.                      Il vento é stato forte. Vi sono stati lampi e tuoni.                      Le condizioni di lavoro sono pessime/cattive/moderatamente buone/molto buone/eccellenti.                      Tutte le bande sono aperte. I 10, 15, 20 metri sono aperti/chiusi per il Nord/Centro/Sud America/Europa Orientale/Settentrionale/Meridionale/Occidentale/Asia/Australasia/Africa/Estremo Oriente/Giappone.                      Ho appena ascoltato ...                      Posso ascoltare ma non collegarmi con ...                      C'è una apertura sui due metri.                      Questo aumento migliora/peggiora. Speriamo che duri.                      Bene poteri parlare in condizioni di propagazione.                      Sono circa le ore ... locali/GMT.                      Che ore sono in ...</p>	<p>Odje il tempo ay bello/solaydjayto/(molto) freddo/caldo/nebiozo/ventozo. Peovay. Neveeka. La nevyay ay alla dee trenta tshentimetre. Il tempo ay stato bello.                      Odjee/eeayree/dwranay il finay settimana a peovwto, aa nayvyicato.                      Ay arrivata la primavera/l' estate/l' autunno/l' inverno.                      Il vento ay stato fortay. Vee sono statee lampee ay iwonee.                      Lay condisionee dee lavoro sono pessimay/kativay/moderamentay bwonay/molto bwonay/etshelentay.                      Twte lay banday sono apertee e deaytshce. kwindeeetshce veteer metri sono apertee/keewzee per il Nord/Tshento/Svd Ameriaka/Oyroa oreeentalay/Setentrionalay/Meridionalay/Oisheedentalay/Asia/Awstralasia/Africa/Estraymo/Oree-entay/Djiapponay.                      Ow apayna ascoltato                      Poso ascoltaray ma non collegarme con ...                      Tshce wna apertwra swwee dway metre.                      Kwesto awmento miliora/peggioora. Shpereemo kay dwree.                      Benay poterite parlaray in condisionee dee propagatsionay.                      Sono tshirka le oray ... localee/gee-emm-tee.                      Kay oray sono in ...</p>
<p><b>Arranging A Sked</b></p> <p>May I speak to you again?                      Are you free tomorrow/this time next week at ... hrs GMT?</p>	<p>Posso parlarti ancora?                      Sei libero domani/all stessa ora la prossima settimana alle ore ... GMT.</p>	<p>Poso parlattee ankora?                      Say libero domance/alla stays ovvra la proseema seteemana lay oray ... gee-emm-tee.</p>

Gareth Roberts GW4JXN and Paolo Pellegrineschi I5IJP continue the 'Basic QSOs In Italian' series

<p>How about this frequency or alternatively let's try the 10, 15, 20 metre band.</p> <p>No, I'm sorry I'm not free at that time.</p> <p>I am usually on 20 metres at ... GMT on (days of week) except ...</p> <p>I have to go to bed/work now.</p>	<p>Proviamo circa su questa frequenza od in alternativa proviamo la banda dei 10, 15, 20 metri.</p> <p>No, mi dispiace non sono libero a quell'ora.</p> <p>Di solito sono sui venti metri alle ore ... GMT (days of week) ad eccezione di ...</p> <p>Debbo andare a dormire/a lavorare ora.</p>	<p>Proveamo ishirka sw kwesta frekwentsa od in alternatveeva provcemo la banda dei decaytshee, queendeetschee, ventee metree.</p> <p>No, me dispeeatshay non sono libero a kwelora.</p> <p>Deesoletto sono swi ventee metree allay oray .. gee-emm-tea (days of week) ad etshetsionay dee ...</p> <p>Debow andaray a dorimiray/a lavoraray ora.</p>
<b>Technical</b>		
<p>I have a new rig/linear/antenna which I am testing.</p> <p>Is my modulation OK? Your modulation is good/bad.</p> <p>What is my exact frequency?</p> <p>I'm using a speech processor.</p> <p>Does this make any difference?</p> <p>Thank you for the test.</p>	<p>Dispongo di un nuovo equipaggiamento/lineare/antenna che sto provando.</p> <p>La mia modulazione è OK? La tua modulazione è buona/cattiva.</p> <p>Quale è la mia frequenza esatta?</p> <p>Sto usando un compressione microfonico.</p> <p>Cambia qualche cosa?</p> <p>Grazie per la prova.</p>	<p>Dispongo deo wn nwovo ekweepadjeamentow/linayaray/antena kay sto provando.</p> <p>La mea modwlaisionay ay OK? La twa modwlaisionay ay bwona/cateeva.</p> <p>Kwalay ay la mea frekwentsa esatta?</p> <p>Sto wzando wn compresonay mikrofonekow.</p> <p>Kambea kwalkay kowza?</p> <p>Gratsiy per la prova.</p>
<b>Social</b>		
<p>From the shack I can see mountains/sea/moors.</p> <p>I have a friend/wife/children in the shack with me.</p> <p>He is a visitor/a short wave listener.</p> <p>He intends to do his radio exam.</p> <p>I am at home/at work/ at a friend's house.</p> <p>This is a demonstration/special station.</p> <p>I have visited your country.</p> <p>It is very nice.</p> <p>Excuse my Italian.</p> <p>I wish I could speak your language as well as you speak mine</p> <p>Can you continue in English?</p> <p>May I say it in English?</p> <p>May I explain it in English?</p>	<p>Dall mia stazione posso vedere le montagne/il mare/le brughiere.</p> <p>Con me in stazione ho un amico/la moglie/i ragazzi.</p> <p>È un visitatore/un ascoltatore in onde corte.</p> <p>Pensa di fare gli esami per la radio.</p> <p>Sono a casa/al lavoro/in casa di un amico.</p> <p>Questa è una dimostrazione/una stazione speciale.</p> <p>Ho visitato il tuo paese.</p> <p>È stato piacevole.</p> <p>Scusami per il mio Italiano.</p> <p>Vorrei poter parlare la tua lingua come tu parli la mia.</p> <p>Puoi continuare in Inglese?</p> <p>Lo posso dire in Inglese?</p> <p>Lo posso spiegare in Inglese?</p>	<p>Dala mea statseonay poso vaydayray lay montaniay/il maray /lay brwgeayray.</p> <p>Con may in statseonay oh wn ameeo/la moleay/ee ragatsee.</p> <p>Ay wn visitatoray/wn asholtatoray in onday cortay.</p> <p>Pensa dee iaray lea esamee per la radio.</p> <p>Sono a caza/al lavoro/in caza dee wn ameeo.</p> <p>Kwesta ay wna dimonstratseonay/wna statseonay shpetsialay.</p> <p>Oh visitato il two payayzay.</p> <p>Ay stato pecatshayvolay.</p> <p>Skwzame per il meeo Italiano.</p> <p>Vorray poter parlaray la twa lingwa comay tw parlee la mea.</p> <p>P'woi continwary in Ingalyzay?</p> <p>Lo poso diray in Ingalyzay?</p> <p>Lo pos shpegaray in Inglay zay?</p>
<b>QSL</b>		
<p>Could you please send me your QSL card?</p> <p>I would be very pleased to get a QSL card from you.</p> <p>I shall send you my QSL card via the bureau/direct.</p> <p>My name is in the American/British callbook.</p> <p>Is your name and address in the callbook?</p> <p>Can you give me your address and telephone number over the air now?</p> <p>What is your postal code/telephone code?</p> <p>This is my address and my telephone number.</p>	<p>Puoi inviarmi la tua cartolina QSL?</p> <p>Sarei molto lieto poter ricevere la tua cartolina QSL.</p> <p>Ti invierò la mia cartolina QSL via Associazione/diretta.</p> <p>Il mio nome è sull'Annuario Americano/Inglese.</p> <p>Il tuo nome ed indirizzo è sull'Annuario?</p> <p>Puoi darmi direttamente via radio ora il tuo indirizzo e numero del telefono?</p> <p>Qual è il tuo codice postale/telefonico?</p> <p>Questo è il mio indirizzo e numero telefonico.</p>	<p>P'woi inviarme la twa cartoleena Kw-es-el?</p> <p>Saray molto leayto poter retshaywayray la two cartoleena kw-es-el.</p> <p>Tee inveeayro la mea cartoleena kw-es-el veeea Asosiatosone/direta.</p> <p>Il meo nomay ed indiritsio ay swl anwareeo?</p> <p>Il two nomay ed indiritsio ay swl anwareeo?</p> <p>P'woi darne diretamentay veeea radio ora il two indiritsio ay nwmero del telefono?</p> <p>Kwalay il two koditshay postalay/teyfoniko?</p> <p>Kwesto ay il meeo indiritsio ay nwmero teyfoniko.</p>
<b>Basic QSOs In Italian Part 3 To Follow</b>		

# MFJ-432 Voice Memory Keyer

*Keen operator John Goodall GOSKR has tried out a new and interesting operating aid from the MFJ Company in the USA, and here's what he thinks....*

**T**he year marches on and before long we'll find ourselves wondering what to buy for the OM, YL, XYL or friend for Christmas, (hopefully my friends or Shirley my XYL will read this) as the case may be.

However, I've just tried an item that I feel will certainly fit the bill for the operator who has everything, and even for those of us who don't. It's the MFJ-432 Voice Memory Keyer.

The MFJ-432 is a natty little piece of electronic sophistication. By using it you can save the old voice box for the rag chew without shouting yourself hoarse with the general call!

## Recorded Messages

The MFJ-432 is used to transmit any or all of four digitally recorded voice messages. It can be used with microphone pin-out wiring for equipment including the Kenwood, Icom and Yaesu specification.

The MFJ-432 Voice Memory Keyer is the very latest piece of amateur radio equipment to arrive from the famous MFJ Enterprises stable in Mississippi.

The unit is made up of sheet aluminium, with black pvc style finish. It measures 160 x 150 x 60mm, and has an anodised aluminium front panel measuring 166 x 61mm.

## Front Panel Controls

On the well laid out front panel are the following controls :- **Push On/ Push Off** switches for - Power On/Off; Play/Record; Internal/External Microphone; Repeat Message 1/Normal; Transmit On/Off; Momentary Push On Miniature switches for each of 1 - 4 messages.

Chassis mounted 8 - way microphone plug (The bit on the rig we stick the microphone plug into); **Volume control**; Red LED for indicating record mode; Green LED for



The MFJ-432 Voice Message Keyer unit reviewed by GOSKR.

indicating Play-back mode; and an aperture behind which is the p.c.b. mounted Electret Microphone.

The rear panel of the unit has five different connectors:- 2.1mm Power Jack for external 12v supply, having +ve tip; A 3.5mm Mono socket for Audio Output, useful for extension speaker.

There's a 3.5mm mono socket for Audio Input, for recording from an external source; IDC (Insulation Displacement Connectors) for +5v and four lines for remote switching of Messages 1 - 4.

Inboard p.c.b. mounted seven core screened microphone cable terminated in standard 8 - way locking audio in - line socket (The plug on the end of the microphone cable); access aperture for screwdriver adjustment of output audio level potentiometer.

Removal of two cross head screws, one to each side, facilitates the removal of the one piece sides and top section of the unit. Careful removal is necessary as mounted (attached with adhesive) to the inner upper surface, is the unit's 50mm 8Ω speaker.

Once inside the unit, apart from the tidy layout of the p.c.b., the user friendly microphone pin-out jumpers can clearly be seen.

## Marks For Simplicity

The manufacturer's MFJ should, I feel, gain top marks for the simplicity in switching from Kenwood, Icom and Yaesu equipment. A double row of 17 IDC pins, five pairs of pins for each manufacturer, with a pair of dummy pins as spacers between each group.

Five removable plastics cased jumpers are used to link the five pairs of pins for the equipment being used. The p.c.b. being clearly marked with K, I or Y.

A smaller block of three IDC pins with a single jumper can be found adjacent to the double row of 17 pins, with similar marking for K, I or Y. These are to alter the microphone ground and must also be set as to the equipment in use. Changing microphone pin-out arrangements couldn't be simpler.

The unit can be self powered from the internal battery or from an external supply. Power consumption is around 200 to 300mA, depending on the audio output level.

Also inside the unit is the PP3 9V battery connector, sensibly sheathed in a small section of plastics tubing. This is to prevent the connector, when using an external supply, coming into contact with any metallic part inside the unit, and causing untold damage.

Remember to replace this sleeve of plastics tubing if you hook up to your shack power supply. For battery operation, the PP3 9V battery is mounted on a purpose holder which is attached to the inside of the rear panel by a double sided adhesive pad.

## Storage Length

The message storage length of the MFJ-432 may appear rather short in terms of time. Despite this, when used correctly, it certainly appears adequate.

The four individual messages are made up from one continuous 20 second block of audio memory. This is divided into the four message banks.

From this point I shall refer to the Message Banks as indicated on the identifying marks for each bank: MSG 1, MSG 2, MSG 3 and MSG 4. The timing of the message banks are as follows: MSG 1 = 8 seconds; MSG 2 = 4 seconds; MSG 3 = 4 seconds; MSG 4 = 4 seconds.

However, MSG 1, may be used to give one continuous message of 20 seconds or less. Any time over 8 seconds being taken from MSG 1, 2, 3 or 4 respectively.

## Storing Messages

Whether you're using your own equipment microphone or the MFJ-432's internal electret microphone, storing messages could not be simpler.

After switching the unit on (the part I usually forget!), the operator has to depress the **Record/Play** switch so as to illuminate the red **Record** i.e.d., press and hold the required message button and dictate the message.

Careful preparation of your message, with a stop watch if you have one, is essential. It prevents overlapping any of the other message banks.

The variety and composition (didn't we have that at school?) of messages is only overruled by the limit of your imagination. They can include CQ calls; callsign and CQ

calls; IARU Locator, WAB Locator, County, Grid Reference and of course the variety is endless.

A word of warning at this point: when recording any message **do not** overrun the time for the message being recorded. If you do, it will erase the message memory in the next bank! Also everything **over** four seconds recorded on MSG 4 will be totally lost.

During the message record process the unit need not be connected to your transceiver. After recording your messages play-back is even easier.

Making sure you have the **XMIT** (Transmit) switch in the **out (off)** position. Next depress the **Record/Play** switch so as to illuminate the green **Play** l.e.d.

Then you simply (briefly) press the required message button, and adjust the volume control. (Don't forget though that if it's running on its own battery, high volume draws higher current and thus shortens the life of the battery).

The unit can now be connected to the transceiver via its own lead. Then, depressing the **Repeat MSG 1/Normal** switch into its in (on) position causes MSG 1 to be repeated continuously until this switch is released to its out (off) position.

If the **XMIT** switch is in the depressed (ON) position when you depress the **Repeat MSG 1** switch, MSG 1 is played once over. Then the transceiver is switched into transmit mode and MSG 1 is transmitted continuously.

Taking at this point that the equipment microphone is connected to the unit, the unit itself is connected to the transceiver via its own lead.

The **XMIT** switch is then depressed into its in (on) position and with only a single depression of one or more of the message buttons. The transceiver then goes into transmit mode for the total length of the message, before returning the transceiver to receive automatically.

Smooth continuous transmit can be obtained whilst sending two or more messages. It's achieved by depressing the next message button, upon completion of the previous message **but before** the transceiver goes into receive, when a smooth transition from one message bank to another, or the same, can be achieved.

## Record Loop

A record loop, which allows the transceiver to transmit a message for some time and receive for a time before it transmits the message again for some time - can be achieved with a simple home-brew circuit. The record loop is described in detail in the easy to understand instruction manual for the MFJ-432.

I actually built a loop and spent a couple of hours and made the 'message repeat timer' and found that it worked quite well. Despite this my own view is that it's not really necessary if you keep to the following hints.

Recording a silent pause of whatever length you require, allows your transceiver to go into receive mode providing you are operating in VOX mode. This I found extremely useful with only one message of 20 seconds (including silent pause) recorded on MSG 1.

For example, you depress the **Record/Play** switch to its record position with the red **Record** l.e.d. illuminated - depress and hold MSG 1 for a total time of just less than 20 seconds. Upon depressing MSG 1 commence your recording.

For my message I used the following: "CQ DX CQ DX THIS IS GOLF ZERO SIERRA KILO ROMEO, GOLF ZERO SIERRA KILO ROMEO, GOSKR CALLING CQ DX AND LISTENING" (12 seconds) keeping the MSG 1 button still depressed for recording silence for over seven seconds but **under** eight seconds.

Depress **Record/Play** switch into its out (Play) position and the green **Play** l.e.d. illuminated. With the transceiver in VOX, first depress **XMIT** switch into its in (on) position, then depress **Repeat MSG 1** switch also into its in (on) position. Whereupon your message will be transmitted and during the silence you recorded, the transceiver goes into receive mode. The unit then transmits for 12 seconds, receive for eight seconds and then automatically repeats the cycle.

## From Factory

On delivery from the factory the MFJ-432 is set for Kenwood equipment. Appropriately enough my first on air tests were v.h.f./u.h.f. with my Kenwood TW4100E.

A sked was kept with a very good friend Don GOIJE on 145/432MHz f.m. and the performance of the MFJ-432 was put to the test. Initial reports from Don GOIJE proved that the audio level was down somewhat.

The audio level was easily and rapidly increased with the aid of a small screwdriver. The output level potentiometer was adjusted via the small aperture on the rear panel, designed for that very purpose.

The gain control had in fact to be turned to its maximum position. That was when Don GOIJE reported that it was impossible to detect the difference between the recorded and the 'real time' GOSKR voice.

The jumpers inside the MFJ-432 were then switched to the Icom setting. I then coupled the unit to an Icom 290D multi-mode transceiver.

Operation reports were similar to the previous tests with f.m. with the exception of in s.s.b. mode the audio output potentiometer had to be backed off somewhat. This same setting was later used on the h.f. bands.

The MFJ-432 was then again modified via the internal jumpers, this time for Yaesu equipment and connected to my Yaesu FT-707 h.f. transceiver. Contacts were established with many European stations, all with excellent reports on 3.5, 7.0 and 14MHz. All stations contacted during this review were all genuinely amazed by the quality of the recorded audio.

One area I have not covered fully is that of recording directly from other equipment. This is done via the rear mounted **Audio Input Socket**.

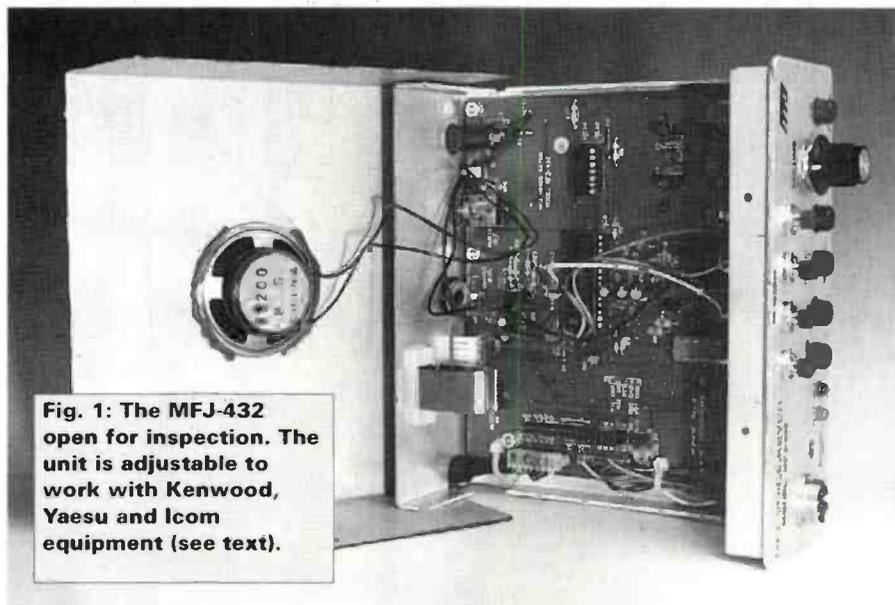
For the purpose of demonstration only, I tried out this mode, by recording directly from the transceiver being used. The internal memory time of 20 seconds was hardly long enough to do justice to the unit when recording the other side of the QSO, but the possibilities are certainly there.

## Another Success

So, to round off my review I would like to congratulate MFJ Enterprises on yet another successful piece of electronic equipment, and at a price of £119.95 I feel it's a very good buy.

The list would be too large to name everyone individually, but I would take this opportunity of thanking one and all who gave up their time on air to make this review possible. My special thanks go to the Radio Amateur's Invalid and Blind Club (RAIBC) from whom my h.f., v.h.f. and u.h.f. equipment is on loan. My thanks also to Don King GOIJE from whom the Icom 290D is on loan, and who gave up his time to help with this review.

Finally, my thanks go to Waters and Stanton of 22 Main Road, Hockley, Essex SS5 4QS. Tel. (0702) 206835 or 204965, FAX (0702) 205843, for the loan of the MFJ-432 which they can supply for £119.95. PW



**Fig. 1: The MFJ-432 open for inspection. The unit is adjustable to work with Kenwood, Yaesu and Icom equipment (see text).**

# Five Band Antenna - No ATU System

Dennis Wood G3EAY describes a five band antenna system he's used successfully, which doesn't require an antenna tuning unit.

The five band, 'no a.t.u.' antenna system I'm describing here has proved to be very successful. It's very simple, straightforward and easy to build.

The diagram, Fig. 1, shows the basic layout of the antenna. And in my case the system is in use where the house and garden total only 20m in depth.

The system is based on 300Ω feeder ribbon which is used to make parallel dipoles for the 7 and 14MHz bands. The 7MHz dipole resonates well at 21MHz (better in fact than it does at 7MHz!).

For the 3.5MHz band I employ half of the 7MHz dipole as an end fed wire. To get it to resonate on '80' I incorporate a loading coil in the feeding arrangement (Fig.2).

## Parallel Dipoles

The feed to the parallel dipoles is achieved by using 75Ω twin 'balanced' feeder at the shack end. This is used in conjunction with a 1:1 balun which was described in the June 1991 PW ('The £1 Balun' by Steve Nicholls G0JFM, page 36). Incidentally...mine cost less than £1 to make!

The mast for the system is at the end of the garden and is approximately 7m high. It's made up from three lengths of scrap steel water pipe sleeved into the next.

At the shack end the mast is the bottom section of an old vertical 27MHz CB antenna (which I use tuned up on 28MHz). The diagram, Fig. 1, shows how this supports the five band system.

## No ATU

No antenna tuning unit (a.t.u.) is required with the system as described as I have found the v.s.w.r. to be satisfactory. In fact, the v.s.w.r. is less than 1.5:1 on 3.5, 7, 14, 21 and 28MHz.

At my QTH the dipole is orientated North and South. I've had numerous contacts with 57 reports from Australia (VK), Japan (JA), and the USA.

Needless to say, I'm extremely pleased with the results I get with my 'Five Bands - No ATU System' - especially when you consider I only operate with a transmitter output of around 80W!

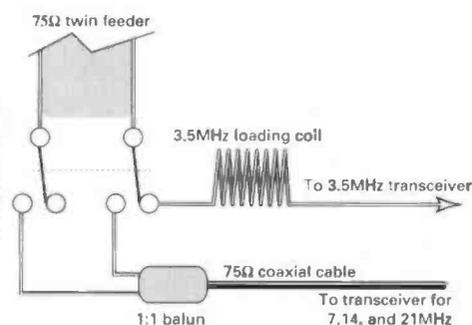


Fig. 2: Details showing feeding arrangement for 3.5MHz using loading coil and the 1:1 balun (see text) used for the 7, 14 and 21MHz bands. The 'end fed' input to the loading coil for 3.5MHz is via a crocodile clip or wander plug. Input from the transmitter to the balun is via coaxial cable, with termination to suit. The 28MHz antenna connection (using a retuned 27MHz vertical) at G3EAY's station is via a separate coaxial cable and PL259 plug.

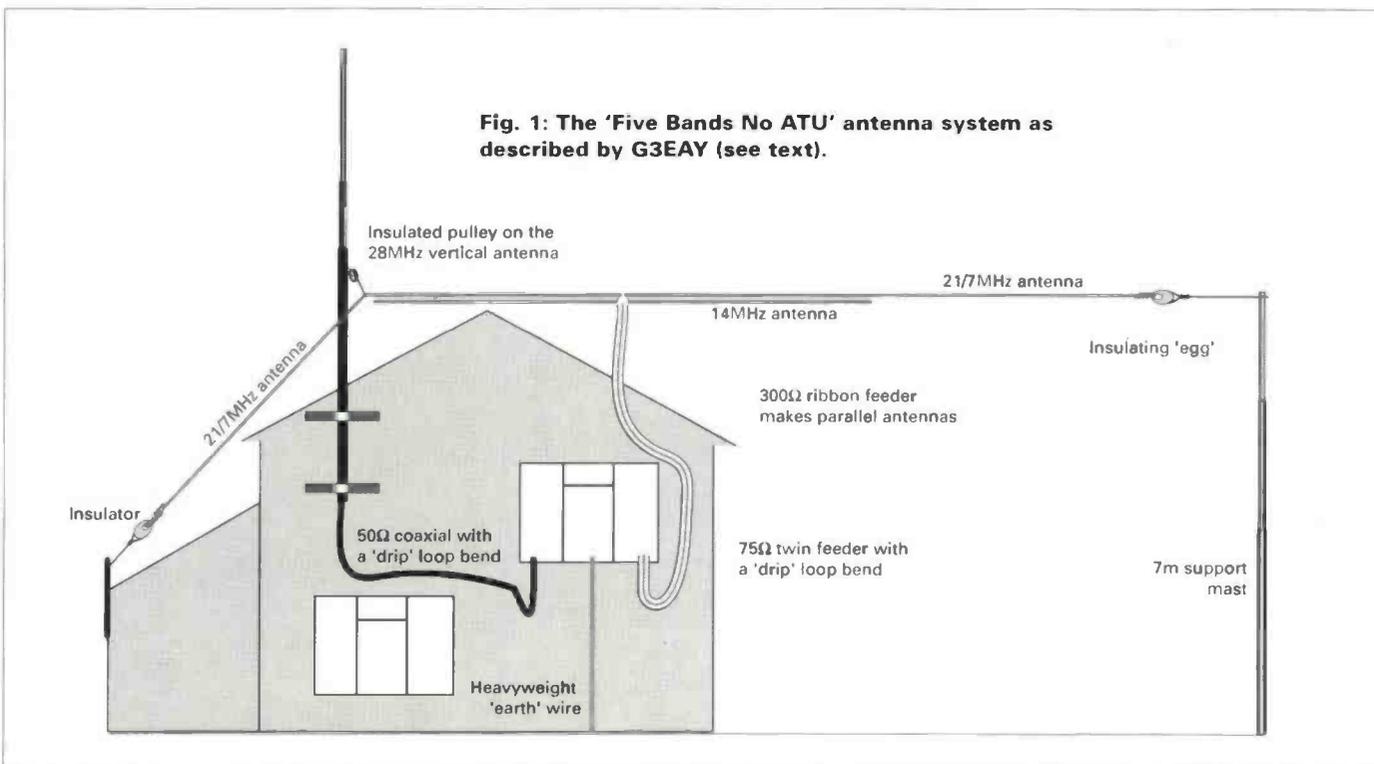


Fig. 1: The 'Five Bands No ATU' antenna system as described by G3EAY (see text).

# Specifications

## - The Mysteries Explained

Ian Poole G3YWX takes a look at receiver frequency coverage and the methods of frequency display.

I have received a number of letters asking about various aspects of radio receiver specifications that I've not been able to cover in this series yet. One letter which arrived recently was concerned with the various aspects of frequency coverage, both in terms of the ranges of the receivers and the methods of displaying the frequency.

### Frequency Coverage

When choosing a receiver it's obviously very important to assess what frequency coverage is required. The frequency spectrum is partitioned into various sections as shown in Fig. 1.

Different frequency bands carry different types of transmission. This is because of the changes in propagation and the varying distances which can be covered.

Most of the transmissions of interest will take place between the low frequency (l.f.) and the ultra high frequency (u.h.f.) portions of the spectrum. The l.f. portion of the spectrum carries some communications as well as a variety of navigational aids. In addition it takes in the bottom part of the long wave

broadcast bands.

The medium frequency (m.f.) section of the spectrum takes in a whole host of users from the medium wave and tropical broadcast bands to some of the low frequency amateur bands and other users including ship-to-shore communications.

The high frequency (h.f.) portion of the spectrum includes the traditional short wave broadcast and amateur bands amongst others. Further up in frequency, are the very high frequency (v.h.f.) and u.h.f. bands.

The v.h.f. and u.h.f. frequencies support a wide range of radio telephone, cell 'phone and other communications as well as a number of amateur bands and the v.h.f. f.m. broadcast bands. Television transmissions are also found here.

### Receiver Coverage

Some of the older valved communications receivers, particularly the older army surplus types have limited coverage. Sometimes their highest frequencies only extend to 15MHz or so, and sometimes their lowest frequencies were about

1.5MHz. When choosing one of these sets it's well worth looking closely at what coverage is needed and what they can provide.

Most modern short wave communications receivers will cover the whole of the

h.f. spectrum up to 30MHz and usually the lowest frequencies of 100kHz or less. It's worth noting that although the quoted sensitivity will be maintained across most of the spectrum, it's likely to fall away rapidly as the frequency reaches the bottom limits.

employed a band-spread facility. This usually incorporates a second tuning capacitor and dial which gives much finer tuning.

Most of today's receivers use a digital read-out. These are more accurate and easier to read, displaying the

1Hz	1Hz	0.000001MHz
1000Hz	1kHz	0.001MHz
1000000Hz	1MHz	1MHz
1000000000000Hz	1GHz	1000MHz

Fig. 2: Frequency multiples

Scanners generally have much higher top frequencies. The first scanners were used for v.h.f. and u.h.f. reception. Now with improved technology, sets are appearing which cover frequencies up to 2GHz (2000MHz) and down to 100kHz and sometimes less.

As scanners are primarily designed for use above 30MHz their sensitivities will not be quoted for some of their lower frequencies. Often, the sensitivity will be stated for frequencies above 8 or 10MHz.

### Indicate Frequency

As technology has improved over the years different methods have been used to indicate the frequency of the set. Analogue receivers (i.e. those which do not use a frequency synthesiser), generally have a dial. These vary in their clarity and accuracy. However, some very good analogue sets were made with excellent dials which were easy to read and remarkably accurate.

Where analogue dials often become more difficult to read is at top end of the coverage. Here the calibrations become more cramped and difficult to read. Also the tuning becomes more critical. To help overcome this, many receivers

frequency directly as a number.

The number of digits used on digital read-outs will vary from one set to the next. Scanners which often only tune in increments of 1kHz will only need a display which gives this order of resolution.

Communications receivers for h.f. have much finer tuning than scanners. As a result there's a greater need for a display with more figures indicating the smaller frequency changes.

Many of these h.f. receiver displays will show frequencies down to 100Hz, 10Hz and even down to 1Hz. However, it should be remembered that the accuracy of the display is dependent not on the number of the digits, but on the accuracy of the oscillator driving the display or the synthesiser in the set. As you will remember I looked at this a couple of months ago.

That's all for this month.

Keep sending in your specification mysteries for me to try and solve. All letters should be sent to me c/o of the PW Editorial Offices.

Frequency (MHz)	Designation
0.003	Very Low Frequency (v.l.f.)
0.03	
0.3	Low Frequency (l.f.)
3.0	Medium Frequency (m.f.)
30.0	High Frequency (h.f.)
300.0	Very High Frequency (v.h.f.)
3000.0	Ultra High Frequency (u.h.f.)
30000.0	Super High Frequency (s.h.f.)
300000.0	Extra High Frequency (e.h.f.)

Fig. 1: Designations of The Radio Spectrum

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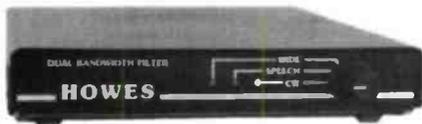
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73 from Dave G4KQH, Technical Manager.

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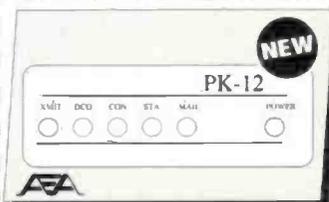
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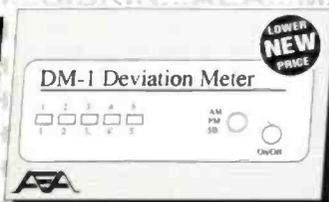
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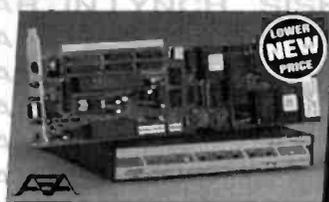


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# Move Over Darling

Sheila Morecroft G0TEF tells the tale of what happened when, after 20 years of 'XYLing' she finally decided to find out more about her husband's passion for radio.



There must be many XYLs (X Young Ladies for the uninitiated) out there waiting for their OM (Old Man) to hand over their copy of *Practical Wireless* open at this page. The misguided chap probably hopes to wean his XYL away from her many other interests and into the field of amateur radio to share his passion.

After 20 years of XYLing I enrolled on a Radio Amateurs Examination class at nightschool. Tony, my OM, was delighted and the first few weeks were encouraging.

I understood Ohm's Law and tutted over the absurdity of conventional current. After this however, things did get more difficult. I found it impossible to visualise 'reactance' and Decibels joined the growing list of things I decided to go back to later!

Individual components were fascinating and I started to look at Tony's collection of transistors and capacitors with new eyes. Unfortunately, I found out that components are put into circuits where they have important functions. Their values matter, their position is important, they can re-route currents or block them altogether. To make matters worse, they can affect each other.

I found circuit diagrams were also a big puzzle. I've never learned to tell at a

glance the difference between an 'obvious' Class A amplifier and a 'typical' Colpitt's oscillator.

## Expert On Tap

I don't think I could have tackled this subject of radio, for which I have no aptitude or background knowledge without having an 'expert on tap'. And I've a word here to the 'expert'.

There are one or two facts that tutors and husbands should be aware of. Although most of us know that electricity has to run in a circuit, this basic fact is often forgotten when the wiring in a circuit diagram becomes more complex than the bulb and battery experiment.

When I made a determined effort to find out why there were so many (and to me, unnecessary) wires in a particular diagram, the look on Tony's face was quaint to behold. I was quite happy to draw only one wire leading from a microphone and to dispose of the other leading into it. I saw the first shadow of doubt about my passing the RAE flicker across his face.

Tony gave me some more helpful hints. More than one thing can flow down a wire! Alternating and direct current can flow at the same time. Radio people 'know' this and don't think they have to mention it to another adult.

## Scribbled Diagrams

As Jim G6EBR scribbled diagrams on the blackboard in an effort to explain antennas, some of us in the RAE class had no idea of the scale involved. Was it a 5mm component or something the size of a football field?

On the other hand Jim was always to be congratulated on his tact and control of facial expression. The class was fun, a spirit of camaraderie developed and all who didn't drop out, passed.

So, to the XYL who has just been handed this article - have a go. Radio only seems boring the way he does it. You may think you have no interest but wait until you graduate from being the voice in the background to she-who-holds-the-mic!

Radio operating beats ironing, cooking and cleaning into a cocked hat. Will it bring you closer as a couple? After three months of my being licensed, Tony realised he had helped create a monster! Never was a woman moved so fast into her own shack.

We now spend our evenings in separate rooms. I passed the Morse test recently though, and the other shack has the h.f. equipment, the Kent key and the decent aerials!

PW

## ERRORS & UPDATES

### Extending The PW Robin, pages 26-29 October 1994

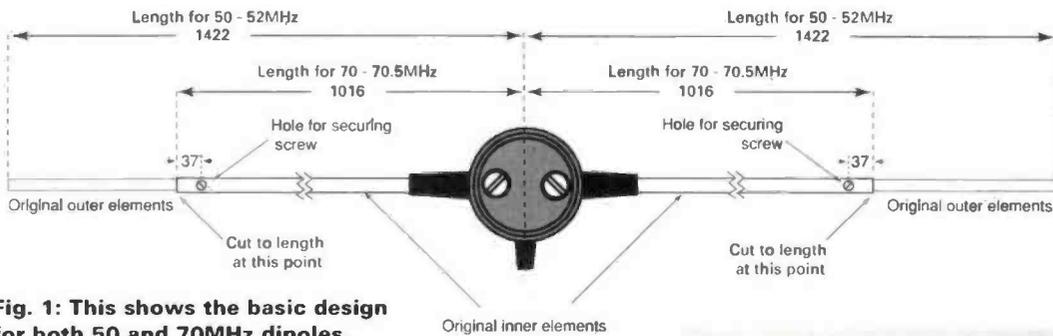
There were a few small errors that crept into the text of the article 'Extending The PW Robin'. On page 26 in the paragraph just before the heading 'The Modifications' the words 'The existing regular and protection..' should have read 'The existing **regulator**..'. Resistor R8 is of course a **calibration** control and not a calibrated control as stated in the right hand column of page 26.

On page 27 under the heading 'Initial Testing', in the paragraph starting 'Providing all is well...' you must of course, after switching off the unit, plug all the i.c.s into the p.c.b., before plugging it into the PW Robin. Lower down, in the last paragraph of the left hand column, both instances of '**-ve edge**' should be changed to read '**+ve edge**'.

On page 28 in **Fig. 6** the legend on the right hand side 'Reset to SK4' applies to the lower line out and may go direct to a DIN plug. Please add 'To counter line in DIN plug (or SK4)' just above the upper line out.

My apologies for these errors. Ed.

# What a Good Idea!



**Fig. 1:** This shows the basic design for both 50 and 70MHz dipoles. See the text for other bands.

## Three-From-One

The origin of this idea came when disassembling a cheap ex-CB (then illegal) antenna that I'd modified for use on a 29MHz RTTY link. I wondered if I could make it work on 50 and 70MHz as well.

Sometime later I assembled the two inner elements into the centre piece. From calculations I decided that  $\lambda/4$  at 70.25MHz would be 1016mm. To start cut to length at this point from the centre line, but don't throw the end pieces away just yet.

To arrive at 1016mm, I used 95% of the free-space wavelength (at the frequency of interest) as shown in many antenna books. On checking with a dip oscillator (g.d.o.) it seemed close enough not to bother changing the length.

After taking care of 70MHz, I again did some calculations for the 50MHz band. I started with a length of 1422mm for  $\lambda/4$  and slipped the original outer elements into the new length inners.

Again using a g.d.o. I checked the resonant length, and in my case it was correct. If however you wish to change the band centre, then make small equal changes in both sides and recheck for resonance.

Tape the elements in place before measuring about 35-40mm back from the end of the inner elements. Drill a suitable hole right through both elements to take a retaining nut and bolt. So, that's taken care of 50MHz as well (see Fig. 1).

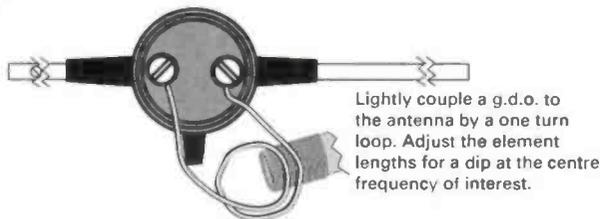
On pulling the elements out until there was only about 75-100mm overlap I found that the antenna was still resonant on 28.2MHz. To finish off I carefully drilled new holes in the smaller element to match the holes on the larger elements.

That's 28MHz taken care of, but can it be extended? This would depend on the type of tube used for the CB antenna. Let me assume that yours is made of good quality 'proper' tubing and not the rolled tubing that many of the cheaper antennas are made from.

By removing the end caps from the smaller elements a smaller thinner piece of tubing may be inserted into the ends and made resonant on lower bands.

And the cut off ends! Try to get hold of another dipole centre and make up a 432MHz (lengths about 165mm from the centre line) antenna, as I did.

Paul Gaskell G4MWO  
St. Helens  
Merseyside



**Fig. 2:** To check resonant frequency, use a simple one or one and a half turn loop to couple a g.d.o. to the antenna.

If you've got a good idea that you would like to share...let's have it! You'll earn some cash too!

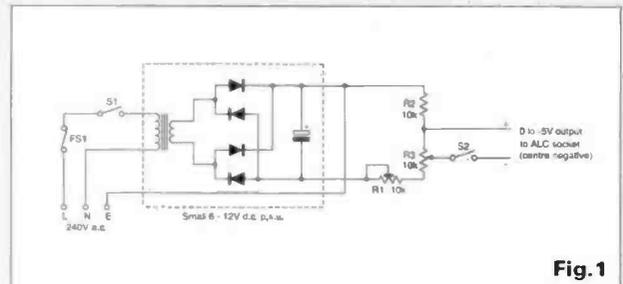
## Power Down An FT-747

After a few years operating as a QRP station, using mainly home-brew and ancient valved equipment, I bought an FT-747. I'm very happy with this rig, as I feel it's very good value for money, but I feel it has one shortcoming.

The only complaint I have against this otherwise fine rig, is the inability to reduce the power to QRP levels in single sideband mode. On c.w. though, the drive control may be used to reduce output power down to only a few milliwatts.

Fortunately there is a solution. On the back of the rig is a socket marked 'ALC' (automatic level control). I believe the original idea was to reduce the output power when using an external power amplifier. I felt this could be pressed into service.

The handbook states that a voltage between 0 and -5V could be applied to control the output power. After a few experiments with a 6V battery and a variable resistor combination to verify it worked, I set about making something more permanent.



**Fig. 1**

The batteries worked all right but needed replacing every so often (somewhat expensive for good quality batteries). Rechargeable NiCad batteries worked, but needed charging periodically.

In the end I settled for a small mains p.s.u. on a 13A plug. I picked one up at a rally for less than the cost of a set of batteries.

There are many p.s.u.s available giving 6-12V output. A small low load one of about 100-200mA should prove ideal. Remember though, that the output voltage is quoted at the stated load.

Look now at the full circuit, Fig. 1, where the boxed components represent the p.s.u. If you're making one up then I would seriously suggest the added safety items of FS1 and S1. Before plugging the unit into the ALC socket, you need to set an output voltage of no more than 5V.

Use the preset resistor R1 to give 5V at the two output connections. Plug the unit into the ALC socket, and if the voltage drops slightly, use R1 to bring the output back up to 5V.

Resistor R3 may then be used to alter the output power down to less than 5W. I found for smoothest control, R3 should ideally be a multiturn component.

Please note that on the FT-747 the centre contact of the ALC connector is **negative**, and other rigs may differ in both polarity and voltage needs. If we all operated at QRP levels, I'm sure we would all benefit. Good luck with the QRP DX.

Ken Fisher G0LXX  
Fareham  
Hants

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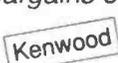
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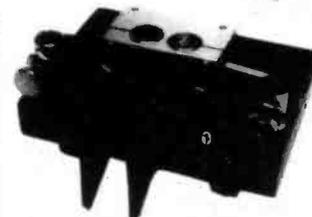
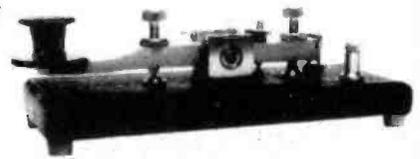
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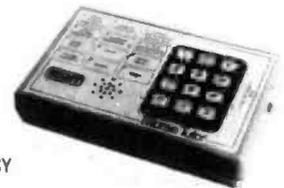
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# BOOK REVIEW



## W1FB's Help For New Hams

Doug DeMaw W1FB (Second Edition)

Published by the ARRL

Doug DeMaw W1FB must surely be one of the most well known radio amateurs in the world. During a career spanning many years Doug has produced countless circuits, projects books and hosts of ideas. His writing style is informative, interesting, relaxed and friendly. I'm only sorry he's not writing so much nowadays. However, the American Radio Relay League has just published the latest edition of Doug DeMaw's most popular books for beginners - *W1FB's Help For New Hams*.

Originally published in 1989, this book has established itself as a helpful guide to newly-qualified (and those who are interested in the hobby) radio amateurs. Although primarily aimed at the American radio amateur the book is an excellent 'international' guide for those starting off in the hobby and the various chapters outline this fact well. They include: 'Now that you have your new licence, Your new equipment - getting acquainted, Building and using antennas, Station lay-out and safety, TVI and RFI - strange bedfellows, Overcoming operating problems and fears, On-the-air contact and procedures, Station accessories - What to buy?, DXing and contest operating, Logs, QSL cards and record keeping, obtaining accurate information' and index.

Personally, I think this 300-page book (it's a convenient size tool) should be on all bookshelves as it really will be useful - especially to all those celebrating their recent RAE success!

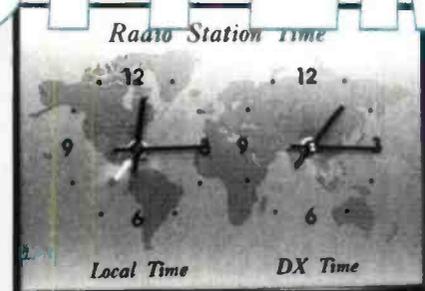
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Rob Mannion G3XFD

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# Antenna Wo

**In the first of his contributions to 'Antenna Workshop', John Heys G3BDQ describes an easily made multi-purpose nine-band sky wire, giving real gain on 21MHz**

## **The Really Useful All-Band HF Antenna**

There are no 'magic' antennas that can give gain in all directions. Your 100W can only be enhanced by being 'focused'. The greater the power gain the narrower become the effective lobes of radiation.

The antenna I shall describe shows power gain in two directions on 21MHz, but gives good all round results on the other h.f. bands.

For some time I have used a 14MHz long doublet, fed with open wire feeder. Although it's a fine all-band antenna, it showed little gain on any of the higher frequency bands.

About two years ago when much of the real DX settled on 21MHz, I decided that something better was needed for that band whilst still retaining an all-band capability. This project is the result of my development work.

### **Four Elements**

Four  $\lambda/2$  elements, in-line and in-phase can provide a considerable gain on a designed frequency. This gain will be about 4.3dB over a dipole (dBd) in two directions. The width of each of the two radiation lobes will be  $30^\circ$  centred at right angles to the run of the

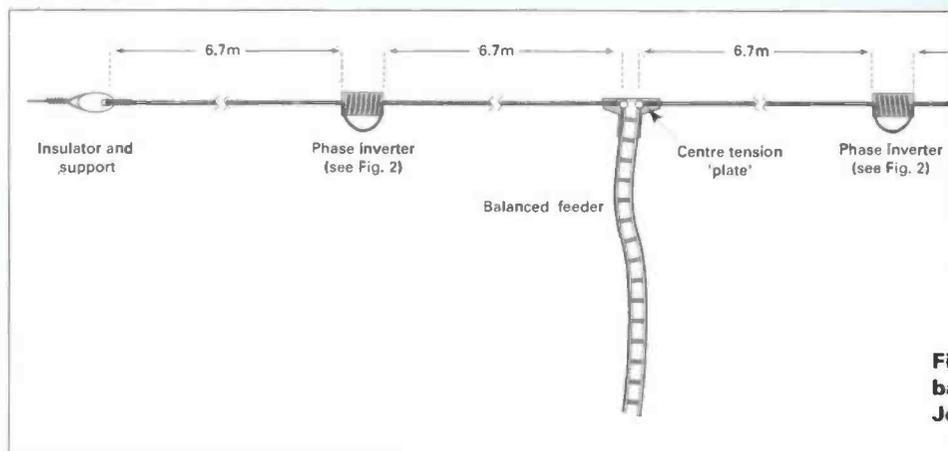
antenna wires.

A power gain of 4.3dB means that your 100W will have an effective power of almost a quarter of a kW in the two favoured directions. The downside of this directional gain is that the antenna cannot be turned. So, it must be positioned to give gain in the directions best suited to DX requirements.

My version 'beams' towards the SSW and NNE and allows easy DX contacts in those directions. A Great Circle map must be used when pondering antenna positioning. There is virtually no low angle radiation from the ends of the antenna, which may be useful in limiting troublesome QRM.

When using collinear wires, the conventional way to ensure in-phase radiation, is to use a quarter wave stub between each pair of half waves. On my prototype, the stubs were made from lengths of  $300\Omega$  slotted feeder.

The stubs were held down by a couple of solid rubber 'dog' balls and the antenna certainly performed as planned. Unfortunately two dangling, swinging lengths of feeder did nothing to enhance the garden, so another system was devised.



### **Phasing Circuits**

The phasing circuits consist of parallel tuned circuits, which at resonance, have equal and opposite current/voltage phases at their ends, so these could replace ugly stubs. I made two identical tuned circuits with self supporting coils of 4mm diameter copper tubing.

A coil of slightly less than  $2\mu\text{H}$  paralleled with a 30pF capacitor is resonant at approximately 21MHz. Seven turns with an inside diameter of 44mm with a length of 50mm makes a suitable inductor.

Minor adjustments to inductance can be made by pulling out or squeezing the coil. The coils can be made with 14s.w.g. copper wire instead of tubing, but they will not be so robust.

Coaxial cables have a self capacitance between their inner conductor and sheath. By using short lengths of cable suitable tuning capacitors can be made.

The capacitors will be cheaper than 'off the shelf' capacitors and will have a high working voltage. They may also be quickly trimmed to the wanted capacitance.

To make the capacitors, British UR67 (USA RG8) can

be used with confidence. And capacitances made to my method can easily handle 400W of r.f. with UR67 having a capacitance of 30pF per foot (305mm).

### **Measure And Make**

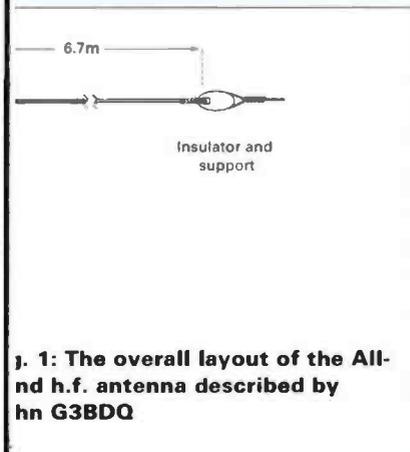
To measure and make the capacitors, I used a receiver tuned to 21.2MHz, a dip oscillator (g.d.o.) and a capacitance bridge. First I connected a 100pF variable capacitor across one coil and very loosely coupled the g.d.o. to the circuit. The g.d.o. coil must be at least 150mm from the circuit under test.

Set the g.d.o. to 21.2MHz, and trim the temporary variable capacitor to dip. Remove the variable capacitor and measure its value on a capacitance bridge. My version needed 32pF to resonate, representing about 330mm of UR67.

The coils and coaxial cable capacitors were positioned on suitably dimensioned rectangles of plastics (or insulating) material, see Fig. 2. Then a final resonance check was made with the receiver and g.d.o.

The coils should then be adjusted for correct

# rkshop



resonance on 21.2MHz. Then the ends of the coaxial cable should be liberally weather proofed with clear silicone rubber sealant.

## Copper Wire

The four elements of the antenna are each 6.7m long. Bare copper wire is always preferable to the plastics covered variety, as the latter can prove unreliable and may even have invisible breaks. I prefer to use 1.5mm (16s.w.g.) hard drawn copper wire for antennas. This is strong, easily soldered and not too heavy.

Multi-stranded wires invariably have corrosion of the stranded conductors, due to capillary action. Plastics insulated wire also has a lower resonant frequency, so all lengths must be from 3 to 5% shorter than bare copper wire.

The centre insulator can be made from a 100 x 60mm piece of good insulating material. This allows the feeder wire to be held securely without strain on their connections with the antenna top. The feeder must come down vertically for at least 7m to preserve balance.

For a collinear antenna to work properly and have low angle radiation it should be

at least half a wavelength above ground. My version is almost horizontal and is up around 11m.

A collinear must never be bent or arranged as an inverted 'Vee'. It may still load and radiate but its performance can be no better than the average 'bent wire'.

There are several feeder options, open wire, slotted 300 or 450Ω impedance feed line or even a mixture of types. I hope to discuss balanced feed lines and suitable matching circuit in a later article.

The feeder and the a.t.u. must be truly balanced. This will allow true collinear operation and also reduce the chances of TVI.

## Becomes Conventional

On the other h.f. bands this antenna becomes a conventional centre fed doublet. The phasing circuits will have little effect.

Below 21MHz the phasing circuits act as some additional wire length and on the 24 and 28MHz bands they have capacitance and

inductance reactances between 200 and 300Ω. On these bands the two inner wires which connect the feeder become an 'Extended Double Zepp' antenna with a gain of between 2 and 3dB at right angles to the run of the antenna.

This antenna design will allow operation on nine h.f. bands. It will also give the operator a considerable 'edge' on 21MHz.

On 14MHz each phasing circuit can be regarded as an extra metre of antenna wire. The antenna will again work as an 'Extended Double Zepp' when placed at a height of half a wavelength (10.5m).

The antenna becomes a 'Long Dipole' on 7MHz and if not too close to the ground will be fine for general DX work as well as for the UK and European contacts during daylight hours. Although shorter than a half wavelength on 3.5MHz the antenna gives plenty of European contacts. Mine has been used to work VE, VK, ZL, JA and lots of other DX countries.

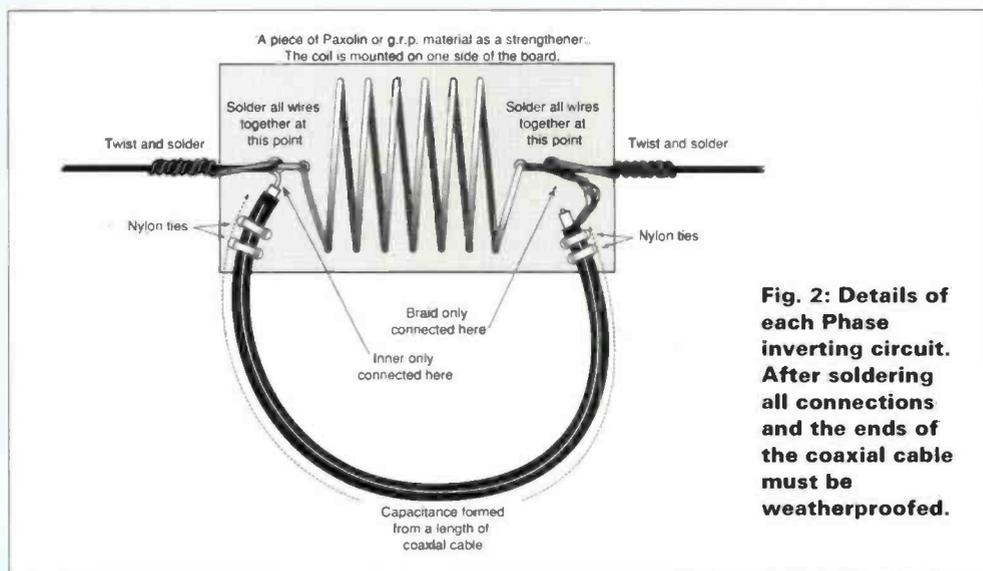
By strapping the feeders

at the shack end and tuning them against a good ground antenna will be fine for 'Top Band' non-DX QSOs. My local a.m. 'Natter Net' members give me S9 plus up to 30 kilometres away and reports are generally about 10dB down on those when using my big 'Half Delta' for 1.8MHz.

I've worked much DX on all bands (including the WARC) with my 'Really Useful' antenna. During the G-QRP Club's 'Winter Sports' I used this antenna and only one watt of r.f. This combination allowed c.w. QSOs with five continents during the event. I also found it rather pleasing to be 'first in the queue' when I hooked the 3YOPI Expedition.

**So if this antenna can do it for me, I'm sure it can help your station. And besides, it's cheap to make!**

PW



**Fig. 2: Details of each Phase inverting circuit. After soldering all connections and the ends of the coaxial cable must be weatherproofed.**

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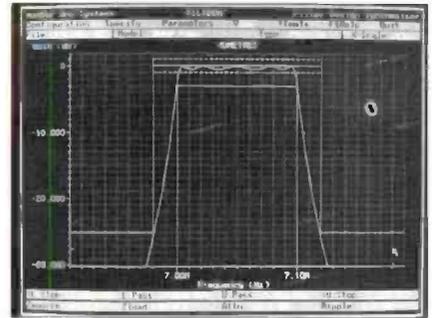


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*The Computer in Your Shack*

*This month Mike Richards G4WNC has news of a new filter design and analysis program, as well as details on a different way of communicating data.*

Fig. 1: FILTECH analysis screen



Number One Systems of St. Ives have earned a reputation for producing good electronic design and support tools for the IBM PC and compatibles. Their latest release is a specialist analogue filter design and analysis program called FILTECH.

To produce a design you simply enter your passband and stopband frequency limits, ripple and attenuation levels and finally the terminating impedance's. The FILTECH program will then calculate a practical filter design and display an analysis of the resultant frequency response along with your original design limits.

Those of you who've used other filter designs will know that all too often you end up with totally non-standard component values. Number One Systems have thought about this problem and have provided the option to force components to standard values.

The resultant design can then be re-displayed against your original filter specification. This is a big step forward and makes practical filter design very easy.

You also have the option to vary the filter type (Bessel, Butterworth or Chebyshev) and the filter order. This gives the package some educational value as you can clearly see the benefits of using the optimum filter type.

If you need to investigate the impedance, phase response or group delay characteristics of the filter, help is at hand. Number One Systems have included a seamless link with their Analyser III package.

While FILTECH is clearly aimed at the professional designer I can certainly see that it would appeal to many amateurs. The current UK price is £145.00, for more details please contact **Number One Systems at Harding Way, Somersham Road, St Ives, Huntingdon,**

**Cambridgeshire PE17 4WR. Tel: (0480) 461778.**

### Printers For Radio

When looking back through Peter GOGSZ's 'Bits & Bytes' columns earlier this year I noted that he had promised to provide some help with the selection of printers for radio. Do you still need help? If so, please drop me a line or send me a message and I'll do my best to help.

### Data Communications

Data communications was one of my main reasons for coming back to amateur radio back in the early 1970s. At that time I was particularly hooked on dial-up bulletin boards using an old Post Office Modem 2B connected to my home-built UK101 computer (with 8in disk drives!!).

My early experiments across town involved setting-up a full duplex radio link (144 and 432MHz) and connecting-up my Modem 2B. My friend used to run a TRS-80 and we would take turns to operate each other's computer using the radio link and modems. This generally worked quite well, although it did cause quite a stir amongst the local amateurs!

Anyway, enough of my history lesson the real point here is that I recently joined the **Compuserve network**. Why you ask did I do this when I can use Packet for free? There are a number of reasons, but my main one was a need for access to the latest video, printer, CD-ROM, etc., drives for my PC.

By using Compuserve's network you can quickly access the support services of all the major software suppliers and download the necessary device drivers.

Most of the support services are provided through the use of software forums (see Fig. 1). Entering a forum is rather like joining

another bulletin board as you have access to a wide range of files and messages.

There are many other services on offer including a very powerful mailing facility. Not only can you send messages to other Compuserve users, but you can send to other networks including Telex and FAX.

So how do you get started and what does it cost? Well the first thing you need is a modem.

A look through any computer magazine will show that there are plenty about at quite reasonable prices. As a general rule you want the fastest modem you can afford as this helps keep 'phone and system charges to a minimum.

Although 14.4kb/s modems are common place there are not too many nodes around that operate at this speed, so 9600 is probably the best bet. If you really want a cheap start you can do as I did and visit a local computer sale or auction.

Once you have your modem you need to register with Compuserve. The simplest way to do this is to contact the **Compuserve sales line** on (0800) 289378 with your credit card handy. You will be charged a one-off fee of £24.95, which provides registration and a copy of their **Compuserve Information Manager**.

If you can't wait to get going, Compuserve have sent me special sign-up details for use by *Practical Wireless* readers. Providing you have a computer, modem and basic comms software you can log onto Compuserve's London dial-up node. This node accepts all speeds up to 14400bps and can be accessed on **071-490 8881**. Simply dial the number and follow these instructions:

Set your comms software to use 7 bits, one stop bit and even parity (7-1-E), dial the London node number and input the information shown in bold below following each

prompt:

```
HOST NAME:
CIS[CR]
USER ID:
177000,5606[CR]
PASSWORD:
EXPLORE/WORLD[CR]
AGREEMENT NUMBER:
??????????[CR]
SERIAL NUMBER:
93006[CR]
```

If you encounter any problems just call Compuserve's Freephone support line on (0800) 289458. If you do decide to give Compuserve a go please send me a message on Compuserve 100411,3444.

### Finally Software Offers

And finally if you'd like the latest version of HAMCOMM 3 or JVFX 7 (that was released end of August) just send a blank formatted 3.5in disk for each program along with 50p per program to cover copying, post and packing. I'll cover full details of the changes in JVFX 7 next month.

**Please send all your letters to me Mike Richards G4WNC, at 'Bits & Bytes,' PO BOX 1863, Ringwood, Hants BH24 3XD. Compuserve 100411,3444.**

### Apology

The screen-grab in last month's column was from the G0LOV and G4LUE Callbook, and not the C & E Computers Callbook as stated in the caption. Our apologies to all for the mistake. I've just been informed by C & E Computers that their program now includes the names of those who passed the RAE in August.

**E N D**

**BITS & BYTES**

Ron Ham invites you once again into the warm glow of the *Practical Wireless* vintage 'shop'. And, although you can't actually buy anything, you can almost feel the warmth from all those warm cabinets while you sip your mug of Ovaltine!

# Valve &

In an ideal electrical world there would be no joints between the sources of energy and its 'user'. This relationship applies equally as much to transmitters and their antennas as it does to a torch and its battery, or a radio chassis full of components.

However, in reality it's necessary to employ numerous junctions in all circuits. And these, in time, can give trouble!

Ideally a perfect connection with zero resistance is needed everytime. But in practice, wear and corrosion gradually increases that resistance until some joints are no longer good conductors.

Instead, the connections become partial or total insulators and either stop the equipment working or cause intermittent problems. This is often called 'h r' (high resistance) in workshop terms.

## High Resistance

Let's take a look at high resistance. We'll imagine what would happen to a wireless signal if the connections were corroded at any point in the system where the feeder was

coupled to the antenna or the transmitter.

I once had to find a fault on a professional transmitter. The problem was tracked down to a single turn coupling coil between the power amplifier tank-coil and the antenna socket.

Although the winding assembly looked perfect I found green-corrosion, inside its insulator block. The corrosion rendered this vital component useless.

A similar coupling coil (coupling the p.a. stage to the antenna) can be seen around the tank coil in the front centre of the transmitter in Fig. 1.

Incidentally, a number of the Eddystone magazines, Fig. 1, were published just before and for a while immediately after the Second World War. They are a good source of information about Eddystone components and worth collecting.

## Filament Voltage

Don't forget, a valve must have its full filament, or heater, voltage. If the voltage isn't correct, the valve will lose efficiency and the performance of the set will suffer.

In particular, I'm thinking of a portable set with 1.4 or 2V filament valves. The former is fed by a dry battery and the latter a 'wet' accumulator.

Let's assume that the filament sources of power on your set are in order and you're satisfied that the h.t. supply is working. Unfortunately though, the set is still obviously 'weak'.

The next check is to see whether the voltage across the filament pins of each valve is correct. If the answer is yes, then, providing the glass envelopes are clear, make sure all the filaments are illuminated. Don't forget though, that the 1.4V valve filaments provide a very dim glow and the visual check best done in a darkened room.

**Please remember to use insulated probes while testing.** And don't forget that the voltage on valve filaments, driven by battery supply only, are measured with a d.c. (direct current) volt meter.

Alternatively, a suspect filament circuit can be tested by removing all valves from their sockets and by disconnecting all batteries. Then, with a low resistance ohm-meter, check for continuity between the

terminal ends (pins or spades) of the battery leads and the valve-holder filament legs.

The filament circuit is a simple electrical arrangement but you may find the following problems. Look for corrosion on the battery pins or accumulator spades and make sure the wire connected to either of these is complete and secure.

I have known flexible leads to be 'pulled' down to a single strand and unable to carry the total current required by the valves. On/Off switch contacts, toggle or wafer, may be 'gunged', especially if the set has spent years stored in an attic or garage.

Toggle switches can also cause problems. They often lose their 'snap' action which stops the blades locking into their sockets.

Although faulty toggle switches should be replaced, it may not be possible. In the past I've cured this fault by letting 'Three In One' oil soak into the switch around the ball of the toggle to free and lubricate the internal spring.

## Wireless Set 11

Earlier in the year I discussed the

Fig. 1: In this month's column Ron Ham discusses a fault he traced on a similar antenna link coupling to that pictured (Below). Ron also suggests that the Eddystone Short Wave Manual pictured is itself a collector's item of great interest.

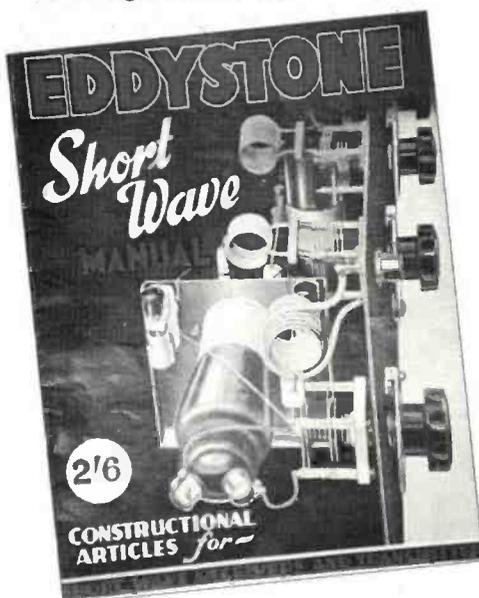
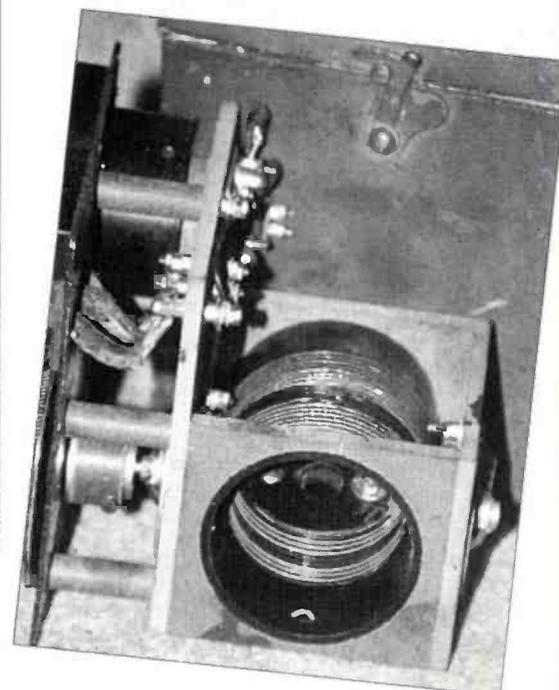


Fig. 2: The 'Aerial Coupling Equipment C' (For Wireless Set No. 11). This unit employs a variometer and is housed in a wooden case (see text).

Fig. 3: Close-up view of the variometer used in the WS11's aerial unit.



# Vintage

By Ron Ham

Wireless Set 11. I also provided some photographs of the set, which was transmitter and receiver combination used by the British Army in tanks during the late 1930s, prior to the introduction of WS19 Mark 1.

Since then, I had the rare opportunity to take a close look at the Aerial Coupling Equipment C (For Wireless Set 11). This is as seen in Fig. 2, with its lid open and showing the tuning instructions inside.

The case on the tuning unit is made from wood, has a metal liner for r.f. screening and a webbing carrying handle. A meter marked **Ammeter HF** and a large tuning knob are the main features on the front panel, Fig. 2.

Because there's a variometer inside, Fig. 3, which has no end stops, the tuning knob is calibrated in two halves. These are marked 0 to 180 and 200 to 360.

Briefly, a variometer has a fixed outer coil and an inner winding, centre Figs. 3, 4 and 5, which is rotated by the tuning control. This unit gave me the opportunity to show you all a typical variometer which you may come up against in domestic sets of the 1920s and 30s. (I know of a Philips set that uses one).

Obviously, any coil that turns a full circle must be connected by wipers onto a set of contacts, bottom centre Fig. 4. These are sometimes referred to as 'slip-rings', especially if they were complete circles and not split like those in Fig. 4.

In the example shown, eight wood screws hold the chassis to the case. The internal wiring, above the coil in Fig. 4, is solid, sleeved and terminated with nuts, bolts and washers.

A push-button switch, top left of the meter in Fig. 2, operates the set of contacts on the upper right of Fig. 4 and is labelled 'Press For LP'. In the lid instructions it says: "This Switch Must Not be Pressed When Using A High Power Set".

Another view of both coils and the upper set of rotor contacts can be seen in Fig. 5. This particular unit is dated 1941 and although it's in very good condition, the rubber insulation on the connecting leads, right Figs. 2 and 5, is breaking down and crumbling.

To achieve good continuity of all connections in a components of this age, you may have to undo each nut and bolt. Then you'll have to clean

the wire ends and the washers and polish the wipers and sliders.

## My Lady Anne

I was reminded about the Vidor *My Lady Anne* mains/battery portable by Mr H. E. Chamberlain from Newark-On-Trent. He uses one daily on the mains, because the special dry battery made for it is unobtainable nowadays.

"It gives very good service, which says something for the makers in the 1950s, doesn't it"?, wrote Mr Chamberlain.

I think that the reliability certainly does say something Mr Chamberlain! In fact both battery manufacturers, Ever Ready and Vidor produced a fine range of reliable sets.

From memory, I think the *Anne* was in fact the last of the valve portables that Vidor made. Then, in the 1960s, came their first all transistor portable called the *Gem* which I believe was advertised by 'The Beverley Sisters'.

## Miniature Glass Valves

Like similar sets at that time, the Vidor *Anne* used the '96' series of miniature glass valves. (DK96 heptode, DF96 r.f. pentode, DAF96 diode-pentode and DL96 output pentode).

The Vidor receiver's overall high tension requirement is 90V but each valve has a different demand for its anode. The 'DF' and 'DAF' need 90V, the 'DL' 85V and the 'DK' 65V.

Battery only portables, like the Ever Ready *Sky Queen* and Vidor's *My Lady Margaret*, also use this range of valves and are powered by 90V h.t. and 1.5V l.t. batteries.

For power, a large combined 90/1.5V battery fits in the bottom of the *Sky Queen's* cabinet. And there's a 'baby 90V' and a 'little 1.5V' sitting just below the hinged top panel in the *Margaret*.

The actual filament voltage for the DK, DF, DAF and DL series of valves in this mode, is 1.4V. The current for each is 25mA except for the DL which is 50mA.

However, the DL96 has a tapped

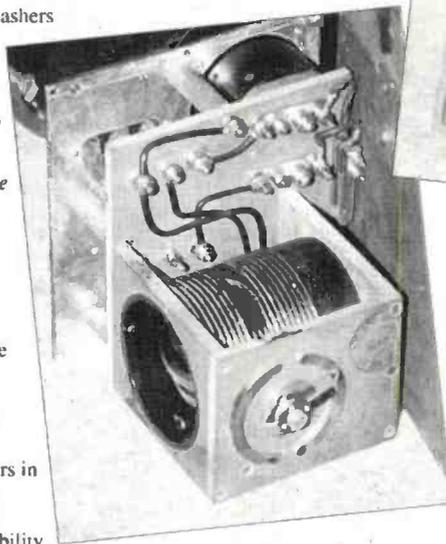


Fig. 4: As the variometer unit rotates through 360°, provision has to be made for wiping contacts to the coils. The contacts can cause problems and former service engineer Ron Ham suggests a simple maintenance tip (see text).

filament. This is especially designed for mains/battery operation, which can be wired for 2.3V at 25mA. Because of this tap the filament pin arrangement differs from the others.

For example, pins 1 and 7 are used for the filaments on the DK, DF and DAF valves and pins 1, 5 and 7 on the DL. My advice is that you never mix the 92 and 96 series valves and always check the valve manual for the pin connections before making a replacement. Finally, unless it's used in the filament circuit, pin 5 on the DL96 base must be left blank and not used as a convenient terminal post.

## Special Type

From my memories of many years workshop servicing, the *Margaret's* lid-switch is a special type. It screwed to the inside of the cabinet under the chassis and was operated by a lever attached to the lid.

Sometimes, when I serviced a *Margaret*, I had to take these out and scrape the two fixed contacts and the face of the bar which went across them. This brought many a 'dead' set to life.

Safety warning: be very careful

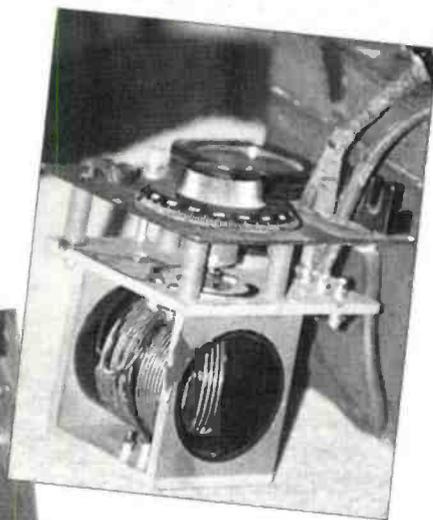


Fig. 5: The second set of wiping contacts can be seen in this photograph of the variometer, with the rotating coil (inside the fixed coil) clearly visible.

when you examine mains/battery sets, like the *Anne*. This is because the full mains voltage is present inside.

The valve filament wiring is different from that of a battery only set. My advice is that you do not modify the complex mains/battery switching arrangement unless you really know what you are doing and you have access to the circuit diagram.

## Can You Help?

Finally, can you help the following readers? Two p.a. control knobs for the transmitter section of a B2 (the famous 'spy' transmitter-receiver) by Ian Haggart. If you can help please contact Ian at 22 Alnwick Rd., Newton Hall, Durham DH1 5NL.

In Canterbury, Peter Sims has a WS18 MK111 in good condition. Peter wonders if a battery is still available for this set.

According to the manual Peter, the 'battle' battery, which fits in the case below the transmitter, is a combined 162/3V which is tapped off at 12V for the bias supply. This would give 150V for h.t., 12V for bias and 3V for l.t.

I don't think such a battery is available now or any with a large enough voltage to make one up. I assume this is the same for the MKs I, II and III. You could try one of our advertisers for a manual but I've no doubt readers will have some advice to pass on.

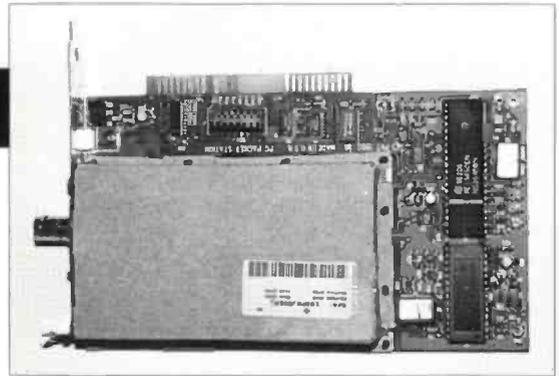
It's time to shut the 'shop' once again, but don't forget that I'm always 'open' for letters sent to me at 'Faraday', Greyfriars, Storrington, West Sussex RH20 4HE.

Cheerio for now!

*Panorama*

# PACKET

*This month Roger Cooke G3LDI, looks at an in-computer packet radio station, the PC Packet Station.*



The item I'm reviewing this month is the half-size plug-in packet radio board for the PC, available from PKT Electronics of Dayton, Ohio. This board is a complete packet station, with a v.h.f. radio incorporated on the board. It comes complete with software, handbook and is easy to install.

### High Quality

The PCB is a high-quality card, featuring surface-mount technology. The 1200baud modem features the AMD7910 chip and the serial chip is the 8250, configured to be Baycom compatible.

The on-board radio, mounted under an r.f. shield, is optimised for data, with ferrite beads on all signal lines. It's a two-channel, 5W Motorola radio, switchable for either 144.650 or 144.675MHz.

Channel selection is by either a switch on the rear of the card or software selectable. The receiver sensitivity is 0.25µV for 12db SINAD. The transmit/receive switching time, given as 20ms, is quite respectable.

Built on a standard 8-bit ISA Bus interface, the unit may be used with all IBM compatible computers. To reduce the overall current drain CMOS ICs are used throughout.

The maximum current is given as 1500mA, presumably on transmit. The rear of the board has a BNC socket for

an antenna, along with indicators for transmit, squelch and carrier detect.

There's easy access to the squelch and receive level controls and speaker output. The transmitter has a 60 second timer. So that if it's accidentally held in transmit for 60 seconds, the transmitter will switch off.

### Baycom Software

The standard Baycom software is supplied on disk. The PC Packet Station is only compatible with the supplied Baycom software.

The programs may be run from the floppy, but it's recommended that they're copied onto a working disk and the original stored. Better still, copy them over to the hard disk and use them from there.

The software then has to be configured and the correct Com port used. It will, in fact, run from Com1, 2, 3 or 4 and IRQ2, 3, 4 or 5, selectable by onboard switches.

A few parameters have to be set (the obvious MYCALL) and changes saved to the SCC.INI file. This file may be edited using a text editor. Type the command BAY and you're ready for packet operation.

### The Manual

The 76-page manual that accompanies this package is a very well produced book. It assumes nothing, describes the board, the software and the features. The book tells you how to install the board into the computer, even to what tools are needed. It then instructs

the user on the complete set-up, both physically with the board, including audio levels, antenna connection, setting switches etc.

Installation of the software is covered and descriptions are given regarding operation from a floppy or hard drive and how to copy the files over to the hard drive. You're also told what to do with them when you've completed this operation.

The Help System is quite an important feature, especially for the raw beginner. Not only is there help with specific commands and system documentation, but there is also a complete range of packet information, including timing parameter settings, mailbox advice and so on.

The function keys have been programmed with various tasks and the radio frequency is software selectable. All the parameters and commands are clearly discussed and explained and in case you do run into any problems, there is quite an extensive troubleshooting section. The manual concludes with a PCB layout and circuit diagram.

I asked one of my BBS users, **Jim Bagley G4BDW**, shown in Fig. 1, to take it as a user and give me his impressions. The following is what he found, after being asked for candid views!

Jim commented: "I found the board very easy to install and I like the compactness of the equipment, especially the fact that the radio and TNC are both on a plug-in card with only the antenna to connect. I also liked the use of the TAB key to put the TNC into command mode.

The software radio frequency switch is good, I didn't like the physical method, but an indication of actual frequency on the

screen would be useful. Similarly with the channel selection, I could only tell which channel it was according to the traffic on the screen. No problems were encountered with r.f.i.

The in-built screen-blanker is a good idea but I didn't like the default video set-up. This was set to auto-detect, switching my SVGA system into 60-line mode that was difficult to read. I found setting good old 25-line standard, was best.

Transmit receive quality was good, 5W is more than adequate giving very few retries. I found it was necessary to remove the card in order to change IRQ/Com-port settings. It's possible to hold multi-connect contacts, switching channels with the F1 -F6 keys.

It would be interesting to see if a 9600 baud 432MHz version becomes available. If I didn't already have a system, I'd consider buying one, although at present the price is unknown!"

My thanks go to PKT Electronics Inc., 2668 Haverstraw Ave. Dayton, Ohio 45414-2239, USA who can supply the unit for (US)\$419 single channel or \$459 for dual channel +\$45 P&P. By telephone PKT may be contacted on 1-513-454-0242 FAX: 1-513-454-0029. There is at present no UK supplier.

For packet without the clutter on the desk or the need for another radio, this is obviously the answer.

That's it for this time. As usual, news and pics to G3LDI, QTHR or Tel: (0508) 570278 - happy packeting.

**E N D**

**Fig. 1: Jim Bagley G4BDW, in the process of trying out the PC Packet combined TNC and radio board for an IBM compatible.**



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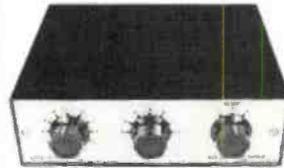
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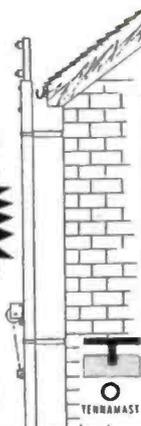
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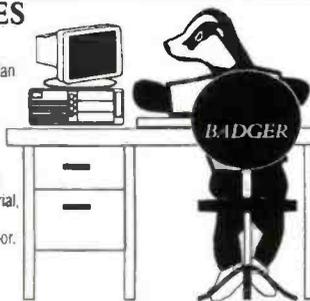
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Report

# H F BANDS

*In keeping with the DX theme this month, Paul Essery GW3KFE has some important operating tips to help you winkle out that elusive 'rare' station.*

With amateur radio operation every fraction of a decibel counts! This in simple terms, is because a distant operator faced with a pile-up, tends to take the strongest, if only to get them out of the way.

If you can improve the signal you lay down at a distance, you rise a little way in the 'pecking order'. And, if that improvement is common to send and receive so much the better!

Have a linear amplifier by all means. But only use it when all else fails.

## The Bands

The bottom has dropped out of the bands. However, as I write there seem to be signs of stabilisation. The actual 'bottom' is predicted for late 1996, so for the moment it's a case of grinning and bearing it!

## Bhutan Activity

I've seen that Jim Smith, VK9NS has an eye on Bhutan, A5 activity. Jim says the problems here are several times tougher than were encountered with Bangladesh and Nepal.

However, Jim is ready to go to Bhutan immediately he has the formal permission. As he hoped this was 'near' at the time of writing (mid-August) Bhutan may well have come and gone again by the time you read this.

Another one to look out for is VP9BP/KH2 who is in Guam for 18 months. Cards for this one go either to the VP9 bureau, or direct to: **321 Johnson Road, Naval Hospital, Agana Heights, Guam 96919.**

South Georgia VP8 activity is on the cards for January 1995. Further details on this one later.

## Your Letters

Time for you letters now and let's look at **GW0LBI** in Trelewis first. **Leighton** is (for all practical purposes) off the air. The problem is what sounds like power-line noise

for which the electricity company deny responsibility.

On 'Top Band', Leighton's noise is S9 plus some, so no contacts there. But on 3.5MHz **G0FVS** and **G0PMY** were worked, both ends being at low power. On 7MHz, c.w., 5W was enough to hook **K4LTA**, while on 14MHz the key handled **DL1ROG** and the microphone **ED6IEC**.

I recall a similar power-line problem to that of **GW0LBI**'s years ago. My solution was to use a directional receiver and attenuator.

With the set-up described above I was then able to define precisely which pole, that it carried an electricity board sign, and send a copy of the letter to the Area engineer, to the local MP and to 10 Downing Street. The result was quite entertaining and the problem was solved!

The maximum useable frequency (m.u.f.) has only just managed to struggle above 14MHz says **Don G3NOF** in Yeovil. Thus, only Europeans

Down to 14MHz and here the best time was 1500-1900UTC for short path signals out of Asia, Africa and occasionally VK. Don's best contacts were: on 14MHz **DU1SAN**, **HL9DG**, **HLOK**, **HS0ZAZ**, **VR2KF**, **W0WVB/KH0**, **OS1A** and **OS1B**. 21MHz gave **9K2US** and **4U/F6FNL**, while on 18MHz the trawl showed **N4MU/HH2**, **3XY0A** (yes, that's right) and **4U/F6FNL** in Zaire.

Over to Kent now, and there's not been too much activity from **Ted G2HKU** in Sheppey, partly due to another visit to hospital and partly the hot weather and associated static. Everything **Ted** worked was on c.w.; **X5EGL** giving location as Glamoc, which puts him in Yugoslavia and, for best, **YW0RCV** on Aves Island at 10MHz, a contact with **VK3MR** who was first worked 47 years earlier!

On 14MHz **Ted** worked the Aves station again, plus **3V8AS** and **4L8A** and on 18MHz

wave counterpoise. The top has been pushed up another several metres thanks to some bamboo canes.

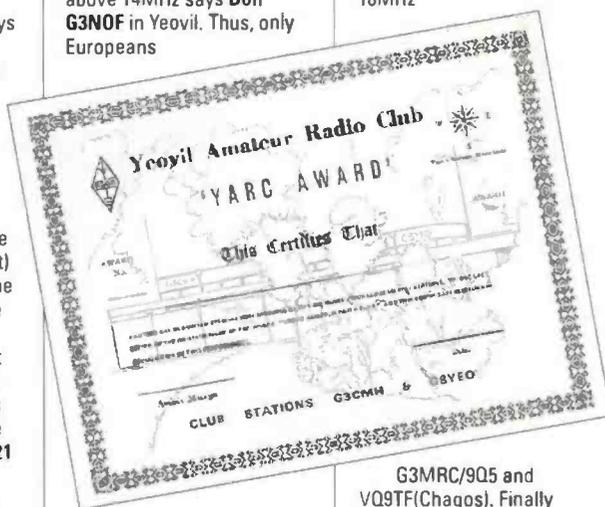
So, with the 1W at 7MHz, **G0KRT** has 15 countries booked in since coming back on air. The best one was **UA4STG** for a 3000km hop. Another one was **H80/PA3EVC/P** at 0445UTC and **EC3DDP** was a first with Spain in which both ends were at the low power game.

## Fun Award

The Yeovil club have a fun award and they invite you to 'have a go'. Since July 1 1983, find 22 British contacts in which the last letter of the call goes towards making up the words 'Yeovil Amateur Radio Club'. Three contacts ending in 'A', one in 'B', one in 'C' and so on.

Send the list, certified by a radio club official or two active amateurs, plus £2 to: **Adrian Dening G4JBH, 19 The Park, Yeovil BA20 1DN.** Cost is £2, \$4 or 6 IRCs. Cheques made payable to Yeovil ARC. The award is open to amateurs and listeners anywhere in the world.

That's it again. Letters to me as usual by mid-month at: **PO Box 4, Newtown Powys SY16 1ZZ.**



were noted on 24 and 28MHz.

On 21MHz the signals at **G3NOF**'s were mainly from Africa and S. America at the peak time in the early evening. On 18MHz the odd opening to East Coast USA, around 1300, 1800 and 2200 were noted, and just one late evening long path event to **VK** and **ZL** among the S. Americans.

**G3MRC/9Q5** and **VQ9TF**(Chagos). Finally 21MHz and **ET3JR**, **A71AN** and **LU5FDQ**.

Welcome back to **Eric Masters G0KRT** from Worcester Park in Surrey. **Eric** has been studying hard towards a B.Eng, but during the vacation has put the **Lake OTR7** rig back on the air.

**Eric** uses the **DTR7** with an antenna comprising the upper half of a **W3EDP** operated against a quarter-

**Fig. 1: The Yeovil Club, well known for their famous QRP Convention, are also in the 'fun' award business. You can join in and get this award just by spelling their name correctly....but there's a catch (see text for instructions!).**

**E N D**

This month David Butler G4ASR concentrates on long distance DX communications. Working world-wide DX may seem to be the domain of the h.f. operator but in practice David says the v.h.f. or u.h.f. operator can also participate.

made this year with CN8, EA9 and 7X via Sp-E.

Even on the 10GHz band contacts have been made from the UK via the moon to North America. Hardly local traffic!

**Meteor Scatter**

To use meteor scatter (m.s.) as a DX mode of communication the m.s. operator employs 'scattering' of the v.h.f. signals from the ionised trails of meteors. Although generally short lived the reflections, at a height of 90km or so, allow contacts to be made with stations up to 2200km away.

The best time for meteor scatter (m.s.) is during a major shower. One of these showers, the Perseids, occurred recently during August.

This year the maximum activity was on Friday August 12 between 0900-1200UTC. There was a secondary peak later that night between 2200-0400UTC.

**Collin Morris G0CUZ (I082)** made a total of 17 successful contacts on the 144MHz band. He uses an FT-726R transceiver with an MGF1302 GaAs f.e.t. low noise amplifier.

Colin's transmitting amplifier uses a pair of 8B74 triodes into a choice of two antennas. One is a 12-element Yagi fixed at 115° and the other is a 5-element Yagi.

The best contact by G0CUZ was with JX7DFA on Jan Mayen (I050) at a distance of 2080km. This c.w. QSO incidentally, was made using the 5-element Yagi. Other DX contacts of note included HA3UU, HA8PD, HG7B/O, OY/G4PIQ, S51AT, Y27UN, 9A1CCY and 9A4FW.

At my QTH I tried to make some really long distance QSOs on the 144MHz band. Unfortunately most of them were not successful because of the distances involved but at least it was interesting to try!

Schedules with UA3XFA at 2485km, RX1AS at 2236km and JX7DFA at 2125km produced no reflections at all. (In a subsequent packet radio message JX70FA informed he had a hurricane!).

I did however, hear readable signals from OH7MA at 2278km and OH6AAO at 2035km. In total I made 15 QSOs, the notables being IK5UBM, LA8KV, OE5KE, S50C, S50M, YU1EV, YU7BT and 9A1CCY.

My best DX was with HG7B/O at 1860km. The expedition to the Faroe Islands (IP61) by the Five Bells Contest Group was heard very

**Guantanamo Bay, Cuba**



Cuba  
OPI Steve McDaniel  
OY/G4DHF  
G4ODA  
G4PIQ  
G4WKN  
QTH USA

# KG4SM

CONFIRMING CONTACT			
BAFNO	DATE	QPT	
G4ASR	12 AUG 89	13:03	
50	SSB	59	100

*73, Steve*

Fig. 1: The DX worked by G4ASR on the 50MHz band.

strongly virtually all the time.

The Five Bells Group were active on both the 50 and 144MHz bands with the call signs OY/G4DHF, G4ODA, G4PIQ or G4WKN. I was fortunate to work them on the 50MHz band via Sp-E and on the 144MHz band via tropo.

**Brian Underdown G7LIJ (J001)** thought that conditions on August 12 were not very good. He reports that they were much better with him during the early hours of August 13.

Brian uses an FT-736R and an MGF1302 low noise amplifier. The power amplifier runs 350W from a pair of 4CX-250Bs into a 9-element OZ5HS Yagi.

Contacts made by G7LIJ on the 144MHz band were HA3UU, IK1MTZ, I4YNO, TK5EP and 9A1CCY. All these QSOs were made on s.s.b. without any schedules.

**Mike Pugh G4VPD (I082)** spent most of his time on the 50MHz band. He uses a TS-711e driving an RN Electronics transverter. This gives 25W output into a 2-element beam.

Mike made 15 random s.s.b. contacts with stations dotted around Europe. His best QSOs included I4FJZ, OK1IBL, OY/G4WKN, SP6BT1, SP6GZZ, S59A and S59F.

**Via Moonbounce**

The ultimate in long distance communication on the v.h.f. and u.h.f. bands must surely be that achieved via moonbounce. Provided the moon can be seen by both participating stations, then contacts can be made world-wide. Yes, even as far as Australia or New Zealand!

The ARRL e.m.e. contest this year is being held on October 29-30 and November 26-27. Although you probably won't hear VK or ZL there's

every chance that you might hear some DX with your tropo system.

One of the stations you should hear this year is VE3ONT, the Toronto v.h.f. Society's station. As I mentioned last month they will be using a 46m diameter parabolic antenna on the 144, 430MHz and 1.3GHz bands.

As a result of discussions at the Central States v.h.f. Society Convention they have now added 50MHz to the list of bands to be activated. This band will be used on a non-interference basis simultaneously with the 1.3GHz band on Sunday October 30 between 0754-1844UTC. (See the schedule shown last month).

The station of VE3ONT (FN05XW) will transmit on 50.100MHz. They will listen for replies between 50.100-50.105MHz. The 50MHz equipment will run 1kW output power into a linearly polarised feed.

Link budget calculations indicate that 50MHz stations with an antenna gain of 10dBd and 1kW should be able to work VE3ONT. Smaller stations however are urged to try if signals can be heard.

**Circular Polarisation**

On the 144 and 430MHz bands the VE3ONT dish has been configured to transmit and receive left-hand circular polarisation (LHCP). This means that after reflection from the surface of the moon the signals will be right-hand circular polarised (RHCP).

Therefore to work VE3ONT you need either to run RHCP or vertical or horizontal linear polarisation. The latter two polarisations will only be -3dB down on the circularly

Report

WV

Of course, the term DX is relative to the actual band in use. Working SM on the 144MHz band is no big deal. But do it on the 10GHz band and you've really achieved something!

Similarly, working EA9AI on the 1.8MHz band doesn't quite give the same buzz as accomplishing it on the 144MHz band.

For the keen v.h.f. operator the use of e.m.e. or satellite communications enables contacts to be made with all parts of the world.

A number of operators have now obtained OXCC on the 144MHz band. And of course, when the 50MHz band is in good shape it's relatively easy to obtain the Worked All Continents (WAC) award. Some operators have now contacted over 130 countries on the 50MHz band.

**Common Modes**

Even the more common propagation modes allow v.h.f. operators to work some excellent distances. In recent months I've reported some really good tropo contacts.

The tropo contacts reported were over 3000km on the 144MHz band and of 2000km on the 430MHz band. Many operators have made QSOs via aurora with stations located in the former Russian Republics.

The former Russian Republic stations are up to 2000km away from the UK. Also on the 144MHz band numerous contacts were

polarised signal.

Attempts with LHCP will be totally useless! This is because the cross-polar discrimination (XPD) will be in excess of 36dB (at least 6S-points).

On the 1.3GHz band VE3ONT will use switchable polarisation. It therefore doesn't matter what polarisation you use. They will select whichever is the strongest.

Whilst on the subject of antennas there's one point I didn't emphasise enough last month. It was regarding the type of antenna needed for e.m.e. work.

A 9-element Yagi may allow you to hear 2 or 3 of the mega-stations on the 144MHz band. However, better results will obviously be obtained with something bigger. And as a minimum I would recommend a Yagi of approximately 17 elements.

The antenna boom should be around 8 to 10m in length. There are a number of good Yagi designs being manufactured nowadays. Unfortunately there's an even larger number of poor designs giving inferior results!

### Clean Pattern

Apart from a good forward gain (dBd) the other most important feature that a Yagi used for e.m.e. must possess is a clean pattern. The Yagi should also have an excellent front-to-back (f.b.) ratio and few side-lobes.

After all, you only want to pick

up signals coming via the moon. Why have an antenna that picks up signals from the back or from the side?

Of course when I say signals, I mean noise from the earth or even from the sun. So steer clear of antennas with gimmicky driven elements and low power matching systems. Instead go for a well optimised Yagi design.

What antenna you buy is your choice, but remember you only get what you pay for! The following designs: including the NBS, DL6WU, DJ9BV, F9FT, OZ5HS or derivatives will certainly put you a step in the right direction.

And (before the 'ZL Special' brigade start jumping up and down) remember I'm purely talking about e.m.e. communications. This exacting mode really does need state-of-the-art designs. For other propagation modes any old bit of wet-string will suffice!

Meanwhile back to VE3ONT and the Toronto VHF Society. The 46m diameter dish will of course have lots of gain on all bands being used.

Because of the high gain low power tropo and satellite stations are encouraged to make contact with VE3ONT. Approximately 100W into a single long Yagi should be sufficient on the 144 and 430MHz bands. On the 1.3GHz band a number of stations running only 10W and a 2m diameter dish were worked last year.

### Split Frequency

As in 1993, VE3ONT will work split frequency. So do not transmit on their frequency. Pick any clear frequency in their listening range.

If conditions are good then VE3ONT will start each operating period on s.s.b. This will allow the stronger stations to be worked quickly.

All contacts will be 'random' with no schedules or proper e.m.e. sequencing. Last year the group made a total of 560 e.m.e. contacts on the 144, 430MHz and 1.3GHz bands. This year you could be one of them!

The moonset data I provided last month shows that the best times to hear VE3ONT and the other North American stations which will be on between 1200-1400UTC on October 29-30.

This month's data, shown in **Table 1**, gives the moonrise and moonset times for the second leg of the contest on November 26-27. It shows the best times for horizon e.m.e. to North America to be between 1030-1230UTC.

### The 50MHz Band

The Sp-E season which contributes so much to propagation on the 50MHz band during the summer, didn't quite come up to expectations this year. However, despite the lack of many intensive openings some 70 DXCC countries were worked from the UK during the period June-July 1994.

Although conditions weren't brilliant in August a variety of propagation modes enabled some useful contacts to be made. Stations in eastern Europe, LZ and YO, and ex-Russian Republics such as ES and LY could be worked via Sp-E.

The DXpedition station ES5WE/0 (K007) operated by ES5RY was very active. On many days the propagation path was to the south of the UK. Contacts were made into CT, EH, I, ISO, IT9, TK and ZB.

On other occasions brief Sp-E openings were made with stations in OK, OM, SP, S5 and YU. In the period August 17-18 there were openings to Scandinavia with LA, OH, OZ and SM being logged.

Meteor Scatter, especially during the period August 11-13, allowed QSOs to be made around central Europe. The station of Pierre Pasteur HB0/HB9QQ was heard providing many operators with Liechtenstein for a new country. The expedition to the Faroe Islands also stirred up much activity.

### Microwave Bands

What is believed to be the first contact on the 120GHz band was recently made on July 11. Tom Williams WA1MBA and Jim Mead WB2BYW initially made a c.w. QSO over a distance of two metres!

The stations then moved 200 metres apart, then 950 metres, before increasing the path length to

1.15km. The equipment consisted of an 11GHz TX/RX driving into a harmonic mixer. The 11th harmonic produced 10µW (microwatts!) of 120GHz output into a 30mm dish.

The mixers used for the 120GHz rigs were commercial units built by Pacific Millimeter Products. The dishes were borrowed from the University of Massachusetts.

Both WA1MBA and WB2BYW had also made a contact on the 145GHz band back in 1993. They report that making a QSO on the 120GHz band is much more difficult because of oxygen absorption at that frequency.

Apparently, Tom and Jim are talking about the possibility of making a QSO on the 245GHz band in 1995. In the UK we don't have these allocations but we do have the 142 and 248GHz bands. I wonder who will be the first to make a DX contact on these frequencies!

### From Cyprus

I've received details from Dave Court OZ3SDL about his recent expedition from Cyprus. He operated on the 50 and 70MHz bands using the call sign 5B4/G3SDL between June 30 and July 12.

Unfortunately Sp-E conditions during this period were poor and few double-hop openings occurred. On the 50MHz band only seven contacts were made with the UK. It was therefore not surprising that no QSOs were made on the 70MHz band.

Some cross-band 50/70MHz contacts were attempted with stations in I, PA, SV and 9H. But even these failed to produce any signals.

The equipment used on the 70MHz band consisted of a Galaxy 28MHz transceiver driving a Microwave Modules transverter. The 10W output then fed a BNOS 100W amplifier into a 4-element J-Beam Yagi.

Dave mentions that thanks are due to BNOS for the loan of the 100W 70MHz amplifier. He reported that on the 50MHz band 5B4/G3SDL made a total of 394 QSOs with stations in 28 DXCC countries.

### Deadline Time

That's all I have for you this month and it's deadline time again. But I hope that you now realise that v.h.f. signals do extend beyond the horizon!

So, if you've worked any DX recently then please send your reports to me at **Yew Tree Cottage, Lower Maescoed, Herefordshire HR2 0HP** or via packet radio @ GB7MAD or the DX Cluster system. Alternatively you can telephone me on **(0873) 87679**.

**Table 1:**  
Moon rise and set data for ARRL e.m.e. contest.

#### Saturday 26 November 1994

UTC	Az	EI
Rise		
0000	087	05
0030	093	10
0100	099	14
0130	105	18
0200	111	23
Set		
1030	252	19
1100	258	14
1130	264	10
1200	270	05
1230	275	01

#### Sunday 27 November 1994

UTC	Az	EI
Rise		
0100	092	04
0130	098	08
0200	104	12
0230	110	16
0300	116	20
Set		
1030	239	21
1100	245	17
1130	251	13
1200	257	09
1230	263	04

Round-up

BROADCAST

In this month's look at the broadcast bands Peter Shore has news of schedule changes, radio broadcasts using Internet and a convention in Atlanta.

If you are heading off on your travels, either in the UK or overseas, and want a small radio to pop in your luggage, how about trying the Sony ICF-SW33? The ICF-SW33's digital frequency read-out and a world time clock offer ease of use, and it works well across the short wave bands too.

The SW33 measures 165mm wide by 90mm high and 30mm deep, and weighs in at 420g including the 3 AA size cells. You can step through each of the short wave broadcast bands, and the last frequency received in each band is tuned.

Then you can tune using either the + or the - key. Five memory positions are available on each of medium wave, short wave and f.m. but this set does not, unusually for a Sony, have long wave.

There's also a clever world time clock with five cities preset in the factory, these are: London, New York, Los Angeles, Singapore and Tokyo. Sony also provide a 'summertime button' which alters each zone by an hour to allow for time changes in the Spring and Autumn.

Performance on short wave is good for a set of its size. It's not a DXer's dream, but it pulls in all the major stations and is a good travelling set. The retail price in Britain is around £140.

**Extra Frequencies**

There are a couple of extra frequencies for Radio Netherlands English service at 1530 and 1730 following the ending of the station's Arabic language programmes. At 1530, 13.77 and 15.56MHz carry English to the Middle East and North Africa, and between 1730 and 1925, 9.86 and 11.655MHz have been assigned to English to Africa.

The Voice of Ethiopia (VoE) has retimed its 60 minute English language broadcast from 1500 to 1600UTC. It can be heard on 9.56 and 7.165MHz.



**Comprehensive Listing**

Dave Keely GW00GZ sent me a comprehensive listing of DX and s.w.l. programmes and World Band DX info that he found on the Packet Network. The data is compiled by Dave G7HRQ and it's a useful round-up of what can be heard on the broadcast bands. Frequencies and satellite details are included, and Dave says he updates the information every four to six weeks.

The long wave transmitter in eastern Germany on 261kHz that used to carry Russian language programmes for Soviet troops based in the former DDR under the name Radio Volga now carries only the German station RadioRopa Info. RadioRopa is on the air from 0400 to 2100UTC daily.

The Voice of America (VoA), which recently inaugurated a new short wave relay station in Botswana, is now hiring time on Channel Africa's transmitters at Meyerton. English is carried on 4.985MHz at 1800 for an hour, Monday to Friday, and at weekends there is an hour-long English transmission on 3.97MHz at 1600UTC. This strikes me as confusing for the listener, but there must be method in there somewhere!

Meanwhile back in the USA, a report on the weekly *World of Radio* programme carried on WWCR Nashville (Tuesday at 1230 and Friday at 2115 both on 15.685MHz; Saturday at 0600 and Sunday at 0030 on 7.435MHz according to the Packet information!) says that VoA

is planning to reduce the output of its Bethany transmitting station in Ohio by half. The VoA station also has a mainland US transmitting station at Greenville in North Carolina.

While all this is going on, the station is looking at new ways of getting its programmes to world audiences. In mid-August VoA started to use the Internet to distribute electronically digitised audio news bulletins in English and up to 14 other languages.

The English service is updated hourly and anyone who can access the Internet with a computer that supports sound can download the newscasts. The weekly media programme *Communications World* is also digitally stored on the Internet.

I would be very interested to hear from any reader of *PW* who tunes in to VoA this way. Drop me a line at the Editorial Office in Broadstone.

**Hiring Time**

Deutsche Welle (DW) is hiring time from Channel Africa, becoming the third station to do so in addition to VoA mentioned earlier and the BBC World Service. DW can be heard at: 0300-0700 on 6.015 with English at 0400; 0900-0950 on 9.565 in English; 1000-1050 on 15.41; 1100-1150 on 17.80 in English; 1200-1400 on 21.695; 1400-1450 on 15.41; 1500-2200 on 7.185 and 1800-2200 on 3.995MHz.

**Schedule Changes**

The Ecuador station, HCJB made some changes to its schedule at the beginning of

September. The station can be heard beaming to Europe at 0700 to 0830 on 11.835 and 9.60MHz, and in the evening from 1700 to 2000 on 15.35MHz. In addition, the upper sideband frequency of 21.455MHz continues throughout the day.

If Latin American cooking takes your fancy, then tune in to Karen Schmidt's tour of the culinary delights of the continent on Thursdays. Ecuadorean music features each Friday, while the program *Ham Radio Today* is on Wednesday.

Features during October include station logs, medium wave characteristics and a backwards look at radar on Wednesday 5th, transequatorial propagation and maritime distress on the 19th and Q-codes, scatter-type propagation and longwire antennas on the 26th. *DX Partyline* can be heard on Saturdays at 0730 and 1700UTC.

**Atlanta Convention**

Finally, if you are at a loose end between October 20 and 24th and have a little loose change to spend, how about making a date with the *Monitoring Times* convention in Atlanta, Georgia? This annual meeting brings together short wave listeners from across the US and further afield, with several international radio stations represented. Full details are available from convention organiser Ian McFarland at 6 Coolbreeze Avenue, Pt Claire, Quebec, Canada H9S 5G4. FAX: 0101-514 697 2615.

That's all for this month's look at the broadcast bands. Keep listening and don't forget if you hear anything interesting or unusual drop me line at the *PW* Editorial Offices in Broadstone.

E N D

# ARCADE

## The PW Shopping Arcade

Welcome to the *Practical Wireless* 'Arcade'. In this section of the magazine, you'll be able to find all those important services 'under one roof' - just like the shopping arcades you see in the High Street.

Let your eyes 'stroll through' the Arcade every month and you'll find all departments open for business including: The Book Service, PCB Service, Binders and details of other *PW* Services. Make a regular habit of 'visiting' the Arcade, because in future, you'll have the chance of seeing special book offers and other bargains. And don't forget, this Arcade is open wherever you're reading *PW*!

## Services

### Queries:

Practical Wireless,  
PW Publishing Ltd., Arrowsmith Court,  
Station Approach,  
Broadstone, Dorset BH18 8PW.

We will always try to help readers having difficulties with *Practical Wireless* projects, but please note the following simple rules:

- 1: We **cannot** deal with technical queries over the telephone.
- 2: We **cannot** give advice on modifications either to our designs, to commercial radio, TV or electronic equipment.
- 3: All letters asking for advice **must** be accompanied by a stamped self-addressed envelope (or envelope plus IRCs for overseas readers).
- 4: Make sure you describe the problem adequately, with as much detail as you can possibly supply.
- 5: Only one problem per letter please.

### Back Numbers

Limited stocks of many issues of *PW* for past years are available at £2.00 each including post and packing. If the issue you want is not available, we can photocopy a specific article at a cost of £1.50 per article or part of article. Over the years, *PW* has reviewed many items of radio related equipment. A list of all the available reviews and their cost can be obtained from the Editorial Offices at Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW for a large stamped self-addressed envelope.

### Binders

*PW* can provide a choice of binders for readers' use. Plain blue binders are available, each holding 12 issues of any similar A4 format magazine. Alternatively, blue binders embossed with the *PW* logo in silver can be supplied. The price for either type of binder is £5.50 each (£1 P&P for one, £2 for two or more).

Send all orders to PW Publishing Ltd., FREEPOST, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.

### Constructional Projects

Components for *PW* projects are usually readily available from component suppliers. For unusual or specialised components, a source or sources will be quoted.

Each constructional project is given a rating to guide readers as to the complexity.

**Beginner:** A project that can be tackled by a beginner who is able to identify components and handle a soldering iron.

**Intermediate:** A fair degree of experience of building radio or electronic projects is assumed, but only basic test equipment will be needed to complete any tests and adjustments.

**Advanced:** A project likely to appeal to the experienced constructor. Access to workshop facilities and test equipment will often be required. Definitely not for the beginner to attempt without assistance.

### Mail Order

All items from *PW* are available Mail Order, either by post or using the 24hr Mail Order Hotline (0202) 659930. Payment should be by cheque, postal order, money order or credit card (Mastercard and Visa only). All payments **must** be in sterling and overseas orders **must** be drawn on a London Clearing Bank.

Practical Wireless, November 1994

## DAYTON

### Come Fly With me to **DAYTON** HamVention '95

**PRACTICAL WIRELESS EDITOR ROB MANNION  
G3XFD EXTENDS A PERSONAL INVITATION  
FOR YOU TO JOIN HIM AT THE BIGGEST  
AMATEUR RADIO SHOW IN THE WORLD**

The annual *PW* trip to the Dayton HamVention has established itself as the highlight of the year for me. I look forward to flying to the USA every year, meeting all our old friends and making new ones every time. So, why don't you join us on the 1995 HamVention holiday....it's a marvellous experience and I'll enjoy your company.

As this is our 'Leicester Show' issue of *PW* I thought it would be a good idea to invite readers to come and chat to me about the Dayton HamVention Holiday during the show on Stand 3 in the Exhibition Hall. So, if you're attending the show I'd be delighted to talk to you about the trip. Alternatively, if you prefer I would be pleased to talk to you on the telephone between **1 and 2pm** on **(0202) 659910**.

The 1995 HamVention Holiday departs from Gatwick on Tuesday April 25 and we'll fly direct to Cincinnati in the USA for £650 per person (based on two people sharing a room). We'll be staying at the Holiday Inn in Englewood, Dayton for six nights and return home from Cincinnati on Monday 1st, arriving home on Tuesday May 2. The price includes entrance tickets to the three day HamVention and an excursion to the world famous Air Force Museum (other optional excursions available).

### Singles Save

And, don't forget...if you're travelling alone on the *PW* trip 'singles can save'. We'll be pleased to arrange for you to share accommodation.

Although I'm leading the *PW* party again and look forward to chatting to you, as with the successful 1994 holiday, the 1995 trip is being organised by the professional tour operators Gulliver's Groups & Incentives. Andy Garside is looking after our arrangements and he's looking forward to your enquiry for the full itinerary and booking form.

So, for full details on the 1995 *PW* Dayton HamVention trip don't delay...send the coupon today to: **Andy Garside, Gullivers Groups & Incentives, Fiddington Manor, Tewksbury, Gloucestershire GL20 7BJ, Tel: (0684) 293175, FAX: (0684) 290093.**

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The publishers of *Practical Wireless* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.

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**WANTED FOR CASH** Valve communication receivers and domestic valve radios (working or not). Items of Government surplus wireless equipment and obsolete test equipment. Pre-1965 wireless and audio components and accessories. Pre-1975 wireless and TV books and magazines. Also, most valves wanted for cash. Must be unused and boxed. CBS, 157 Dickson Road, Blackpool, FY1 2EU. Tel: (0253) 751858 or (0253) 302979.

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The listener's check list and guide to European radio broadcasting. Covers m.w., l.w., v.h.f. & s.w., including two special fold-out maps. Also includes a full list of British stations, a select list of European stations, broadcasts in English and 'Making the Most of Your Portable'.  
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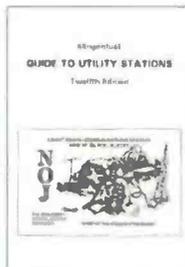
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John Breeds  
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# AMATEUR RADIO

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## AMATEUR RADIO TECHNIQUES RSGB Pat Hawker G3VA

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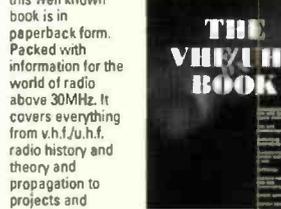
Edited Ian White G3SEK

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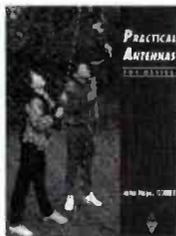
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G3BDQ

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(RSGB)  
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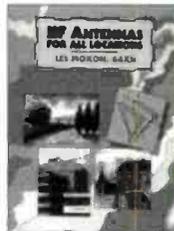
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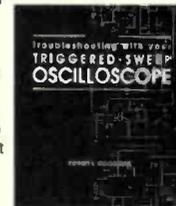
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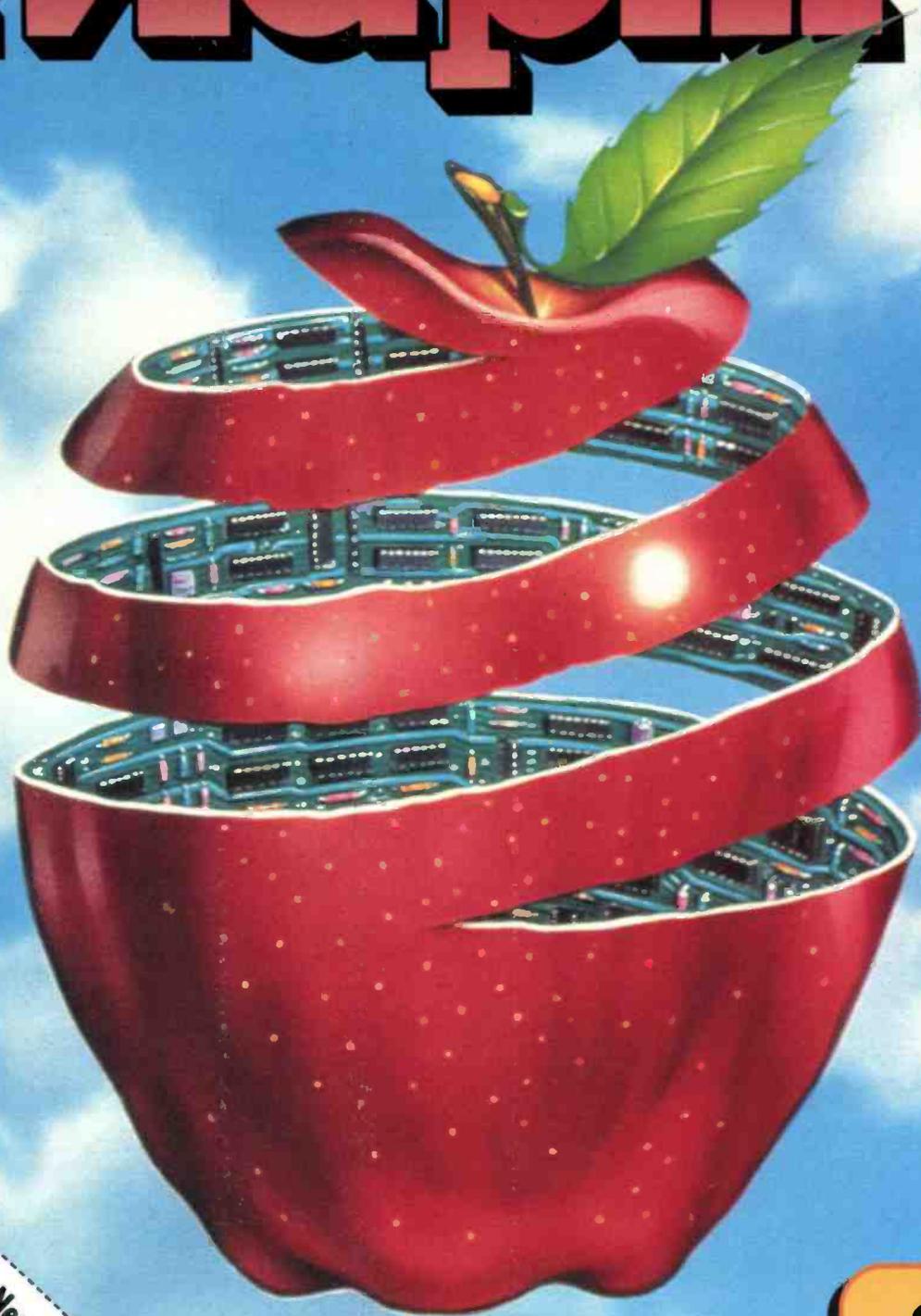
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