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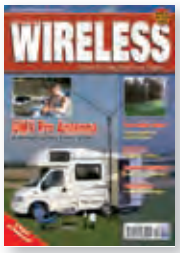

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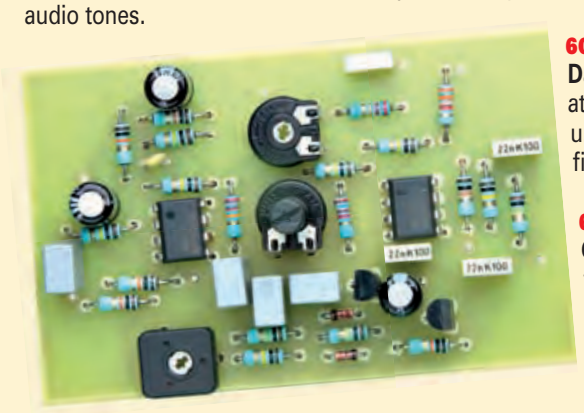

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Design by Steve Hunt.

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Rob Mannion's

keylines

Interference on the h.f. bands and how we may be able to overcome the problems.

Recently, in *Keylines* I've mentioned that – along with many other Amateur Radio enthusiasts – mains borne interference has caused problems at the G3XFD QTH in Bournemouth. Unfortunately, I'm afraid that those problems have since become worse, making the frequencies between 3.5 and 14MHz unusable at times.

On the occasions when I've been at home and in my shack on week-day afternoons, the pulse type (as seen on my 'scope) signal only lasts for up to an hour. The timings of the interference could seem to indicate someone using mains distributed digital TV signals with a DVD recorder, but otherwise I'm at a loss as to what the interference might be!

The S9+ signals are extremely penetrating and the only way I can reduce their nuisance is by running my rig from a 12V accumulator. Using a power supply isolated from the mains reduces the S9+ interference to below S6, making them tolerable.

My own crude tests (switching from mains power to battery power) indicate to me that the interference is mains borne, although there's some radiation from the mains cable to my garden shack. The mains feed is mostly underground in an armoured cable – except the last few metres where it's above ground and lead into the shack at head height. My theory is that although the cable is armoured – using spirally wound galvanised wire strands and aluminium tape – it's not effectively screened at radio frequency (r.f.).

The battery powered approach – using 'float charging' systems has been adopted by many Amateurs and indeed, our regular author **Ben Nock G4BXD** described such a system some years ago. Additionally, a number of my friends at the **Poole Radio Society** regularly operate on the air – using battery power for outputs of up to 75W.

The use of battery power supplies that are re-charged from the mains may not be the complete answer regarding mains borne interference – but it can help a great deal. Additionally, I've been very pleased indeed to find that some mains operated equipment I have purchased recently, uses transformers rather than switch mode units to produce the low voltages required.

After suffering from some truly frustrating Internet problems at home recently – overcome with the help of **Sabrish Sasan**, who works for the **Demon** Internet Service Provider (ISP) Helpdesk in India, we sorted them out (a fault at my local BT exchange). With the intermittent connection at the BT exchange repaired, Sabrish (who spent many days helping me out) recommended I replace my wireless router.

With **Tex Swann G1TEX's** much valued advice, I replaced my original router and local wireless area network with a Belkin wireless router. On collecting the unit I was delighted to find it used a transformer type power supply.

I'm now aiming to replace any of the switch mode power supplies in domestic equipment in my home because – unlike such power supplies used in Amateur Radio – they seem much more likely to cause interference. I'm also asking Scottish & Southern Electricity – my suppliers – how I can obtain an r.f. filter to fit on our side of the 30A fuse in our household meter box!

Counting Up From The Millenium

Some readers may remember the (often slightly tongue-in-cheek) *Counting Up From The Millenium (CUFTM)* series of articles I wrote as the much vaunted year 2000 approached. It was an enjoyable series to write as I could let my imagination run riot!

However, some of my satirically and futuristically themed ideas – such a vegetable fibres as electrical wiring – have now turned into reality in research laboratories! One of the ideas I suggested in *CUFTM* was the suggestion that Amateur Radio clubs might in future operate remote transmitting and receiving stations, perhaps many miles away in quiet r.f. areas, for their members to operate remotely from their homes.

As I prepared the articles in 1999, I didn't realise just how close we could be to the concept! I say this because many Amateurs are already operating v.h.f. repeaters around the world via the Internet. So, perhaps we could now go a step further with clubs buying or renting plots of land away from electronic interference for remote h.f. transmitter-receiver operation?

Rob Mannion G3XFD/EI5IW

Practical Wireless

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Practical Wireless

readers' letters

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

Young People Only? – The Australian Viewpoint

Dear Rob,
Your *Keylines* Editorial section headed, "***Young People Only?***" (January 2009 issue of *PW)* aroused my interest.
As you are aware, the Australian Foundation Licence arrangements appear to be very similar to those applicable in the UK. I was involved in a couple of the earlier Foundation Licence weekend training sessions here in Melbourne (until I became involved in running a Foundation to Standard Licence Bridging Course). I know it is a small sample, but while the classes of around ten people contained one or two youngsters, the majority of the candidates were mature age people. In the lunch break most of them told me that they had sat and failed the old Australian Novice exam a number of times and had lost hope of ever getting their ticket. One man had sat the Novice exam five times!

While opinions on the value of the Foundation Licence vary (many of my colleagues in ZL are quite strongly opposed to it) there's no doubt that the somewhat easier entry into Amateur Radio is a boon for older people, many of whom are close to retirement, or worse, have been retrenched after many years of productive work.

Additionally, I find that there's quite a good demand for the bridging course to the Standard level. Some operators enjoy working DX on 10W (to which our Foundation Licencees are restricted), while one of my recent students is working satellites with a hand-held transceiver! The other interesting observation is the number of young adult women who have got their licences.
Amateur radio is providing these older people with a new interest and zest in their lives.

Many thanks for continuing to produce a most interesting magazine. I really do enjoy *Antenna Workshop* and *Carrying on The Practical Way*. I hope you all had a very merry Christmas – and a happy New Year to you and yours, to all the writers and everyone involved in producing *PW*. 73 to you all.
Kevin Luxford VK3DAP/ZL2DAP
Mount Waverley
Victoria
Australia

Editor's comment: *Nice to hear from you Kevin and thank you for the feed-back on your experiences. There's been much interest from our readers on this topic and as I ask you join me on the* Topical Talk *pages for further discussion.* ***Rob G3XFD.***

Star Letter

First Norway QSO On 144MHz

Dear Rob,
I was very interested in the account of **Dennis Heightman G6DH**'s early DX contacts on 144MHz in *VHF DXer*, in *PW* for January 2009. However, I am writing to say that my good friend **Peter Harrison G3CFK** made the first two-way contact with Norway on 144MHz, using c.w., many years ago when he was living (almost next door) in Great Yarmouth. He has since moved to near Airdrie in Scotland as is, of course, now **GM3CFK**.

The rig Peter employed for his epic contact used a converter, featured three 6J6 valves and used a HRO for a tuneable i.f. The transmitter was a modified piece of surplus military gear and used a large 'door knob' double tetrode in the p.a. stage.

Peter was a fine constructor and he built the best t.r.f. rig I have ever seen. It used three r.f. stages with one being untuned, together with a leaky grid regenerative detector, followed by an a.f. stage. We both joined the RSGB at the same time – about 70 years ago – and have been friends even longer!

Incidentally, the antenna Peter used for his Norwegian contact was a pair of 3-element Yagis, stacked above each other and mounted on an ex-GPO telephone pole.

A very happy New Year to everyone at *PW* and all the readers. May 2009 be no worse than 2008!
David Buddery G3OEP
Gorleston
Great Yarmouth
Norfolk

Editor's comment: *Thank you for the up-date David! Having struggled to work longer distances with very simple v.h.f. a.m. and c.w. equipment myself, I can only admire the pioneers. I'm sure that our readers would be very interested in hearing more of the exploits from the early days on v.h.f. and that there's surely enough material for* ***David Butler G4ASR*** *– our* VHF DXer *author to prepare a special article. So, if you have special memories – please contact either David or myself.* ***Rob G3XFD.***

Training The Young & Old

Dear Rob,
I read with interest the letters and your comments (*Keylines* January 2009) regarding radio clubs involved in training and attracting new members, particularly the young and at the other end of the spectrum – the more mature generation. I'm writing because I can see parallels in my other passion – sailing. In fact, my local sailing club incurred a particular problem a few years ago which was self generated and may act as a warning to radio clubs.

A few years ago we targeted training and membership recruitment at the ten to 18 year-olds. While we didn't ignore or deter those over 20 from joining, we deliberately targeted schools and youth groups through introductory sailing sessions. While this did boost our numbers and proved to have advantages in terms of numbers actively participating in sailing and racing at all levels (some becoming instructors and racing performance dinghies at national level), we then found that the majority of the juniors moved out of the area to attend further education or move for employment reasons. This left us with a healthy membership in the over 40s and under 20s, but a noticeable vacuum between these age groups. As a result, we had a smaller pool of members to join the committee, qualified to run races and crew the all important safety boats (we sail in the open waters of St. Andrews Bay).

We also discovered that, as our training groups were predominantly full of juniors, it may have had an impact on potential adult members not wishing to join a group of fashion aware, MP3-playing teenagers. In the last year or so, we've moved away from targeting a specific age group in order to try and address this problem.

However, one thing that we found to be very useful, was to invite a journalist from a local newspaper to join us free for one year on the condition that he would eventually write a series of articles about our sailing and our club. This was successful and proved to be very fruitful in terms of raising our profile and gaining members – and the journalist has taken out family membership!

I trust these few lines might act as both a warning and provide advice for radio clubs.

Best wishes to everyone at *PW*.

Colin Topping GM6HGW
Glenrothes
Fife
Scotland
(St. Andrew's Sailing Club website www.stasail.com)

Editor's comment: *Thank you for your illuminating parallel experience Colin! I'm sure there's bound to some helpful in your letter that's applicable to Amateur Radio recruitment and training.* ***Rob G3XFD***.

Mounting Mobile Transceivers

Dear Rob,

Have just read with interest the letter (PW December 2008) on mounting transceivers for mobile operation by **Geoff Pendrick M5GAC**.

I thought you might like to share my experience with your readership. I too had the same problem in mounting both my iPhone and my Icom IC-7000 head unit, but found a simple mounting system custom-made for my vehicle for around £15. These mounts are made by **Brodit** and on their website you just select the car make, model and the relevant mount is shown.

Working With Surface Mount Devices

Dear Rob,

We last met when you provided a *PW* club visit some years ago for the **Otley Radio Society** in Wharfedale, West Yorskhire and were made an Honorary Member (I was the Social Secretary at the time). However, I'm writing about SMDs this time as I read with interest the SMD items in *PW* for December 2008. This may assist those that may wish to 'go-a-head'. The website **http://clivetec.superihost.com/SMD_CodesK.htm** can be most helpful. Unfortunately, there's not a universal parts identification system for semiconductors as each manufacturer does their 'own thing'!

I ran a p.c.b. repair facility for a number of years and the way items were repaired was much the same as the approach that I encountered in the 'bigger' world. First, I looked at the main characteristics of semiconductors such as volts/dissipation/ on-resistance, etc., response times/peak current, etc., and kept new generic components in stock to replace faulty ones of similar characteristics. (This system usually worked!).

You have to take a engineering point of view. i.e. If an SMD capacitor is used for de-coupling along supply lines, then they are normally 10n, so have a stock of these to replace 'blown ones', etc. However, where we discovered we had dead p.c.b.s that weren't viable to repair – then the board was scanned and major components noted. The p.c.b. was then numbered and stored – the theory being that we could salvage what we assumed to be good components when required. After all a p.c.b. with 500 components has rarely become faulty because they're all dead!

The system worked very well and the data base was quite extensive. However, once a board was scanned the work was done!

I have found that there's a problem with supply of semiconductors though. The rate of development is involved with this. Things rapidly are classed 'obsolete' and five years can be a long time for certain items! I also found that certain semiconductors were 'zoned' in much the same way as DVDs. Small quantities are just not available. This is probably due to commercial pressures and the fact that the manufacturing is mostly done in the Far East.

There doesn't seem to be any commercial sense for our local suppliers to stocks items that will be stuck on a shelf. Searching for 'obsolete' components often results in finding a Far Eastern-based broker or company that's willing to sell a few thousand. Unless you're willing to purchase vast quantities – then it's not worth the hassle!

If it's vital to obtain the correct component then **it is** possible to go through a middleman – but this is not normally a viable proposition. Something that costs less than 50p can quickly escalate to over £20 by the time postage/duty and other fees are taken into account!

It's also vitally important that – if you are to order a component – that **all the identification** information is matched. This is because there are so many packages (of the same device) that mis-identification could lead to problems.

If you do decide to go ahead to obtain small stocks of SMD components – remember that capacitors aren't generally identified. You purchase a 'book' of them (cost £35 upwards) or on bandoliers and store them in a sensible way.

I adopted a professional stock

Problem Dimmer Lamps

Dear Rob,
I thought it best to let you know of a problem we are having from two of 'touch' type dimmer table lamps. They emit a modulated 50Hz hum all over the long and medium waveband, even when the lamp is switched off. I have tried usual things like filters, ferrite rings and tubes and the only conclusion is to remove the dimmer unit and replace it with a switch!

It does seem to me that EMC is no longer important to Ofcom as even the supposedly reputable energy saving 'bulbs' cause problems from 100kHz to the top of the 2 metre band. The lamps in question are still advertised in Argos.

Incidentally, my wife and I regret not seeing you when you visited the **Lincoln Shortwave Club** some time ago. I hope you visit us again some time! Thanks for a brilliant magazine and kindest regards to everyone at *PW*.
John & Tina Hauton M0ERS & M3TGH
Lincoln
Lincolnshire

Editor's comment: *Thanks John and Tina! I would be interested to know if other readers have experienced the same problems with this Argos product.* ***Rob G3XFD.***

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

Please note though – **not all vehicles are covered!** Some cars can mount around the gear lever area and also higher on the dashboard, whereas some only mount in a single position. The mount has a small flat area to which the user can screw a transceiver-specific mount. The mounts are only clipped and/or stuck on the trim, therefore alleviating the problems of screw or bolt holes which affect the resale value of the vehicle. The address of the manufactures website is **http://www.brodit.com/** Once you have the code of a suitable mount then I suggest the reader checks UK websites for price and availability. 73.
Martin Smith M0MWS,
Hon Sec Andover Radio Amateur Club (RAC)
Ashcroft
Hurdcott
Wiltshire

Editor: *Thanks for the useful information Martin!* ***Rob G3XFD.***

approach and numbered blocks of plastic drawers, then the drawers themselves, then the dividers in the drawers. This means that by keeping a data base on a PC, stock can quickly be identified. For example: Search on XL for '1n 50V ceramic' reveals location C C A (That's Block C Box C Section A). If managed correctly then ancillary data such as stock, technical information, usage levels, price, supplier, notes, etc., can be added. It just takes patience to organise this but once done, saves so much time it's well worth the effort. Resistors MOQ (Minimum Order Quantity) are normally bandoliered and marked with their value.

Once loose and on the bench, only handle one at a time, if you sneeze – forget it – it's gone! Get another, remember to update your stock levels! Professionally, we used hot air soldering stations and these cost well over £1000 and individual bits well over £100. Not a field for Amateur Repair! I should like to suggest the following method for home repair of SMD p.c.b. **Note:** Always used an earthed wrist strap for elecrostatic protection. Although a component may initially work okay, later in its life the barriers can deteriorate if precautions weren't observed, leading to unreliability.

1: Remove the faulty component by carefully cutting the legs with a scalpel.

2: Using a good quality soldering iron (such as Weller range) remove the 'legs' by using de-soldering braid.

3: Using a flux cleaning liquid and cotton wool buds clean the solder lands.

4: Run a ribbon of solder paste onto the lands.

5: Place the new component accurately and solder at two corners with normal 'thin solder'.

6: Run the soldering iron along all the pins. Not individual ones. Most will be soldered okay but some could be 'bridged'.

7: Use de-solder braid to clean up any bridges and clean up in general.

8: Clean up with flux cleaner. Apply a coating to protect work done. I found that Electolube SMFL rework solder flux worked okay!

I have changed 400 pin ICs using the method described! By the time you purchase the chemicals, etc., you must think of a spend of £30 – plus the tools, etc., at £100 minimum and I don't believe that many people would be able to afford this. The minimum order quantity of SMDs is in the region of 50 in bandolier form (sometimes 10).

Personally, I believe that SMD repair in small quantities is out of the range of home repair. My advise is – swallow your pride buy a new unit! Best wishes.

Harvey Johnstone G1RRG
Otley
West Yorksire

Editor's comment: *Thanks for the advice Harvey! Please join me on the* Topical Talk *page for further discussion.* ***Rob G3XFD.***

news & products

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

All Roads Led To Chertsey!

All roads seemed to lead to Chertsey, Surrey, on December 6th when the *PW* team visited the Martin Lynch & Sons 'Open Day' as Rob Mannion G3XFD reports.

"Tex Swann G1TEX, my Grandson **Freddie** and I weren't too certain of the way in to Martin Lynch's rear car park on Saturday December 6th, even though there seemed to be a procession of Amateurs heading that way! However, as I hadn't been trusting my SatNav settings, Tex suggested we followed the vehicles in front with v.h.f. antennas. We did, but as the car park was overflowing the technique didn't work and we had to park outside with the aid of my Orange Badge!

"The freely flowing hot coffee - courtesy of **Jenny Lynch** – helped to keep the bitter cold at bay during the beautifully bright morning while husband **Martin** (working inside!) did what he does best - selling Amateur Radio equipment to Radio Amateurs with the almost frantic help from his keen staff! Inside, **bhi**, **Icom UK**, **Kenwood UK**, the **Radio Society of Great Britain** (RSGB) and **Yaesu** stands were kept busy. During the morning I spoke to *PW* readers from as far away as Derbyshire, Northamptonshire, Nottinghamshire, West Wales, and Devon.

"With over 70 people crowded into the showroom at a time, the extra heat soon provided the incentive to venture outside again for another top-up of Jenny's coffee and to form an orderly queue for the (truly excellent) rolls filled with spit-roasted pork and stuffing.

"Although the main attractions for visiting Amateurs and their families, were the bargains on offer, the youngsters had an extra incentive in the shape of Martin's 10-week old West Highland Terrier pup who attracted much attention from young and old alike! All-in-all it was a very successful day, despite the bitter cold. The *PW* team were grateful for the hot coffee and pork roast and Tex and I had 'seconds'! However, because he was so very busy operating a 'red-hot' credit card machine – I only had the chance to say a brief 'Hello' to Martin and an equally brief 'Cheerio' as we left, hoping for another bright and clear day for the 2009 open day!" **Rob G3XFD**.

A Washable Computer Keyboard For The Man Who's Got Everything?

Stuck for ideas on what to spend your Christmas money on? How about a replacement for your scruffy computer keyboard in the shack? Well, don't worry, the Keyboard Company have informed Newsdesk that, "There's now a computer keyboard and mouse that look feel and work exactly the same as any others but they protect their users against nasty bugs including those that cause colds, flu, and gastroenteritis."

The Keyboard Company report that, "Research shows that these bugs can live on surfaces for several days and that computer keyboards and mice harbour tens of millions of them, 400 times more than found on a toilet seat! This is largely due to people coughing, sneezing, eating and dropping food, and poor hand hygiene – especially when 'hot-desking' with multiple keyboard users.

"The Silver Shield keyboards and mice are embedded with silver nitrate, with its extremely effective anti-bacterial properties, during manufacture and they're also completely immersible for cleaning – the recommended method to disinfect, is rinsing in diluted bleach. Or they can be put in a dishwasher!"

The keyboards cost £35 each and are available exclusively from the Keyboard Company Website **http://www.keyboardco.com/** Tel: (**01453**) **884938**.

***Editorial note**: Readers interested in this remarkable washable keyboard should contact the Editor for his consumer report, as the Keyboard Company sent him a sample! (They obviously know Rob jams his keyboard up with biscuit crumbs!)*

The Icom IC-RX7 Wins Coveted Good Design Award

The **Japan Industrial Design Promotion Organisation** (JIDPO) recently announced Icom's IC-RX7 Wide-band Receiver as the recipient of a Good Design Award 2008. The award is Japan's only comprehensive design evaluation and commendation system.

The **IC-RX7** was given the award for its usability, ease of operation and its ergonomic design. One of the award's judges commented, "The IC-RX7's Graphical User Interface is very user friendly and allows smooth access to the necessary information.....its compact body and casual colouring lends itself to its image of easy operation."

Icom (UK) Ltd was established in 1974 and is the sole UK and Republic of Ireland importer and distributor for Icom Inc., of Osaka, Japan. Based in Herne Bay, Kent, the company is privately owned with 42 staff. See **www.icomuk.co.uk** for more details.

Now Operational – GB7AD Joins the D-Star Network

The D-star repeater for South Gloucestershire and surrounding areas, **GB7AD**, is now fully operational and part of the D-Star network. The repeater is normally connected to Reflector 005A and a coverage map may be found at **www.ukrepeater.net/repeaters/gb7ad**

The repeater's output is on 439.9125MHz with a 9MHz downshift for receive. Already, many stations from South Gloucestershire, Bristol, Newport in South Wales areas, have enjoyed extensive use of GB7AD.

Further details from the keeper, **Tony Hawker G4CJZ** (also keeper of **GB3AA**, **GB3AK**, and **GB3AZ**).

Further information via E-mail: **tony.g4cjz@blueyonder.co.uk,** or contact **Dave Reynolds 2E0DCR** via E-mail: **davereynolds@ezeedsl.co.uk**

BBC Radio 4 Highlights Low Energy Bulb Radio Interference

The BBC Radio 4 ***Today*** show has highlighted the interference that can be caused to radio reception by low energy light bulbs. The brief report was aired at 0740 hours on Tuesday December 2nd and highlighted letters sent to the *Daily Telegraph* national newspaper complaining about the interference caused by these bulbs. As well as causing radio interference the so called 'low energy bulbs' contain Mercury which is a toxin.

Further discussion sources: *Daily Telegraph* Letters Page – Unexpected hazards of energy-efficient light bulbs **www.telegraph.co.uk/opinion/main.jhtml?menuId=1588&menuItemId=1&view=DISPLAYCONTENT&grid=A1&targetRule=0**

On the Southgate ARC website*: The Sunday Times* – low-energy light bulbs can block short wave reception **www.southgatearc.org/news/april2007/low_energy_light_bulbs.htm**

Research raises health fears over energy-saving light bulbs **http://www.timesonline.co.uk/tol/life_and_style/health/article4915472.ece**

Stop Press: *PW* readers in New Zealand report that their Government has reversed a decision banning incandescent bulbs. Detailed information to follow in the March issue – watch this space!

The King, Dr Cannon & Amateur Radio

On Saturday December 6th 2008 BBC Radio 4's *Archive Hour* (8pm to 9pm) carried the fascinating story of a Doctor from Yorkshire who practiced yogic medicine and treated King Edward VIII for a drinking problem. The doctor, who had fascist sympathies, was exiled to the Isle of Man, and apparently had a lot of 'electrical gear'. It was feared that he was a Second World War spy. In the programme, two Radio Amateurs can be heard working DX and discussing propagation over salt water and how this could have been beneficial to Dr. Cannon.

The BBC Radio 4 programme description read: **"Sean Stowell** tells the strange story of a yogic Doctor from Yorkshire and his role in the Edward VIII abdication crisis. Dr Alexander Cannon was a qualified psychiatrist who practised hypnosis and, according to archives, used spirit mediums to 'advise' the King on how to deal with problems, including his heavy drinking. He also dabbled in the occult, which heightened the Church and Prime Minister Stanley Baldwin's concern about his role as a close confidante to the King."

Recorded at Doctor Cannon's former home on the Isle of Man, the BBC programme provided a fascinating insight to the events that led up to the Abdication crisis in the late 1930s, the British Fascist movement and wartime spying. Dr Cannon, who was very 'Right Wing' in his politics, was suspected of being a spy, and that he may have used 'wireless' to communicate to Germany. By coincidence, two Radio Amateurs who were staying at the same location at the time of recording, described the advantages of the Island for working DX in peacetime. The programme was available on BBC R4's *Listen Again* website and although officially only available for a limited time it may be possible to 'listen again' via the url. **www.bbc.co.uk/programmes/b00fr85x**

Editorial note: *The Archive Hour slot is an interesting series – they featured Captain Carlsen of the Flying Enterprise ship wreck incident in December 1951/January 1952 and his Amateur Radio exploits in a past programme.*

I also heard the Dr Cannon programme – it was fascinating to say the least! However, the two Radio Amateurs who were interviewed and their names weren't credited, although by their accents they may have been from the English midlands or the north west of England. They were obviously having a great time! If anyone knows who they were – or if they see PW themselves – we would be interested in hearing their own story. ***Rob G3XFD.***

Bangladesh – Amateur Radio In An Islamic Nation

Since 2004, Amateur Radio operators in the Islamic nation of Bangladesh weren't able to get an Amateur Radio Licence or sit for an examination. However, thanks to the efforts of the **Bangladesh Amateur Radio League (BARL)** – that country's **International Amateur Radio Union** (IARU) Member Society, the Bangladeshi government is once again issuing Amateur Radio Licences and exams are also available on a monthly basis. For the full story on the BARL's efforts to re-instate Examinations and Licences, see their website **www.barl.org/**

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Bob Smith GW0AYQ's Outstanding Contributions To Amateur Radio

John Martin MW0VTK writes: "On Saturday November 1st 2008, a special presentation was held at the two-day North Wales Radio Rally held at the John Bright School in Llandudno. The presentation was a framed certificate of gratitude, presented to **Bob Smith GW0AYQ** from Tal Y Bony near Barmouth, and it was presented to him by **Colin Thomas G3PSM**, President of the Radio Society of Great Britain.

"The award made to Bob was for his outstanding voluntary contribution to the Amateur Radio (AR) hobby in North Wales. Over the past few years, Bob has single-handedly run 17 courses to train AR students, taking them through the practical and theory instruction, and finally running the exam centre to enable all of his trainees to take, hopefully pass their exam and gain their Licence.

"Our fascinating hobby is struggling to encourage new young blood to take it forward, but Bob is doing all that he can to ensure that Amateur Radio in North Wales has a strong future. Most Radio Amateurs in North Wales have a story to tell about Bob, be it about his legendary talks at many radio clubs (quite often ending in a talk about something quite different than at the start – always a sign of a good speaker!). His most recent claim to fame, was when a practical demonstration, during a foundation course, ended with a scorched carpet! But most of all, I'm sure everyone involved in the hobby in North Wales will have a hearty. 'Thank you Bob' for his help and encouragement – for without his enthusiasm and expertise – many of us would not be able to call ourselves Radio Amateurs.

"Bob was also a founder member, a former Chairman and is currently Treasurer, of the **Meirion Amateur Radio Society** (MARS), which meet every first Thursday of the month in Dolgellau. (See **http://meirionars.multiply.com/** for further information)." **John MW0VTK**

"Hashafisti Scratchi" Author Is A Silent Key

The man who wrote the irreverent and famously 'tongue-in-cheek' "Scratchi" articles for *CQ* magazine has become a Silent Key. The author, **George H. Floyd, Jr., WA4DGA** (ex-W2RYT), of **Lynchburg, Virginia**, entertained thousands of his fellow Radio Amateurs for more than two decades – between 1947 and 1971 – writing as a politically-incorrect (by today's standards!) Japanese-American Amateur with fractured English and contorted spelling. He wrote from "Feenix, Ariz.," began each column with "Deer Hon. Ed.," and regularly skewered the pomposity and poor operating practices he encountered on the air. George passed away November 22nd 2008 at the age of 91.

In real life, George Floyd was an engineer and executive with the American General Electric Company, working in Schenectady and Syracuse, New York, before moving to Lynchburg, Virginia in the late 1950s. General Electric staff will also remember George – pseudonymously as well – as "Lighthouse Larry" in GE employee publications.

Scratchi first appeared in *CQ* in June, 1947. The column became a regular feature between 1948 and 1960, then returned from 1966 to 1971. For many *CQ* readers in that time period, Scratchi was the first item they read when the magazine arrived each month! In fact, *CQ* Publisher **Dick Ross K2MGA**, writing in the magazine's 50th anniversary issue in January, 1995, said: "For many years the name Hashafisti Scratchi has been almost synonymous with confusion and consternation in Amateur Radio. It seems, too, that whenever the unusual or impossible is happening, Scratchi is there helping it happen!"

Any *CQ* readers with memories of George's articles are invited to submit reminiscences of Scratchi for a tribute in an upcoming issue of the magazine. A special E-mail address has been set up at **scratchi@cq-amateur-radio.com.**

The GB3LC Repeater Is Back On The Air!

The GB3LC 430MHz repeater is back on air from it's new site at Stenigot, Lincolnshire (NGR TF 257825)

Repeater Output	433.225MHz
Repeater Input	434.825MHz
Tone Squlech (CTCSS)	71.9Hz

The repeater has been re-established in memory of well known local amateur **Nigel Goddard G7UWU** who became a Silent Key on August 8th 2008, aged 41. The repeater will be on the air as a permanent reminder to his memory.

The repeater is being administered and funded by the **Stenigot Chain Home Amateur Radio Club** but GB3LC would not have been possible with out the kind help of **Brian Staniforth G7AJP,** who has provided the site and engineering know-how. Thanks also go to **Roger Wilson**, formerly **G4IPE** and now **VK4IPE** since his move to Australia, who provided the original repeater and the website **www.gb3lc.co.uk** also available via link from **www.stenigotchainhomearc.co.uk Steve Burke M5ZZZ**.

Note: Further details from Steve Burke M5ZZZ, Hon. Sec. SCHARC and DRM District 135 Lincolnshire.
E-mail **secretary@stenigotchainhomearc.co.uk**

International Marconi Day

The **International Marconi Day** (IMD) event, which was originally the brainchild of two members of the **Cornish Radio Amateur Club** (CRAC), will be held for the twenty-second time on **Saturday April 25th, 2009**. The event, which is not a contest as such, runs from 0000UTC for 24 hours on all the h.f. bands. Awards, for both licensed Amateurs or listeners, can be obtained for contacting the requisite number of Award Stations.

Full details can be found on the IMD website **www.gb4imd.org.uk** or obtained from the CRAC Chairman **Ken Tarry G0FIC** (QTHR) or via E-mail: **ken@jtarry.freeserve.co.uk** or the Webmaster **Geoff Chance M0GRC** (QTHR), via E-mail: **webmaster@gb4imd.org.uk** Once again it is hoped that more than 40 registered Award Stations will take part. Award Stations are operated from sites that have a historical connection with **Gugliemo Marconi** during his lifetime. We look forward to hearing you on the air on the Day.

Thanks to everyone who take part each year from the **Cornish Radio Amateur Club, PO Box 100, Truro, Cornwall TR1 1XP, United Kingdom.**
Geoff Chance M0GRC.

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New *DXtreme Station Log* – Multimedia Edition Version 6.0

The software writers behind *DXtreme Software* has released a new version of its popular logging program for Amateur Radio operators: ***DXtreme Station Log* — Multimedia EditionTM Version 6.0**.

The announcement states: "Like other logging programs, *DXtreme Station Log* lets Amateur Radio operators log their contacts and import ADIF files from popular contest programs. However, unlike other logging programs, *Station Log* provides multimedia and advanced functions that can add a new dimension to Amateur Radio logging activities.

"*Station Log* includes a *DX Spot Checker* facility that lets Amateurs receive incoming DX spot announcements from Telnet-based DX Cluster and DXSpider servers. As each spot arrives, the *DX Spot Checker* queries the Amateur's *Station Log* database and lets the operator know, by means of colorful text and audio, whether a QSO is needed with the station for a new or verified DXCC entity or band entity. The messages and announcements are fully customisable by the user.

The *DX Spot Checker* also lets Amateurs:

- Send incoming spot announcements to others by E-mail.
- Perform web-based, callsign lookups on stations spotted.
- Quickly check their complete DXCC status information without having to leave the *DX Spot Checker* window.

Multimedia Functions

Station Log features an embedded audio facility that lets Amateurs create and maintain an audio archive of their memorable contacts. The software also features an integrated *QSL Imaging* facility, which lets operators scan the physical QSL cards they receive from regular mail and capture the electronic QSLs — including ARRL *Logbook of the World* QSLs — they receive over the Internet. *Station Log* saves both types of QSLs as compatible digital images that operators can view at any time.

These multimedia features let the operator listen to previous contacts and view related QSLs whenever they browse their logs – just the thing for reliving the thrill of a pileup chase, or the warmth of a memorable conversation. *Station Log* integrates with Microsoft *Word* to create customized, formatted QSL labels for physical QSLs. The labels can be created manually or automatically. The software also produces ADIF-based electronic QSLs for uploading to Web sites that specialise in the delivery of eQSLs – including *Logbook of the World*.

To help operators track the performance of their stations, *Station Log* offers a variety of reports, it can output the reports to printers, as well as to the *DXtreme Active Report Viewer*. The *DXtreme Active Report Viewer* lets users view and sort reports within Microsoft *Internet Explorer* — either locally, or over the Internet.

An FTP facility is embedded into *Station Log* to let users upload their reports to the Web automatically, where they, or their friends, can access them remotely. To safeguard data, *Station Log* can be configured to back up database, QSL imaging, and audio files to two locations automatically whenever the program is closed.

Windows *Vista* & *XP*

Station Log runs in 32 and 64-bit versions of Microsoft *Windows Vista* or *Windows XP*. It retails for $US89.95 in North America and $US92.95 elsewhere. (Special pricing is available for upgrading users). All prices include shipping and handling charges and lifetime product support by E-mail. For more information about *DXtreme Station Log* — Multimedia Edition v6.0, visit **www.dxtreme.com**

Based in Nashua, New Hampshire, USA, the company's press release states that, "*DXtreme Software* produces powerful and easy-to-use logging applications for all kinds of radio enthusiasts – from short wave and medium wave listeners and DXers to Amateur Radio operators.

Contact **Bob Raymond** at **bobraymond@dxtreme.com** for further information.

Radio Frequency Plan for Ireland

The fourth edition of the **Radio Frequency Plan for Ireland** has been published by Ireland's regulator **ComReg**. This document shows, for each frequency band, the types of radio services that are permitted for operation in Ireland and, in addition, the radio services that are currently in use in each band. While this publication is by no means essential for Radio Experimenters (the official term for Radio Amateuers in the Irish Republic) the new document is of general interest. For specific information *PW* readers are advised to see ComReg's *Radio Experimenters Guidelines*. The Radio Frequency Plan for Ireland can be downloaded from the ComReg web site. A link to the download page for this document is currently in the *Key Clicks!* section of the IRTS website **http://www.irts.ie/cgi/index.cgi**
(Our thanks go to the **Irish Radio Transmitters Society**, the National Amateur Radio Society for the Irish Republic for this update. **Editor**).

New South Gloucestershire Amateur Radio Rally

Avon Scouts Amateur Radio Club together with the **Thornbury & South Gloucestershire Amateur Radio Club** announce a new rally for the West Country on **Sunday March 29th.**

Their press release states that, "Very conveniently located close to the cross-over of the M4 and M5 Motorways at the Avon Scouts Activity Centre, Fernhill, Almondsbury BS32 4LX, the site has ample parking and support facilities – including those for the disabled.

"The tables are all under cover and are spread between a hall and a covered courtyard. There is also space for 20 Carboot sellers on a hard standing nearby, Tables and car-boot sale pitches are available at £5 each, prior booking is essential. Entry is £2 per head. 'Talk in' will be provided on S22.

Location details can be viewed at **www.avonscouts.org.uk/woodhousepark/**
For information and booking contact: **Rex Laney G4RAE** on (**0117**) **9691028** or **Peter Cabban G4OST** on (**01454**) 612689

Note: Site rules exclude any dogs (except assistance or Guide dogs).

THE PW PUBLISHING

RADIO BOOKSTORE NEW TITLES

SEE PAGE 76

NEW! ORDER NOW

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- **KLINGENFUSS SHORTWAVE FREQUENCIES CD 2009** £23.00
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- **ARRL ANTENNA BOOK** 21st edition, inc. CD 944 £30.99
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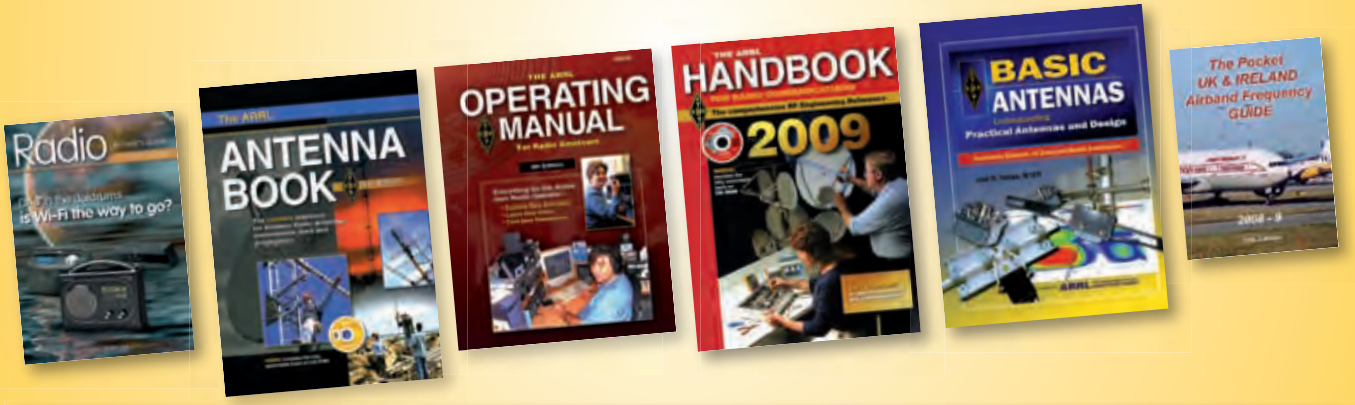

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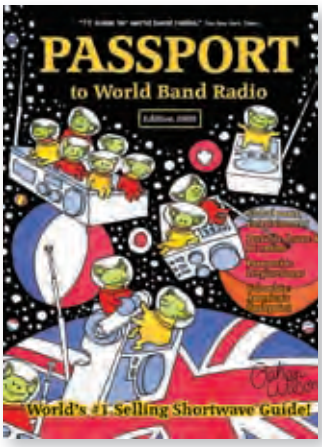

Bookstore Offer

Buy both Passport & WRTH 2009 for only £35!

Save £5.50!

Practical Wireless readers' offer for mail order only.* Sorry, it's not available on-line!

See the bookstore on page 76 for ordering details.

*UK only. Offer ends January 30th 2009.

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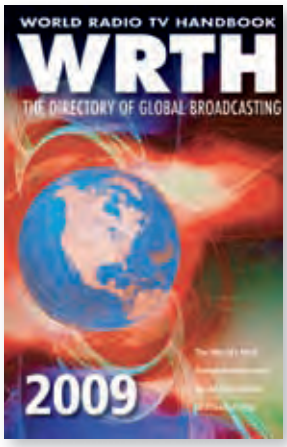

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Web: www.hamradio.co.uk E-mail: sales@hamradio.co.uk

MODEL WX-2008MkII Weather Station

Latest version of this exciting touch-screen radio connected (no wires!) advanced weather station.

Everything you need is included in the box even high quality Ultra-Alkaline batteries. A short support mast and clamps are supplied to attach the assembled sensors to. There is a generous amount of cable to interconnect the sensors to each other, but as it is WIRELESS, you do not need any cable back to the LCD control console that you use indoors. You can mount the sensors up to 50m away from the LCD panel and not a cable in sight!

Special Intro Offer ONLY £79.95

RRP: £99.95

Another great feature is the large, touch controlled extra bright illuminated LCD panel. Being wireless means that you can take the panel anywhere around your house, garden or shed and be able to see all the weather parameters on a screen that is not tethered by cable. Locating your sensors is easy too as it is not governed by where the wiring should go. If you want to move them, you do not have to worry about re-wiring, IT'S WIRELESS!

Included in the package:

- Complete set of Batteries
- 23 x 14.5 x 3.5cm LCD touch screen extra-bright illuminated monitor
- Wind speed sensor
- Wind direction sensor
- Rain gauge
- Outside temperature / humidity sensor with transmit module
- Cable harness to connect sensors to transmitter
- Mounting arms for sensors and hardware
- Short stub mounting mast
- USB cable
- Latest CD with PC software and operating manual

Hustler Antennas

Full range of Hustler Mobile & Base HF antennas available from stock

Full range of Hustler accessories in stock

See web for full listing

Base Station Range, free standing, max 7.3m tall, 1kW

4-BTV 40/20/15/10m **£149.95**
5-BTV 80/40/20/15/10m **£219.95**
6-BTV 80/40/30/20/15/10m **£219.95**
17-BTV-S 17m add on for 5-BTV or 6-BTV **£49.95**

Mobile Range, 200W or 1kW, both stocked.
RM10 to RM-80 10M to 80m single-band whips,
£19.95 to **£31.95**

Kinetic SBS-1e

NEW MODEL

Real-time Virtual Radar

Another Gold Medal for the UK thanks to Kinetic Avionics.

SBS-1e 'Pocket Radar'

Based on the famous original SBS-1 launched in 2005, the **NEW SBS-1E Pocket Radar** is a portable low-cost Mode-S/ADS-B Receiving instrument designed for commercial, training and aviation enthusiasts. Supplied complete with antenna and Basestation Virtual Radar software. The SBS-1e Pocket Radar allows you to track ADS-B aircraft on a PC simulated radar screen and identifies and displays Mode-S equipped aircraft.

NOW IN STOCK! only **£439.95**

For full details see our website: www.virtualradar.com

ML&S are appointed distributors for the SBS-1e and associated products.

Begali Morse Keys

Begali

For the entire range and choice of bases and contacts see our website.

The finest range of keys available today.

Sculpture. The definitive CW operators dream key. Iambic with Carbon Fibre & Stainless Steel. Available from stock. **£349.95**


Begali Sculpture

Simplex. Excellent value available with Palladium or Gold Contacts. **From £109.99**


Begali Simplex

Simplex Mono. As above but single lever. **From £125.99**

Magnetic Classic. As the name implies, employing magnets for the return rather than springs. **From £169.99**


Begali Signature

Signature. Beautiful design. Uses precision bearings, magnetic system & two sets of paddles. **From £234.99**

Camel Back. Original design dates back 150 Years. Mounted on cast iron base. Superb. **£114.95**


Begali Camel Back

Kent Morse Keys

The best British range of keys money can buy!

The Kent twin paddle Morse key
Designed and precision engineered to the highest standards. The key is machined from solid brass having a solid steel base with non slip feet for stability. Precision and individual adjustment on each of the two contacts and springs. **Price: £84.95**

Kent Single Paddle Key
Designed to allow each individual operator total flexibility in setting adjustment. Precision made contact screws with instrument knurled heads and locking nuts to allow for precise and positive gap setting. **Price: £72.85**

Kent KT-1 Professional
High rigidity and stability, smooth, reliable, trouble-free operation under the most arduous conditions. The professional KT1 is the ideal choice for training, commercial and military use. **Price: £79.90**

MODEL MLS-SM. Mobile Safety Microphone

NEW MODEL

We've been 2 years getting this right to work with the current crop of radio's.
Available for: All Icom using RJ-45 (IC-7000, IC-E2820 etc). All Yaesu using 6 pin RJ-11 & RJ-45 (FT-8900, FT-8800, NOT FT-7800, FT-817/857/897/450) All Kenwood RJ-45 8 pin, (TS-480S, TM-D710, TM-V71E, TM-D700 etc).

Only £39.95

Little Tarheel II

£299.99

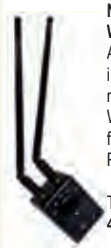
Motorised Mobile Antenna

- Freq: 3.5 to 54 MHz continuous
- Power rating: 200 watts p.e.p
- Vswr: typically 1.5 or less
- Weight: 850g
- Mast size: 1.5" diameter
- Mast length: 16 inches
- Whip length: 32 inches
- Total length in 54 MHz position 48 inches
- Total length in 3.5 MHz position 54 inches
- Includes 20ft of plug & play control box, ferrite decoupling core and 3/8 stud

When properly installed on your vehicle this antenna will provide continuous coverage from 3.5 to 54 MHz with the supplied whip. The Little Tarheel II like all of Tarheel motorized antennas are built to the highest specification

WonderWand

New! WonderWand Combo
A one-stop solution to your portable antenna requirements. The new WW Combo is a single unit housing the famous WonderWand and TCP Tuneable Counterpoise. Full operation 7MHz-440MHz, max 40PEP.
In stock now! £159.95



New! WonderWand WonderPole
As featured in CQ magazine in Japan! Yet another new antenna system from WonderWand products. 20-10M Portable dipole for any rig with an SO-239 Socket. 40 Watts PEP. **Only £129.95**

The original and best selling **WonderWand 40m-6m** portable antenna for all rigs. Ideal for IC-703, FT-817, FT-897 etc. Superbly made and excellent value for money. **Only £89.95**

WonderWand TCP
A tuneable counterpoise ideally suited to the WonderWand for increased performance.
Only £59.95

5 STAR

British Products

Mini VNA PC Controlled Antenna Analyser

The mRS miniVNA is a compact 100kHz to 180MHz antenna analyser interface that is operated via a PC powered by a single USB connection. You can see at a glance where the antenna is resonant, what the SWR and the return loss is. The best (minimal) SWR frequency is automatically found and displayed. An optional internal RS232 connection is also available. **MLS: £259.95**

Palstar - Full range now in stock

For the full range of Palstar products see: www.HamRadio.co.uk

Palstar AT-Auto Automatic 1500 Watt ATU **£999.95**
Palstar AT-1KP 1200W Antenna Tuner **£359.95**
Palstar AT-1500DT 1500W Differential Antenna Tuner **£379.95**
Palstar AT-2K 2000W Antenna Tuner **£399.95**
Palstar AT-4K (2.5kW) & **AT-5K** (3.5kW) Antenna Tuners
AT-4K.....**£679.95** **AT-5K**.....**£909.95**
Palstar BT-1500A Balanced Antenna Tuner **£529.95**
Palstar ZM-30 Antenna Analyser **£309.95**
Palstar Power/SWR Meters
PM-2000AM **£119.95**
Palstar Dummy Loads
DL-1500 (1.5KW)....**£89.95** **DL-2K** (2kW)....**£189.95** **DL-5K** (5kW)....**£309.95**
Palstar R30A Receiver
Palstar R30A, fitted Collins filters for SSB & AM **£529.95**
R30 Matching Accessories:
Palstar MW550P Active preselector & ATU for AM & 160M reception **£229.95**
Palstar SP30 Matching Desk Speaker **£49.95**
Palstar AA30 Active Antenna Matcher 300kHz-30MHz **£79.95**


Palstar AT-Auto


Palstar AT-1KP


BT-1500A


Palstar R30A Receiver

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

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The World's Favourite Ham Store

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Web: www.hamradio.co.uk E-mail: sales@hamradio.co.uk

All prices based on 17.5% VAT – Call for lower prices @ 15% VAT!

YAESU & KENWOOD PRICES HELD WHIST STOCKS LAST!

*Please call or see web before placing order

YAESU

Yaesu FT-2000 HF Base Transceiver

ML&S: £1799.95 | D Version ML&S: £2399.95

The FT-2000 & FT-2000D (200W version) are available from ML&S. No cuddly toys that you don't really need, just excellent customer service and a fair deal.

Available from stock and on permanent demo in our showroom

- The Yaesu FT-2000 was the best selling HF Base Transceiver in 2007.
- The Yaesu FT-2000 was the ONLY radio used on the 3B7C St Brandon Island during 2007.
- There were NO FAILURES during 18 days of continuous 24 hour operation during 3B7C.
- ML&S sold more FT-2000's than any other dealer in the UK.
- ML&S always has the FT-2000 on permanent demo with large stocks of the 100 & 200 versions.
- Peter Hart said: "SON OF FT-1000MP, aimed at the serious DX and contest operator".

FT-2000 Accessories

DMU-2000 Data Management Unit. £619.95

- Spectrum Scope with Limited Bandwidth Sweep feature
- Audio Scope/Oscilloscope Display Page
- Swept-Frequency SWR Page
- Memory Channel List
- World Clock withGreyLine Page
- Rotator Control Page
- Log Book Feature

Deposit then £70 36 x £22.75p/m

SP-2000 External Speaker with 2 inputs & filters..... £139.95
MD-200A8X Desktop Deluxe Microphone, sounds amazing with the FT-2000! £189.95
MD-100A8X Desktop Microphone..... £116.95
CW Filters for Sub-Receiver
YF-122C (500Hz) CW Filter £94.95
YF-122CN (300Hz) CWN Filter £109.95
FH-2 Remote Control Keypad £33.95
RF External Tune Kits
3 versions available.160m Band Kit "A". 80/40 Band Kit "B". 30/20m Band Kit "C" ..... NOW IN STOCK £359.95

The Ultimate Accessory!

Quadra System 1kW HF Linear Amplifier, PSU & Auto ATU Always available from stock ..... £Call

Yaesu FT-950 HF Base Transceiver

FT-950. Yaesu's "Midship Radio"
Many of you grabbed the new Yaesu FT-950 HF & 6M from us at the end of last November. Once again Yaesu identified a position in the market and hit it spot on. When Peter Hart said it was "An eye catching radio with some very nice features" and "it represents extremely good value" he wasn't kidding. If you don't need dual receive or internal PSU like its Dad, (the FT-2000) then check out the FT-950.

The FT-950 available NOW from ML&S at only £999.99

Winter Sizzlers

Got a Yaesu FT-2000 or FT-950? Add a DMU-2000 Data Management Unit for only £619.95!

Yaesu FT-450 HF Base Transceiver

HF & 6m Full DSP

ML&S: £529.00 Without ATU — Without ATU: Deposit then £53 36 x £17.19p/m

ML&S: £599.00 With ATU — With ATU: Deposit then £60 36 x £19.46p/m

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

Nifty Handie Stand

Get double duty out of your HT, add an external microphone and use it as a Base Station.The HT Stand holds your radio upright and steady at a comfortable viewing angle. Stops a remotely connected antenna or external microphone from "dragging" your HT around on the desk. Only £28.95

More Yaesu at ML&S!

Winter Sizzler!

Yaesu FT-897D
Latest batch straight from the factory! Call for Lowest Price or Special 'Bundle' Offers!!
High Power version of the FT-897. Use as a transportable, (20W) or as a base/mobile (100W)

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

Yaesu FT-817ND
The worlds only all-band portable transceiver. Only £349.95
Why not add a CSC-83 Carry Case for only £19.95?

Bundle 1 FT-817ND 'Vanilla' - Basic FT-817 .....£349.95
£35 deposit, 36 x £11.37p/m
Bundle 2 FT-817ND + YF-122C 500Hz CW Filter.....£429.95
Bundle 3 FT-817ND + YF-122S COLLINS SSB Filter£449.95
All ML&S FT-817ND's include; 2 Years Warranty, Metal Hydride batteries, charger, mic, etc.

NEW Yaesu VX-8
Available End December
Latest 6/2/70 Handie with Bluetooth, APRS and optional GPS.
See web for more details, price TBA.

Yaesu FT-7800E. NOW ONLY £169.95
Bar make the tea it'll give you 2m/70cm @50W/40W.
Add a YSK-7800 Remote Kit for Only £19.95!

Yaesu FTM-10R. ML&S £239
A small compact dual band 2m/70cm transceiver with high power output of 50W on 2m and 40W on 70cm, (adjustable power levels of 50/40W, 20/20W, 5/5W). Receive range from 0.5–1.8MHz, 76–108MHz, 137–222MHz and 300–999MHz.

Yaesu FTdx9000D. ML&S £7299
200 Watts or 400 Watts, TFT Screen or not. You choose. Call for more info or see www.FTdx9000.com 'D' spec now shipping.

Quadra VL-1000. ML&S CALL
The easiest way to get 1kW output from any Yaesu HF Transceiver. Plug in 240V, attach rig & antenna and you have a fully automated amplifier with auto tuner.

Yaesu FT-8800. ML&S £219.95
Similar to the FT-7800 but can receive on 2 & 70 simultaneously.

Yaesu FT-8900. ML&S £249.95
High-power FM on 10m, 6m, 2m & 70cm. When your local repeater is busy, slip onto 10m & work DX! **NEW Yaesu**

FT-1802E. ML&S £99.95
2m FM Mobile. 5-50W out. Very similar to the FT-2800.

NEW Yaesu VX-3E. ML&S £119.95
Micro Handie 2/70 with scanner. Complete with Li-ion battery, charger & antenna.

Yaesu FT-60. ML&S £129.95
Latest twin band handie complete and ready to go.

Yaesu VX-6R. ML&S £189.95
Yet another 2/70 handie from Yaesu.

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

To Finance or not to Finance? That is the question!

Having many years of experience offering specific finance packages for our customers, we can now offer various options on payment, including 36 and 60 months on selected products. Please note that interest is calculated from the date of the original agreement at 19.9% APR. Minimum purchase available for finance is £350.

Finance Example IC-E2820 with UT-123. Discounted price of £519, £52 deposit, then 36 x £16.86p/m. TAP £658.96, APR 19.9%. E&OE.

KENWOOD

Kenwood TM-V71E v.h.f/u.h.f. Mobile Transceiver

ML&S: £269.95

- High r.f. power output (50W)
- Dual receive on same band
- Green and amber colour display
- Invertible and detachable front panel
- Programmable memory
- Multiple scan
- Built-in CTCSS/DCS
- Wide Band Reception : 118-524MHz & 800-1300MHz (excluding cellular blocked frequencies)

Kenwood TM-D710E APRS & TNC Loaded mobile

Deposit then £40 36 x £12.94p/m

- Built-in TNC & APRS® Ready
- Switchable Backlight LCD & Multifunction Key Display
- High RF Power Output
- Dual Receive on Same Band
- 1,000 Memory Channels
- Multiple Scan & Visual Scan
- Built-in CTCSS/DCS
- EchoLink® Memory
- EchoLink® NODE TERMINAL Operation

ML&S: £398.00

Kenwood TS-2000E

Flagship Base Transceiver

Just superb on all bands 160m-70cm with optional 23cm (X-Version) RRP: £1699 **ML&S: £1299**

Deposit then £130 36 x £42.21p/m

Kenwood TS-2000X

As above but with 23cm fitted. **RRP: £1999**

Deposit then £160 36 x £51.96p/m

TS-2000E Bundles

Bundle 1 TS-2000E Supplied with hand Mic, DC Lead **£1299**
Bundle 2 As above with MyDEL MP-250A PSU..... **£1379**
Bundle 3 As above with MC-60A Desk Mic..... **£1499**

The TS-2000X (fitted with 10W 23cm module) version of any of the above is available for as additional £400.

Kenwood TH-F7E 2/70 Handie With Gen Cov RX.

The only dual-bander with proper SSB receive capability!
RRP: £289.95 ML&S LOW PRICE: £199.95

Kenwood TS-480SAT

This best selling Kenwood H.F. Can be used mobile or base. Includes ATU. **ML&S: £699.95**

Deposit then £70 36 x £22.75p/m

Kenwood TS-480HX

As TS-480SAT but 200 Watts, no ATU. **ML&S: £799.95**

Deposit then £80 36 x £25.96p/m

Perseus VLF-LF-HF Receiver

RRP: £649.95

PERSEUS is a VLF-LF-HF receiver based on a outstanding direct sampling digital architecture.

Unlike lower class direct sampling receivers, the PERSEUS RF analog front-end has been carefully designed for the most demanding users. PERSEUS can be operated also in a wide band mode as a 10KHz - 40MHz spectrum analyzer with more than 100dB dynamic range in a 10KHz resolution bandwidth. PERSEUS is a Software Defined Radio and relies on PC software applications to carry out the demodulation process.

New Product!

Deposit then £65 36 x £21.12p/m

ML&S are Sole Distributors for Perseus in the UK and Ireland

ICOM

BIG price increases on Icom due 1st Dec! Please Call for pre-increased price stock availability!

The New Icom IC-7700

HF/6m All Mode Base Transceiver

CALL FOR TODAY'S PRICE!

The wait is over! This fantastic new HF & 6M base station has finally arrived and is available from stock and on demo in our Chertsey showroom.

Same size as Icom's flagship IC-7800, the IC-7700 has 200 Watts output on HF & Six, Two independent DSP units (same as 7800) a +40dBm* 3rd order intercept point and ultra wide dynamic range, again like its big brother.

Icom IC-E2820

Dual Band Mobile

GB7ML D-Star repeater now active

Deposit then £52
36 x £16.86p/m

CALL FOR TODAY'S PRICE!

D-Star Capable

Buy the new IC-E2820 with UT-123 £CALL
Rig Only £CALL

PC Controlled Receivers from ICOM

All Windows XP Controlled via USB with four models to choose from:

D-Star Capable

IC-PCR1500 10kHz-3300MHz All Mode ..... **£CALL**
IC-R1500 As above but with remote head..... **£CALL**
IC-PCR2500 Twin Receiver version of PCR-1500 ..... **£CALL**
IC-R2500 As above but with remote head..... **£CALL**

See web for full details, PDFs etc.

Icom IC-7000

If you want a small IC-756Pro111 in your shack (or car) then the IC-7000 comes very close. Superb display & HF-70cm operation.
ML&S: £849.95

Icom IC-706MkIIG Mobile / Base

HF+6M+2M + 70cms Mobile/Base.
ML&S: CALL

Icom IC-7400

Fantastic HF+6M+2M 100W All Mode Base Transceiver.
VERY SPECIAL PRICE - Please call
SPECIAL PACKAGE DEAL AVAILABLE - PLEASE CALL!
SM-20 Desk Mic, SP-21 Speaker, MP-250A PSU

Winter Sizzlers

NEW: Icom SP-20
Matching Desk Top Speaker for the IC-7700, 7800, IC-R9500. **£CALL**

Winter Sizzlers

FREE LDG Z-11Pro Automatic ATU!

CALL FOR TODAY'S PRICE!

NEW: Icom's Latest IC-7200

HF/6M Heavy Duty DSP Transceiver with **FREE LDG Z-11Pro Automatic ATU! CALL FOR DETAILS OR SEE WEB SITE!**

Icom IC-756Pro mkII

Package deal
IC-756ProII
SM20 Microphone
SP-23 New Base Speaker with filters
ML&S: £CALL

CALL FOR TODAY'S PRICE!

Icom IC-7800mkII

Call for ML&S package deal

CALL FOR TODAY'S PRICE!

Defer payment for 6 months - Interest FREE!*
The Icom Flagship **Base Transceiver** just keeps getting better & better. Now fitted with 3 Roofing Filters for even more receiver performance.
On permanent display next to the FTdx9000.

Icom IC-910X

High Performance 2/70/23 All Mode Base Transceiver.
with 23cms fitted! £CALL

CALL FOR TODAY'S PRICE!

Icom IC-E92ED

Latest waterproof VHF/UHF dual band with D-STAR Operation included!

The IC-92ED has waterproof protection and is equivalent to IPX7 (1m depth of underwater for 30 minutes). The aluminium die cast chassis and gasket-sealed housing provide performance you can count on in harsh outdoor environments; when hiking, mountain biking, touring and for alpine activities. **ML&S: £CALL**

Icom IC-E90 Triple Band Handie

Multi-band handheld transceiver
ML&S: £CALL
Or available with 4m and extra antenna for Only £CALL

Icom IC-703 IDEAL FOR M3 USERS

10W Portable/Base HF Transceiver with built-in ATU.
ML&S: £CALL

Icom IC-718 HF Transceiver

Basic ready to go 100W HF Transceiver supplied with Microphone & DC Lead. **ML&S: £CALL**

Icom IC-E208

2/70 mobile 50/55W Transceiver with host of additional features. Remote head leads included.
ML&S: £CALL

MyDEL CG-3000

With 200W and 200 memory channels.
Tunable frequency: 1.8 - 30 Mhz with long wire antenna from 8 meters
Input impendence: 50 ohms
Input power: 10 - 200W PEP
SWR: <2:1
Power supply voltage: 12V +/- 10%
Current consumption: <0.8A
Auto tuning time: Approx. 2 seconds (first time tuning)
Less than 1 second (return to memory frequency)
Memory channels: 200
Weight: 1.8 KG
Size: 310 x 240 x 72mm (L - W - H)

CG-3000 shown with optional remote switch.

NEW! Remote control for the CG-3000 and CG-5000. £32.95

ML&S Only £259.95

As reviewed by Steve White in Radcom
"A real bargain when compared to its obvious USA competitor" "Well built & performs impressively"
Steve White, Radcom November.

MyDEL CG-5000 NEW MkII Version!

At last! 600W PEP High Speed Remote Tuner from MyDEL

Specifications:
Tuneable frequency:
1.8 - 30Mhz with long wire antenna from 8 meters
Input impendence: 45-55 ohms
Input power: 10 - 600W PEP
SWR: <2:1
Power supply voltage: DC 13.8V
Current consumption: <1.5A
Memory channels: 800
Auto tuning time: 0.5-6 seconds (first time tuning), less than 0.2 second (return to memory frequency)
Weight: 3 Kg. Size: 385mm x 280mm x 110mm (L - W - H)

ML&S Only £479.95

MyDEL Power Supplies

The neatest smartest looking desk top power supplies that money can buy. Ideal for powering any main rig or accessory requiring 13.8 Volts at up to 120 Amps.

NEW: MyDEL SPS-8250 latest 25 Amps continuous, Fully metered. 2 years Warranty (of course!) **Only £79.95!**

2 Year Warranty!

The MyDEL MP-9626 is known as "The Brick"! The MyDEL MP-9626 is a 120A 13.8V DC power supply has been designed for professional applications which require quality high current for equipments. The output voltage has Over Voltage Protection at about 17V to ensure very high protection against power supply failure, thus offering full protection to the powered equipment. **Price: £299.94**

MyDEL MP-250A. Only £89.99
25 Amps maximum, 22Amps constant, ideal for most modern HF Transceivers

MyDEL MP-8230. £69.95
The latest version of our popular MP-4128. 13.8V DC, 25Amps, rear posts for neat installation of cables & Cigar outlet.

MyDEL MP-925. £99.95
Linear 25-30A 13.8VDC PSU, using a large transformer, twin meters to monitor Volts & Amps. Been on the market for over 20 years in various different brand names and model numbers.

MyDEL MP-9600. £149.94
The UK's best selling 60 AMP switch mode PSU. Massive rear facing binding posts with additional low current front facing sockets. Digital Volts & Amps reading in big clear numbers. Housed in a strong metal case, huge near-silent speed sensitive fan to enable cooling. Over Volts protected. Minimal RF & fan noise generation.

MyDEL MP-6A. £29.95
Another model to the MyDEL PSU range, 13.8V DC, 6 Amps with front facing binding posts. Ideal for FT-817, handies etc.

LDG Tuners & Accessories

LDG ELECTRONICS

NEW! AT-200Pro

Today, more and more transceivers feature 200 watts output. Even though many of these modern radios feature a built-in tuner, it's range and features are usually quite limited; if you need a tuner, you probably need a better one than they built into the radio. The LDG AT-200 is designed for this new generation of rig. Also features two selectable antenna sockets. **£234.95**

LDG AT-7000 Specifically designed for the IC-7000! The AT-7000 is the ideal tuner for your shiny new IC-7000. First, it matches up to 10:1 SWR (3:1 on 6 meters), so just about anything you can feed with coax is good to go. And, it has 2,000 (not a typo; that's 2,000!) memories. **£159.94**
LDG Z-100 100W Auto ATU 160M-6M..... **Only £139.95**
AT-1000Pro 1kw 160m-6m (1.8-54MHz) High speed Auto ATU, tuning range 6-1000Ohms..... **£575.95**
AT-897 Bolt-on Alternative Auto Tuner for the FT-897.Wider tuning range and cheaper too! ..... **Only £179.95**
LDG Z-11Pro Portable compact & tunes 100mW to 125W..... **£169.95**
LDG RBA-1:1.....**£29.95** **RBA 4:1** Probably the best 1:1 & 4:1 baluns out there..... **£44.95**
LDG TW-1 & TW-2 Talking Wattmeters! TW-1 HF 0-2kW TW-2 6/2/70 250W. ..... **£129.95 each**
LDG DTS-4 + 4R & DTS-6 + 6R Remote Antenna Switchers. 1.5kW 1-54MHz. Either 4 or 6 way,..... **£69.95 + £34.95 / £89.95 + £44.95**
FT Meter - External meter Add-on analogue meter for the FT-857 and FT-897. Just plug & go! Enables you to read signal strength. Discriminator, power output, s.w.r., ALC etc. **£44.95**

MFJ

Innovative Ham Radio Accessories at LOW Prices

MFJ-949E 300 Watt Antenna Tuner.....**£129.95**
MFJ-902H **£89.95**
MFJ-993B Autotuner **£199.95**
MFJ-974HB Balanced Line Antenna Tuner **£159.95**
MFJ-971 Portable ATU **£79.95**
MFJ-834 RF Current Meter.....**£59.95**
MFJ-16010 Mini Random Wire 100W ATU **£44.95**
MFJ-259B/L HF/V antenna analyser with free wire loop **£199.95**
MFJ-269HF V/U Antenna Analyser.....**£269.95**

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The DMV Pro Antenna

I was delighted when **Rob G3XFD** asked me to review the DMV Pro Antenna. It's billed as "a truly versatile and portable multi-band antenna system" and Rob knows just how much 'portable' means to me! My XYL **Vivienne** (Rob calls her my 'Secretary' as she often answers the 'phone for me when we're mobile) and I travel as much as possible in our motor-home. That means using any opportunity to go 'on air' from foreign places!

The big problem with modern motor-homes is that they are basically made with modern composite materials and have very little metal in their body structure and therefore can't provide a decent ground plane. Likewise, modern engine management and habitation systems don't like radio frequency (r.f.) transmissions – and this can cause a potentially disastrous situation.

So, what's required is a self-supporting antenna system, which can be sited near the vehicle to avoid interaction with the vehicle's own electronic equipment. I look for several things from a portable antenna: Firstly it **must be portable**, that means it must also be **transportable** and easy-to-assemble, not relying on trees being in the right place or masts requiring substantial guying. In other words, it must be campsite friendly and also to be capable of assembly by one person. Finally, the antenna has to perform as a true multi-band antenna without me having to tinker or fiddle to get good results.

Fig. 1: The integral tripod/telescopic mast, axle head and extending arms form the support system for the wire antenna.

Smart Holdall

The antenna system was delivered to me in a very smart carrying holdall (an extra) with other desirable optional extras. **Note:** These extras don't form part of the antenna system but proved to be well worth the investment.

Full erecting instructions are provided in an A5-sized ring binder and include a DVD, which is most helpful in illustrating the sequential assembly process. I found it was worthwhile reading the instructions and watching the DVD first, as the function of the axle head (discussed later) needs to be fully understood.

The integral tripod/telescopic mast, axle head and extending arms (see **Fig. 1**) form the support system for the wire antenna and it's at this point I appreciated that one piece of wire with its open wire feeder can be configured (with the support system) to form four separate antennas. **Note:** A Vario Balun (presenting a varying ratio, which increases with frequency) is supplied as part of the system. The four configurations are: (**a**) the 'M' dipole, for 3.5, 5, 7, 10, 14, 18, 21, 24, 28 and 50MHz. Or (**b**) the 'M' dipole with optional resonators for improved 3.5MHz performance, (**c**) the delta loop for 10 to 50MHz (30m to 6m) with both horizontal and vertical polarisation available) and finally, (**d**) the vertical dipole' operating from 7 to 50MHz.

After reading the list, no doubt like me, you'll realise the DVM Pro is a truly ambitious antenna system to take away for holidays or field days! Indeed, it's a system that doesn't need multiple masts, several wire elements – and at least four hands to manage the assembly. And that's not even considering the chance of being thrown off site by some manager who doesn't want his/her site changed into an antenna farm! (Other campers may not like it either, so, even with the DMV, don't forget the diplomacy bit).

Testing & Evaluation

I decided to test and evaluate the system with the supplied LDG Z-11 Pro antenna tuning unit (a.t.u.) which was

Dave Mason G3ZPR is a keen /P operator, so *PW* asked him to evaluate an unusual and versatile antenna system!

mounted in a customised waterproof enclosure (optional extra). I also used it with the resonators for 3.5MHz (80m) in order to explore the DMV system to the full.

With the combination described, the whole system is self tuning, meaning that there's no need to keep dashing out into the rain or snow to keep tweaking the tuner! **Note:** The designer/supplier has set the threshold level of the Z-11 at 2:1, which is the compromise value arrived at empirically for best results.

The designer advises (and I agree) that potential users should consider the propagation conditions at the desired frequency in order to establish the required configuration. Once that choice has been made, the support system, has to be set-up, bearing in mind the health and safety of other people who may be in the vicinity. (The DMV has a turning radius of 3.4m (11ft). The integral guying lines have to be deployed, the antenna configuration selected and the wire dipole fitted to the support arms. Then the clever bit comes into play!

At this stage the two wire ends can be plugged together and the axle head rotated to form the delta loop. This can be either horizontal (for short skip) or vertically polarised (for longer distance working). They can also be left open to form the 'M' dipole or, the resonators may be fitted for the 3.5MHz 'M' dipole. Remove the resonators and the extension pieces, rotate the axle head to a different position and, you have the vertical dipole. In fact, I was spoilt for choice!

Assembly Time

With practice, during the review period I managed to get the assembly time down to 20 minutes. Of course, it wasn't a race but I needed that time to ensure that the process was carried out properly. I'm sure that, with on-going experience, it may be done more quickly.

The open wire feeder plugs into the 'Vario Balun' and this is attached to a post (supplied) and located so that the feeder gently curves out when the post is pushed into the ground outside the footprint of the tripod base. **Note:** The system designer is emphatic on this point, the feeder should not run down close to the aluminium mast.

The lead from the balun connects to the automatic antenna tuning unit (a.a.t.u.) via PL-259/SO -239 connectors. The antenna itself is balanced and so there's no need for earthing. However, the manufacturers of the LDG Z-11 strongly recommend earthing their a.a.t.u. as a protection against voltage/static discharge and, to this end, provide an earthing post on the back of their unit.

The weatherproof enclosure available from Pro Antennas also provides a well-designed earth post with a knurled stud head for ease of connection. My **personal** view is is that it is good practice to use an r.f. earth where that provision is made. I used about 450mm or so (18in) of 15mm copper pipe, formed to a cross point at one end with an electrical earth bonding clamp at the top with 500mm of flexible wire attached. The tuner unit and its earth stake are mounted adjacent to the Vario Balun and the coaxial feeder connected back to the operating position.

On The Air

I chose a variety of locations for my 'on the air' tests to simulate portable operation. These included my back garden in Poole, Dorset, the banks of the River Severn in

Fig. 2: The component parts of the supplied kit are capable of forming a comprehensive number of antenna variations.

Product:	DMV Pro Antenna System
Company:	Pro Antennas Specialised Communications Products.
Contact:	Carl Kidd G4GTW (Designer)
Pros:	Effective, multi-type, portable antenna system
Cons:	Thin black guy lines, difficult to see.
Price:	(See separate pricing details panel below)
Supplier:	My thanks go to **Carl Kidd G4GTW** for the loan of the review system. Further details from **Pro Antennas, 3 Forsythia Close, Hedge End, Southampton, Hampshire SO30 4TP**. Tel: **01489 789960** **Website www.proantennas.co.uk**

Price Guide

The DMV Pro Antenna as per specifications	**£279.95**
The DMV Pro 3.5MHz resonators	**£69.95**
The DMV Pro Deluxe carrying holdall	**£29.95**
The Dry Bag	**£15.95**
The IP55 weatherproof box	**£24.95**
Universal guying kit	**£19.95**
Customised enclosure for the Z-11 Pro a.a.t.u.	**£79.95**
The Pro Tect	**£19.95**

Please contact Pro Antennas for further details on options and p&p pricing.

Gloucestershire (between the two road bridges) with raging gales and torrential rain, the Purbeck hills on a sunny afternoon (yes, we did have one), Pamphill (near Wimborne in Dorset) and other random sites.

I've also kept records of the contacts made and the bands and the antenna configuration used. The contacts were made over several days and bands to make best use of propagation conditions.

Propogation prediction tables were consulted and, even if they are dismal at this time of the sun spot cycle, there are some good contacts to be made. My mainstay mode was on the key using c.w. as it overcomes the language barrier – but I also used single sideband (s.s.b.) to good effect.

It was interesting to note just how good the predictions were, because no one was more surprised than me to hear an Argentinian callsign, **Walter Barlasina LU9FAA**, suddenly appear on 14MHz, very close to the predicted opening time (20/2200). Canada and the United States were spot on too, with contacts made between 1300 and 1600UTC. Suriname (South America) on 10MHz was rare for me at 2145UTC and The Crimea on 14MHz at 1645UTC – during a single opening – only rated as a three in the predictions. The only real surprise was to work **Ekaterinberg** (Russia) on 7MHz with the 'M' dipole at a time when predictions were zero – but I'm not complaining!

Fig. 3: A cold wet day on the banks of the Severn river, tested both system and operator!

Versatile DMV Pro!

The contact list also shows how versatile the DMV Pro can be, by selecting the configuration according to band and path length, and the ability to change it quickly if an improvement might be made. For example, changing the delta loop from horizontal to vertical polarisation, or the 'M' dipole to vertical, etc.).

My transceiver is an Alinco DX-70 set on the low power output, 50W. However, it should be noted that, although the DMV Pro can be driven up to 400W peak envelope power (p.e.p.), the 3.5MHz resonators can only be driven up to 250W p.e.p. However, if the LDG Z-11 is used, the maximum power must not exceed 125W p.e.p. between 3.5 and 28MHz and 100W p.e.p. on 50MHz. These criteria, together with the issue of battery drain when I'm touring with the motor home, supported my decision to use the lower power. For the tests, I used a 12V 24AH Yuasa type battery, which is more than adequate for a five hour session.

User-Friendly Antenna

The DMV Pro Antenna proved to be a real Amateurs' antenna, (although very professionally designed) and is a user-friendly item. It has the well thought out concept of a rotating axle head mounted on top of a twin extension mast (three with the base section) giving a total height in the 'Delta' and 'M' modes of 7.6m (22ft).

Security 'pins' are provided for each section to ensure they don't collapse should the clamping knobs be accidently released. While they're not essential, there's a distinct advantage to using these pins as the lower section can be released for rotation purposes without the mast falling. Changing the configuration only takes a few minutes and it's the only reason to go outside if the a.a.t.u. is used. Incidentally, the overall length of the support system when packed away is 1.6m (5ft), which will even fit into my Daihatsu *Charade* run-about car.

The DMV Pro Antenna is, in my view, a truly portable system and, as such, stands in a class of its own. Comparisons, therefore, haven't been made because, while other types may be portable, it's the only system that I know of that's instantly convertible to other configurations. My tests have proved it's ideal for touring with your caravan, tent or motor home and will make an excellent antenna for field days. The results speak for themselves!

The system has been a pleasure to use and provided so much fun on the bands, I've purchased my own! (after enquiring via the Editor because reviewer authors – for the sake of impartiality – aren't normally in direct contact with the suppliers).

Additionally, because of the public nature of the test locations I was often asked by walkers about the strange structure I was using and what was its purpose, so I had a good chance to put in a plug for Amateur Radio!

My only adverse comment of the system is that the guying lines need to be of a bright orange or green colour as they are thin and black and caused me painful reminders – even though I knew they were there, especially at dusk. A makeshift solution was to cut up a plastic carrier bag into strips and tie them to the guy lines at intervals making their presence obvious. Casual passers by may not be aware of them and the user may be held liable for any accident.

Available On Line

The system is available online from Pro Antennas, **www.proantennas.co.uk** The system comes complete with antenna, universal guying kit and the Vario Balun. All other items are extra and the website gives the pricing structure. The designer/supplier has provided some options for weatherproof housings so there are choices available to the purchaser. The site also gives a photo gallery showing more detail than can be included in this article and two video clips which are well worth viewing. ●

rallies

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

Send all your rally info to

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Plan ahead for the new rally season with our comprehensive list of forthcoming events. PW Publishing will be at shows marked* - go along to the stand for great deals on subscriptions to *Practical Wireless* & *RadioUser*. Club Secretaries & Event Organisers: Send us all your details if you would like your event to be mentioned here.

January

January 18th

The Red Rose Winter Rally

The West Manchester Radio Club's Red Rose Winter Rally will be held at the Lowton Civic Centre WA3 2AH, just off the A580 East Lancs Road. Doors will open at 10.00am and there will be free car parking, a Bring & Buy, trade stands, special interest groups, a licensed bar, catering, an RSGB bookstall and facilities for the disabled. Talk-in will be on S22.

Steve
Tel: 01942 888900
www.wmrc.org.uk

January 25th

The Horncastle Winter Rally

The Horncastle Winter Rally will be held at the Horncastle Youth Centre, Horncastle, Lincolnshire, LN9 6DZ. Admission will be £1 and there will be free parking, disabled facilities and catering.

Tony G3ZPU
Tel: 01507 527835.
E-mail: G3ZPU@yahoo.co.uk

February

February 1st

The South Essex ARS Mobile Radio Rally

The South Essex Amateur Radio Society Mobile Radio Rally will be held at the Paddocks Community Centre, Long Road, Canvey Island, Essex SS8 0JA. (The Community Centre is at the end of the A130 at the junction with the B1014). Doors will open 10.30am, there will be free parking, catering, facilities for the disabled and trade stands.

Ken G0BBN
Tel: 01842 861089.
www.southessex.ars.btinternet.co.uk.

February 8th

The Harwell Radio & Computing Rally

The Harwell Radio & Computing Rally will be held at the Didcot Leisure Centre, Mereland Road, Didcot, Oxfordshire OX11 8AY. Doors will open at 10.30am (10.15 for disabled) and entry will be £2 (under 12s free). There will be talk-in on S22, free car parking, trade stands, special interest groups, licensed bar, catering (sandwiches & homemade cakes) and facilities for the disabled.

Ann G8NVI
Tel: 01235 816379
E-mail: ann.stevens@btinternet.com
www.g3pia.org.uk

February 15th

The Northern Cross Rally

The Northern Cross Rally will be held at Ossett School, Storrs Hill Rd., Osset, W.Yorkshire WF5 0DG. Doors will open at 10.30am (10:15 for disabled), admission will be £3 and there will be talk-in.

www.northerncrossrally.org

February 15th

The Swansea ARS Rally

The Swansea Amateur Radio Society Rally will be held at Afan Lido (Aquadrome), Aberavon seafront, Port Talbot SA12 6QW, one mile from the M4 (J41). Doors will open at 10.30am, admission will be £1.50 (50p for concessions) and there will be free parking, catering, a Bring & Buy, special interest groups and trade stands.

Roger GW4HSH
Tel: 01792 404422.

February 22nd

The BRATS Radio Rally

The Bredhurst Receiving and Transmitting Society (BRATS) Radio Rally will be held at Rainham Girls' School, Derwent Way, Rainham, Kent (just off the A2 & M2/J4). Doors will open at 10.00am (09.30 for disabled) and entrance will be £2.50. There will be parking, talk-in on 2m, special interest groups, catering, lectures and trade stands.

E-mail: O.wheeler@btopenworld.com

February 22nd

The Radio-Active Rally

The Mid-Cheshire Amateur Radio Society (MIDCARS) Radio-Active Rally will be held at The Civic Hall, Nantwich, Cheshire CW5 5DG. Doors will open at 10.30am and admission will be £3 (under 16s free). There will be talk-in, a car park, trade stands, a Bring & Buy, catering and a licensed bar.

Simon Chettle G8ATB
Tel: 01270 841506
E-mail: info@radioactiveshow.co.uk
www.radioactiveshow.co.uk

March

March 1st

The Cambridge & DARC Rally

The Cambridge & District Amateur Radio Club Rally will take place in the Britten Arena, Wood Green Animal Shelter, King's Bush Farm, London Road, Godmanchester, Cambridgeshire PE29 2NH. This is on the A1198, 4 miles from Huntingdon via the A14.

David G8JKV
Tel: 01223 355254
E-mail: rally@cdarc.co.uk

March 1st

Exeter Radio & Electronics Rally

The fourth Exeter Rally will be held, as previously, at the America Hall, De la Rue Way, Pinhoe, Exeter, EX4 8PW. The hall is well equipped and offers easy access being only a few minutes from the M5 and other main roads. Traders, Bring & Buy, Refreshments, Talk-in. Doors open 10.30, (Bring & Buy book in and disabled 10.15). The entry fee is £1.50, and the speciality is in-house inexpensive catering by the XYL's. All profits from the event are shared between GB3SW, GB3EW and GB3EX, the local repeaters.

Pete G3ZVI, Tel: 07714 198374
E-mail g3zvi@yahoo.co.uk

March 8th

The Wythall RC Radio & Computer Rally

The Wythall Radio Club Radio & Computer Rally will be held at the Woodrush Sports Centre, Shawhurst Lane, Hollywood, near Birmingham on the A435, 2 miles from J3 on the M42. Doors will open at 10.00am and admission will be £1.50. There will be talk-in on S22 and V44, car parking, trade stands, a Bring & Buy and catering.

Chris G0EYO
Tel: 07710 412910.
E-mail: g0eyo@blueyonder.co.uk
www.wrcrally.co.uk

March 14th

The Lagan Valley ARS Rally

The Lagan Valley Amateur Radio Society Rally will be held in The Village Centre, 7 Ballynahinch Road, Hillsborough, Ulster BT26 6AR. Doors will open at 11.30am and there will be parking, trade stands and catering.

Jim GI0DVU
Tel: 02892 662270
E-mail: jim.henry@ntlworld.com

March 22nd

The NARSA Rally*

The Northwest Amateur Radio Societies Association Rally will be held at the Norbreck Castle Exhibition Centre, Queen's Promenade, North Shore, Blackpool FY2 9AA. There will be over 100 trade & club stands, a Bring & Buy, a construction competition, free parking and disabled access.

Peter G6CGF
Tel: 0151 630 5790.
E-mail: g6cgf.peter@ntlworld.com

March 29th

The Caradon Hill RG & Callington ARS Rally*

The Caradon Hill Repeater Group & Callington Amateur Radio Society Rally will be held at the Callington Community College, Callington, Cornwall PL7 7DR. Doors will open at 10.30am (10.00am for disabled and 7.30am for traders). Admission will be £2.00.

Jamie 2E0JLH
Tel: 0779 554 60374
E-mail: caradonhillrepeatergroup@hotmail.co.uk

March 29th

Annual Hanger Sale

The annual spring Hangar sale of military equipment, Amateur and PMR radio, plus vehicle spares and collectors items will be held at the Hack Green Secret Nuclear Bunker, French lane, Nantwich, Cheshire CW5 8AL Gate open to public at 10am. Entrance fee £2.50. Bring the family and visit the museum, it's a great day out!

Rod Siebert. Tel: 01270-623353
E-mail: coldwar@hackgreen.co.uk

The G-Whip GWB Antenna System

Back in the late 1960s as a short wave listener (s.w.l.) – and yes, I admit to my age! – as well as in the 1970s when I obtained my first Amateur Radio licence, I often operated on-air from my father's car and later from my own car in my student days. I started out on 144MHz using amplitude modulation (a.m.) and single sideband (s.s.b.) and quickly progressed onto the high frequency (h.f.) bands, with my first ever dedicated h.f. mobile antenna being a 'G-Whip'.

After over 30 years use I still have it to this day and it still out-performs other mobile antennas I've tried over the years. So, it was without a second's hesitation that I accepted the commission when the *PW* Editor asked if I'd like to test one of the new revitalised G-Whip antennas!

The G-Whip

The G-Whip concept comprises a centre-loaded whip with a helically wound lower section, a centre coil and an adjustable top section. Any good antenna book will show you that the majority of current distribution occurs towards the feed point of a full-length resonant h.f. monopole antenna. So, if a shortened base-loaded antenna is used, the majority of the radiation naturally occurs at the whip section with its lower current distribution.

If the loading coil is raised, with more radiating metal being available near the feed point, the radiation efficiency increases proportionally. This is exactly what the G-Whip does. The helically wound lower section connects straight to the feed-point and gives good radiation properties.

Next, there's the loading coil, which is needed to mechanically 'shorten' the antenna length down to a compact size, from a full-length quarter wave using a wound inductor. Then comes the final upper section, which is adjustable in length to accurately resonate the antenna to the frequency band segment required.

Built To Last

So much for the theory, let's get onto the practicalities of the antenna that's built to last. And, as readers may have read from my comments the 'original' G-Whips were certainly very sturdy in construction and they've now been re-born by a new manufacturing facility in Hampshire in the south of England. **Geoff Brown G4ICD** has been granted manufacturing rights for the G-Whip range and these are currently being hand-made in Southampton, Hampshire, by Geoff and his team.

The mobile whip uses a fibreglass base stem at just over 1m long with its helically wound radiating element together with stainless steel fittings at the top and bottom, the element being double heat-shrinkwrapped to protect it from the elements. Next, there's the loading coil, which is wound on Tufnol, and then waterproofed and heat-shrink covered to prevent any tuning drift if (when!) it gets wet.

Three coils are supplied, to cover the 3.5MHz (80m), 7MHz (40m) and 14MHz (20m) Amateur bands. Additional coils can be added for 1.8MHz (160m), the WARC bands (10, 18 and 24MHz), and 5MHz. I understand that commercial communications versions are also available to order for other frequencies across the h.f. spectrum.

Finally, there's the top element, which is a coated stainless steel element with an adjustable sliding top section, complete with a lock-nut to hold it in place after you've adjusted the antenna to frequency. Three stainless steel sliding top sections are supplied to fit into the top element, a short (400mm) length, a medium (700mm) length, and a long (1.10m) length section, so the user can use whichever is needed for the actual frequency required. The whole assembly is supplied with an entirely black protective coating, although a white coating can also be supplied.

Chris Lorek G4HCL takes a look at an old UK favourite, the G-Whip, which is available once again.

Antenna Mounting

The whip antenna is terminated in a 3/8in thread, which is currently virtually the universal mount used for mobile whips. A range of mounts are available from a number of sources, including G-Whip Antenna Products themselves. In fact, the business can also provide a 'tow-eye' fitting bracket to mount the antenna on your car.

Important note: Please don't get the 'tow eye' confused with a towing ball or towing bracket! A towing 'eye' is the substantial metal 'hook', which is fitted at the front and rear of virtually every car nowadays (often behind a trim cover) and it's used, of course, if you need to be towed or to provide a tow. So, it's necessary to just scrape some paint off this to provide a good earth, attach the antenna bracket and you'll have a very substantial h.f. antenna mount. A coaxial extension tube is also available to raise the antenna feed point from the tow-eye level to provide better radiation.

Fig. 1: The centre connection box has a coaxial cable strain relief and a coaxial cover.

Various mounting options are available to get the antenna up to the height you need it, including tripod mounts for temporary portable use. The base system is supplied in a handy tube, which can be used for carrying the system around from place to place either in a car or by hand for portable use.

The whole base antenna assembly is less than 5m in length, so as well as fitting easily into the smallest of gardens or back yard, it can also be mounted in most house lofts, as well as balcony mounted. And, as it's effectively a dipole there's no ground plane needed!

Base Version

The G-Whip Base Antenna, or GWB, is made up of two identical whip sections, in the same manner as a resonant half-wave dipole but of reduced size. Each of the whip sections is screwed into a central connection box, which is supplied ready-mounted on a stainless steel plate with two stainless steel U-bolts ready to mount onto a support tube up to around 32mm (1.25in) diameter.

As with the antenna elements themselves, the central connection box is naturally fully weatherproof. In fact it's internally filled with epoxy resin so that it will even survive being totally submerged in water!

Sturdy Tube

The GWB base antenna system arrived for the review packed in a sturdy tube with a secured cap. After removing the packing I found I could then re-use the cap to re-secure it to transport the antenna around.

On opening up the assembly, the very first thing that struck me was the rugged quality of all the items – nothing had been spared. For example, the centre connection box came with a fitted hook and strain relief loop for the coaxial cable, as well as a flexible tapered rubber 'boot' for the coaxial plug entry.

Additionally, there was an SO-239 cover for the coaxial socket on the connection box to prevent water getting in while it's being transported, setting it up, or even for when it's out in the elements ready for temporary use – but without the coaxial cable connected. This would be useful for when a caravan is used, as there'll be no

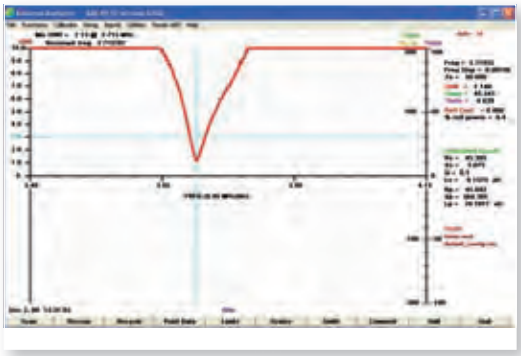

Fig. 2: A typical 80m v.s.w.r. plot showing a bandwidth of around 30kHz, rather narrow as you might guess!

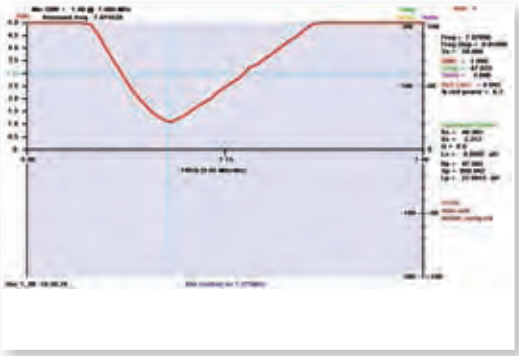

Fig. 3: The 7MHz bandwidth is around 1.5MHz

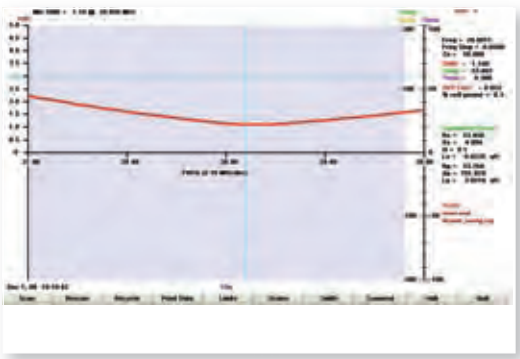

Fig. 4: A wide bandwidth is achieved on 28MHz.

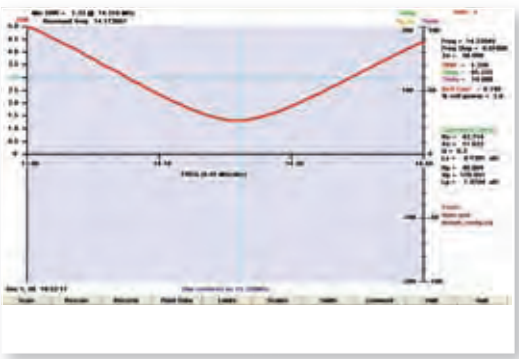

Fig. 5: On 14MHz the antenna can cover the entire band so, I tuned it for best s.w.r. on the s.s.b. section

need to leave a window open for the cable entry each night while you're asleep, Instead, only the cable will need to be taken inside.

The antenna comes with hard-wearing laminated installation instructions – an excellent idea as they won't become soggy! There's also with an individual 'test sheet' showing that all was well. So, I set about installing it with confidence!

Assembly & On The Air

Putting the system together took me just a few minutes and then it was time for the on-air testing! Adjusting the element lengths, with the antenna at temporary head height, also took me just a few minutes with my transceiver and voltage standing wave ratio (v.s.w.r.) meter and then I was on the air. As with a typical h.f. mobile antenna (at least when using one that's efficient!) I found the operable bandwidth was fairly narrow on the lower frequency bands.

I've learned over the years that if an operable bandwidth is wide (percentage-wise) with a compact antenna – then the r.f. energy I'm putting into it is being lost somewhere! So, on the extended 7MHz band, and particularly on 3.5MHz, I had to first select which segment of the band I wanted to operate on and adjust the antenna end element lengths to suit.

To help, I quickly made up a 'length chart' of the element lengths needed for the various frequency segments on each band. This was so I could quickly adjust the antenna without going backwards and forwards between the antenna and my transceiver and s.w.r. meter!

Incidentally, by leaving out the loading coils, and connecting the end elements direct to the helically wound element, I found the antenna resonated nicely across the entire 28MHz (10m) band as well. I'm also sure it would operate on 50MHz (6m) and 70MHz (4m) and even 144MHz (2m) as well, by leaving out the helically-wound sections.

I tested the antenna system over several weeks, with a tripod mount at home as a temporary mount as well as on my small wind-up Versatower, as portable on a tripod mount at a couple of riverside locations with my transceiver in the car, and in the garden at two further houses where I stayed overnight.

I'm deliberately not going to give a list of stations worked, as on h.f. this is usually meaningless as much depends on propagation conditions and choice of band and time of day as well as pile-up competition and operating techniques.

However, I was impressed with the G-Whip's performance! Of course, the antenna didn't equal the tower-mounted three-element tri-bander I use at home, nor to a lesser extent does it compare to my 3.5/7MHz wire dipole – although the difference wasn't phenomenal. In fact the G-Whip's performance was, as I've mentioned, impressive and it's something I'd be very happy with if I didn't have a tower or a large garden at my disposal.

One advantage I found, provided I had it mounted reasonably in the clear in a garden, was that I could rotate the antenna to reduce received interference. In an urban location this can be very useful indeed in reducing buzzes from electrical equipment such as computers and broadband mains distribution systems being used in neighbouring houses. Another advantage was that as the system is effectively two mobile whips forming a dipole, I could of course have used one half as a every efficient multiband mobile antenna system as well!

Product: GWB G Whip Base Station Antenna.

Company: G Whip Antenna Products, Hampsire.

Pros: Excellent British manufacturing quality, with an on-air performance that exceeds most other mobile whips and portable antennas of a similar size.

Cons: Single band operation at any one time without changing coils (although this is a just a two-minute operation), also don't expect the performance of a tower-mounted beam!

Price: (Retail) £199 plus £10 packing/delivery charges, available from stock.

Supplier: My thanks for the loan of the review antenna system goes to
Geoff Brown G4ICD,
17 Grove Gardens,
Southampton,
Hampshire SO19 9QZ.
Tel: (Mobile) **07971077317**.
Sales E-mail **janetdbrown@btinternet.com**
Technical help E-mail **g4icd@btinternet.com**
Website: **www.gwhip.co.uk**

Chris Impressed

The performance of any station is only as good as the antenna, and for mobile use I continue to be impressed with the original G-Whip I bought over 30 years ago. I must now say the recent 'Phoenix-like' G-Whip offering has not disappointed me at all. Not only is the manufacturing quality first class, which should again provide an antenna to last a lifetime, but the on-air performance was also exceptional.

This performance is of course is down to the arrangement of helical base section, centre loading coil, and adjustable top section rather than anything else, and this is where the G-Whip concept scores. However, please don't expect miracles – a compact antenna such as this won't give you the DX potential of a tower-mounted three-element beam or even a full-sized wire dipole.

But where space is at a premium, for example in a loft or balcony, or where portable operation is needed, this antenna system really scores. In a nutshell, it's a superb and well performing example of excellent British workmanship. ●

Fig. 6: The central connection box is internally filled with epoxy.

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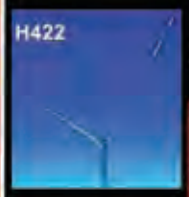

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Yaesu VR-5000 Scanning Receiver £389.00
UNIDEN UBC-3000 Hand Scanner £129.00
PSR-282 GRE Handheld Scanner £66.04
AOR 8200 Mk I £220.00
UBC-785XLT Uniden-Bearcat Base Scanner 25-1300MHz £149.00
Albrecht AE105H - "Sport scan" scanner £59.00
Uniden UBC-180XLT scanning receiver £99.00
GRE PSR 295 Handheld Scanner £89.00
VHF/UHF Transceivers
Alinco DR-605 2 / 70cm £175.00
Kenwood TM-255E 2m Mobile £329.00
Icom IC-490E 70cms Mobile £250.00
Kenwood TM-V7E 2 / 70 £250.00
Kenwood TR-9000 2m Multi mode £220.00
Kenwood TS-271E £165.00
FT-290RMKI 2m Multi mode £150.00
Trio TR-9130 2m multi mode £220.00
Yaesu FT-7800 2/70 mobile £139.00
Yaesu FT-8100R 2m / 70cms Mobile Transceiver £220.00
Yaesu FT-847 HF-6-2-70 Base £799.00
Yaesu FTV-1000 200 W Transverter £450.00
Yaesu FT-790 £159.00
Yaesu FT-736R 2m/70cm Base Multimode £599.00
FT-2800M 2m Mobile £115.00
IC-7400 HF, 6m & 2m transceiver £899.00
Kenwood TR-751E 2m Multi-mode transceiver £275.00
Yaesu FT-290MkII 2m Multi-mode transceiver £250.00
Yaesu FT-690R II 6m transceiver £275.00
Kenwood TM-V7E 2m/70cm FM Mobile Transceiver £250.00
Yaesu FT-2800M 2m FM transceiver £79.00
Kenwood TM-D700E Dual Band Mobile £299.00
Yaesu FT-8800E Dual Band Mobile Transceiver £189.00
Yaesu FT-480R 2m Transceiver £220.00
Alinco DR-430 70cm FM Mobile Transceiver £99.00
Yaesu FT-1500M 2m FM transceiver £109.00
Kenwood TS-790E Dual-Band Base / Mobile Transceiver £799.00
Kenwood TS-2000 All Mode Multibander Transceiver £999.00
Kenwood TM-702E VHF/UHF transceiver £175.00
Kenwood TR-251E 144-146 MHz £120.00
Icom IC-229H 144-146 MHz £119.00
Kenwood TS-700G £199.00
Icom IC-7000 1.8 - 70cms Mobile Transceiver - IC7000 £899.00
Yaesu FT-1802E FM 2m Band Transceiver £89.00
The TINY-2 MK-II - With Open Squelch Board £109.00
Yaesu FT-2500M Amateur VHF transceiver £99.00
AKD 2001 Amateur VHF FM transceiver £89.00
AKD 7003 - Amateur 70cms FM transceiver £99.00
Yaesu FT-726R Base Transceiver £299.00
Kenwood/Trio TR-2300 portapack £99.00
Yaesu FTM-10E Transceiver £199.00
Kenwood TR-751E VHF Transceiver £275.00
TM-V71E - VHF/UHF Mobile Transceiver £219.00
Yaesu FT-3000M £99.00
The TINY-2 MK-II versatile platform, Basic £89.00
FT-60R - Transceiver £199.00
ICOM IC-2SET - Amateur VHF Transceiver £79.00

bhi

ANEM amplified module	£122.49
1042 6-way switch box	£19.95
NEDSP-1061-KBD DSP module	£99.95
NEDSP-1062KBD Noise Module	£104.95
NEIM1031 Noise Module	£129.95
NES10-2 MK II speaker	£99.95
1090 Radiomate Keypad	£89.95

bhi

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club news

Please remember to include full details of your club, E-mail and telephone contact details and the postcode of your meeting venue - it helps potential visitors to find you!

Send all your club info to

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

All at Sea with Cray Valley Radio Society

Not content with operating in fields, on top of hills or from far flung islands, 12 members of the **Cray Valley Radio Society** have decided to push the boat out and charter a club maritime mobile adventure. Organized by **Kevin Jennings M0KSJ,** the 19m (62ft), 72-ton *X-Pilot* (an ex-pilot vessel) has been chartered for Saturday 27th June 2009 sailing from Sheerness in Kent.

The plan is to operate maritime mobile (**G3RCV/MM** on h.f. and **G1RCV/MM** on v.h.f.) while cruising out to sea to visit the Second World War Maunsell army forts and beyond. Some of the more agile members plan to board Red Sands fort to pay their respects to its military and pirate radio past before sailing on to view Shivering Sands fort and then jumping back to the 21st Century take a look at the Kentish Flats off-shore wind farm.

The trip will traverse several 'wet' locator squares as members take in the sights of the North Kent coast, the odd seal or two and provided the weather is kind, a fun day should be had by all on board with plenty of QSOs made describing the unfolding events of the day. See **http://www.cvrs.org/**

BEDFORDSHIRE

Shefford &DARS
David Lloyd. Tel: (01234) 742757
www.sadars.org.uk
The Shefford and District Amateur Radio Society meets every Thursday at the Community Hall, Ampthill Road, Shefford, SG17 5BD (next to the Chip shop). See web site for our full programme.

BERKSHIRE

Reading & DARC
Pete Milton. Tel: (01189) 695697
www.radarc.org
The Reading & District Amateur Radio Club meets on the second and fourth Thursday of the month at Woodley Pavilion, Woodford Park, Haddon Drive, Woodley, Berkshire RG5 4LY.

CHESHIRE

Chester & DRS
Barbara Green Tel: 07957 870770
E-mail: barbara@rutland.go-plus.net
www.chesterdars.org.uk
The Chester & District Radio Society meets on Tuesday evenings at the Burley Memorial Hall, Common Lane, Waverton, Chester CH3 7QN.

Halton RC
Sam. Tel: (01928) 714231
http://g7wfs.sytes.net/hrc/index.htm
The Halton Radio Club meets in The Play Centre, Norton Hill, Windmill Hill, Runcorne WA7 6LJ every Thursday from 7.30 to 9.30pm. There's plenty of parking and full disabled access.

Macclesfield & DRS
Ray King. Tel: (01260) 278431
www.gx4mws.com
The Macclesfield & District Radio Society meets every Monday at the Pack Horse Bowling Club, Westminster Road, Macclesfield SK10 3AT at 8pm.

Stockport RS
David Simcock. Tel: 0161 456 7832
www.stockportradiosociety.co.uk
The Stockport Radio Society meets on the first and third Tuesdays at the Bramhall Air Scouts HQ, Leewood Hall, Benja Fold off Ack Lane East, Bramhall, Stockport SK7 2BX.

Warrington Amateur Radio Club
Paul Carter. E-mail: g7odj@warc.org.uk
www.warc.org.uk
The Warrington Amateur Radio Club meets every Tuesday at 8pm at the Grappenhall Youth and Community Centre, Bellhouse Lane, Grappenhall, Warrington WA4 2SG.

CORNWALL

Cornish RAC
Ian Williams. Tel: (01872) 561058
E-mail: ianporsche964@aol.com
www.cornishradioamateurclub.org.uk
The Cornish Radio Amateur Club meets at the Church Hall, Church Road, Perranarworthal, Truro TR3 7QE on the first Wednesday of every month at 7.30pm. There is also a Computer Section that meets at the same venue and time on the second Monday of every month, except December.

Poldhu ARC
Keith Matthew. Tel: (01326) 574441
E-mail: g0wys@yahoo.co.uk
www.gb2gm.org
The Poldhu Amateur Radio Club meets at The Marconi Centre, Poldhu Cove, Nr Mullion, Cornwall TR12 7JB. Tel: 01326 241656.

COUNTY DOWN

Bangor and District ARS
Mike. Tel: 028 4277 2383
http://www.bdars.com
The Bangor and District Amateur Radio Society meets on the first Thursday of every month in 'The Boathouse', Harbour Car Park, Groomsport BT19 6JP at 8pm. Thursday Feb. 5th, we are hosting a talk on the history of Gilnahirk (it has been referred to as "Northern Ireland's own Bletchley Park), by George Busby. Visitors and new members are most welcome.

COUNTY DURHAM

Bishop Auckland RAC
Mark Hill. Tel: (01388) 745353
http://barac.m0php.net/
The Bishop Auckland Radio Amateur Club meets every Thursday at 8pm in the Village Community Centre, Stanley Crook, Co. Durham DL15 9SN. Tuition for Foundation, Intermediate and Advanced licences is available. The club is registered as an RSGB exam centre.

Great Lumley AR&ES
David Barclay. Tel: 0191 3888113
E-mail: m0bpm@btinternet.com
The Great Lumley Amateur Radio & Electronics Society meets in the Community Centre, Front Street, Great Lumley, Chester-le-Street, Co. Durham DH3 4JD on Wednesday nights from 7 to 9pm.

DERBYSHIRE

South Normanton Alfreton and District ARC
A J Higton. Tel: (01773) 783658
E-mail: Snadarc@aol.com
www.snadarc.com/
The South Normanton Alfreton and District Amateur Radio Club meets in the Village Hall, Community Centre, Market Street, South Normanton, Derbyshire DE55 2EJ.

DEVON

Exemouth ARS
Mike G1GZG, Tel: 01395 274172
E-mail: micael.newport1@btinternet.com
The club meets on the 1st and 3rd Wednesdays of each month at 'The Scout Hut', Marpool Hill, Exmouth Devon EX8 1TD.

Exeter ARS
Paul Cheshire. Tel: 01392 660246
E-mail: pchesh-29@hotmail.co.uk
The Exeter Amateur Radio Society meets on the 2nd and the 4th Monday at 7.30pm in the Moose Centre, Spinning Path Lane, Blackboy Road, Exeter EX2 5RP. Tuition for Foundation, Intermediate and Advanced licence is available. The club is registered as an RSGB examination centre.

Torbay ARS
Dave Helliwell.
E-mail: g6fsp@tars.org.uk
www.tars.org.uk
The Torbay Amateur Radio Society meets Fridays at 7.30pm in the Teignbridge District Scout Headquarters, Wolborough Street, Newton Abbot, Devon TQ12 1JR.

DORSET

Blackmore Vale ARS (BVARS)
Nick Perrin. Tel: (01747) 838936
E-Mail: bnperrin@theiet.org
www.radioclubs.net/bvars/
BVARS meet at The Youth Club, Coppice Street, Shaftesbury Dorset SP7-8PF each Tuesday evening at 7.30pm. The Club callsign is G4RBV. The main meeting is the second Tuesday of the month and details of events and full details of the Club can be found on the website.

Bournemouth RS
John. Tel: 07719 700 771
www.brswebsite.org.uk
Bournemouth Radio Society meet on the first and third Friday of each month at the Kinson Community Centre, Pelhams Park, Millhams Road, Kinson, Bournemouth BH10 7LH. Meetings take place in Room 5 at 8pm and members assemble in the bar from 7.30pm. Visitors are always welcome.

Poole Radio Society G4PRS
'Tex' G1TEX Tel: 07966 460 552
www.g4prs.org.uk
Meetings are every Friday at 19:30 for 20:00 at the The Old Chapel Hall, Cabot Lane, Creekmoor, Poole BH17 7BX, the second friday meeting of each month is the formal evening, all others are basically shack and Natter nights. The Intermediate class is presently fully booked and well underway!

Dumfries & Galloway (Scotland)
The Wigtownshire Amateur Radio Club
Ellis Gaston Tel: 01776 820413
Web: www.gm4riv.co.uk
The club meets every Thursday from 19:00 Hrs at the The Aird Unit, Stranraer Academy, Stranraer, DG9 8BQ, South West Scotland. Feb. 5th Shack PSK Natter Night 12th Shack PSK Natter Night, 19th Adventures with Aeroplanes by Helen Macdonald and on the 26th Shack PSK Natter Night.

EAST SUSSEX

Brighton RC
Reg Moores. Tel: (01273) 503869
The Brighton Radio Club meets on the second and fourth Tuesdays of each month at the Vallance Community Centre, Conway Court, Sackville Road, Hove BN2 3WR at 7.30pm. Anyone wishing to know more are welcome to come along to a meeting, entrance is free.

Hastings E&RC
Gordon Sweet. Tel: (01424) 431909
E-mail: gordon@gsweet.fsnet.co.uk
www.herc.uk.net or
http://g4cus.mysite.wanadoo-members.co.uk/
The Hastings Electronics & Radio Club meets on the third Wednesday at the Taplin Centre, Upper Maze Hill, St Leonards on Sea TN38 0LQ at 7pm.

ESSEX

Braintree & DARC
Keith. Tel: (01376) 329279
www.badars.org.uk
The Braintree & District Amateur Radio Society meets on the first and third Monday of the month in The Clubhouse, Braintree Hockey Club, Church Street, Bocking CM7 5LJ.

Colchester RA
www.g3co.ccom.co.uk
The Colchester Radio Amateurs meets at 7.30pm on alternate Thursdays at St Helena School and The Colchester Institute, Sheepen Road, Colchester, Essex CO3 3LE. Members and non-members welcome.

Chelmsford ARS
Martyn Medcalf. Tel: (01245) 469008
E-mail: info2007@g0mwt.org.uk
www.g0mwt.org.uk
The Chelmsford Amateur Radio Society meets on the first Tuesday of each month in the Marconi Sports & Social Centre, Beehive Lane, Great Baddow, Chelmsford CM2 9RX at 7.30pm. - All welcome

Loughton & Epping Forest ARS
Marc Litchman. Tel: 020 8502 1645
E-mail: info@lefars.org.uk
www.lefars.org.uk
The Loughton & Epping Forest ARS meet Friday fortnightly at All Saints House, Romford Road, Chigwell Row, Essex IG7 4QD between 7.45 and 10pm. All visitors will be made most welcome.

South Essex Amateur Radio Society
Contact: Dave (G4UVJ) 01268 697978
E-mail: southessex.ars@btinternet.com
www.southessex.ars.btinternet.co.uk
Local Network: 145.225MHz
Meet second wednesdays of each month at South Benfleet Primary School, High Rd, South Benfleet, Essex SS7 5HA. (Entrance: 51°33'10.45N 0°33'39.65E), (Opp. Smiths Wood Yard). All welcome. On the night it's Canvey Rally Preparations.

FIFE (Scotland)

Glenrothes&DARS GM4GRC
D Francis MM0DYX Tel: 01383 823878
Meet Wednesdays at the Football Pavillion, Station Rd. Thornton Fife. Club Chairman Ken GM3YBQ runs course at all licence levels.

GLOUSCESTERSHIRE

Cheltenham ARC G5BK (CARA)
Alan Errock, G3HC. Tel: 01452 813
E-mail: alan@errock.co.uk
www.caranet.co.uk

The club meetings are held on the first Friday of each month, starting at 8p.m. at Prestbury Library, The Burgage, Cheltenham, Gloucestershire, GL52 3DN.

Gloucester Amateur Radio and Electronics Society
Anne 2E1GKY/M3GKY. Tel: 01452 548478 (After 10am)
E-mail: hamreed@blueyonder.co.uk
www.g4aym.org.uk
Meet at Churchdown School, Winston Road, Glos. GL3 2RB, every monday evening at 7-30pm until 10pm except for Bank Holidays when we operate from a local escarpment. February 9th Operating Various Club Equipment. February 16th Mini DF Hunt, 23rd Workshop/Informal. March 2nd "Mobile Phones" by Steve G4HFT, 9th VHF/UHF Operating.

Gwnedd (Mid-Wales)
Merion ARS
John. Tel: 07868 738016
E-mail: tawelfan@talk21.com
http://meirionars.multiply.com/
Meirion amateur radio society meet on the first Thursday of each month at The Royal Ship Hotel in Dolgellau Gwynedd LL40 1AR at 19.30. Visitors and new members are very welcome. Regular talks are organized and all the details for meetings and special events can be seen on the club website. Feb 5th meeting will feature a talk by Max GW1KDP on digital television.

HAMPSHIRE

Andover Radio Amateur Club
Martin M0MWS. Tel: 01980 612070
E-mail: martinsmith@kukltd.co.uk
www.arac.co.uk
The Andover Radio Amateur Club meets on the first and third Tuesdays in the month at the Club venue in The Village Hall at Wildhern, SP11 0JE. Map Ref SU350510 at 19:30 hours.

Fareham & District ARC
Ken Sapsed. Tel: 023 9279 7240
E-mail: secretary@fareham-darc.co.uk
www.fareham-darc.co.uk/
The Fareham & District Amateur Radio Club meets on Wednesdays evenings from 7.30pm in the Portchester Community Centre, Westlands Grove, Portchester, Fareham PO16 9AD. shafts

Horndean & District ARC
Stuart Swain. Tel: (02392) 472846
E-mail: g0fyx@msn.com www.hdarc.co.uk
The Horndean & District Amateur Radio Club meets on the first and fourth Tuesdays each month in the Lovedean Village Hall, 160 Lovedean Lane, Lovedean, Hants PO8 9SF at 7.30pm. Visitors are always very welcome. February 24th 2009, a talk on 'Tangmere and SOE2' by Bill Toozs-Hobson of the Military Aviation Museum at Tangmere, Near Chichester. Meeting starts at 7.30pm. The Bring-and-buy sale which was to take place on that date will now take place on Tuesday May 26th.

Isle Of Wight Radio Society
Tony Pegg. Tel: 01983 868 978
e-mail tony.pegg1@btinternet.com
www.g3sky
The IWRS meets every Friday evening 7.00pm-10.pm at Haylands Farm,Salters Rd. Ryde PO33 3HU. Visitors very welcome.The club runs courses for Foundation, Intermediate and advanced licenses. The club is registered as an RSGB exam centre

HERTFORDSHIRE

Verulam Amateur Radio Club (St Albans)
Norman. Tel: 07773 628912
E-mail: g1bsz@aol.com (sec)
www.radioclubs.net/verulam
The club normally meets every 3rd Tuesday of the month 800pm at Aboyne Lodge School.Etna Road, St Albans, AL3 5NL. New members and visitors are always very welcome. Regular talks, events, Foundation, Intermediate courses exams are held. Club nets also take place every Sunday 12.00noon 40m (7.150MHz), then 14.00pm 2m (145.375) and on Tuesday 19.45pm 160m (1.975) then 20.00pm 2m (145.375). For further information about the club and events please see the website.

Intermediate Course at Jersey ARC

Rob Luscombe MJ3RZD, who is the Secretary of the The Jersey Amateur Radio Society wrote to tell us about their new intermediate course: "After the last course run at the club, we have to say, well done to **Steve Whitfield** for passing the Foundation exam back in September and he is now the proud holder of the callsign **MJ6SIT** (with all due deference to **Barbara Wodehouse** no doubt!) Steve is keen on the use of data modes which he has already used to good effect with contacts far and near and is also well versed in electronics with a background in electronic engineering."

Subsequently club president Mike GJ0PDJ has started teaching a new intermediate course on a Wednesday evening (and by the time you read this exams will probably be imminent!) with **Mike MJ3SZI**, Steve MJ6SIT and **Chris MJ3CMB** taking part. Good luck chaps!!

http://www.radioclubs.net/gj3dvc/

HUMBERSIDE

Hull & District ARS
Raymond Penny. Tel: (01482) 504618
E-mail: sirraymond@sirraymond.karoo.co.uk
The Hull & District Amateur Radio Society meets every Friday at the Walton Leisure Centre, Walton Street, off Anlaby Road, Hull HU3 6JB.

JERSEY

Jersey Amateur Radio Society - GJ3DVC
Rob Luscombe (secretary) 2J0RZD Tel: 07797 923916
E-mail: gj3dvc@gj3dvc.org.je
http://www.radioclubs.net/gj3dvc/
The Jersey Amateur Radio Society meets every Friday at 7.30pm at The German Signal Station, Rue Baal, La Moye, St. Brelade, Jersey, JE3 8HQ, also on a Wednesday evening from time to time to maintain, alter and improve the shack, antennas etc. and also for club training. Coffee and car parking available, visitors are always welcome, shack rental available. See our website for further information.

KENT

Bredhurst RATS
www.the-brats.co.uk
The Bredhurst Radio Amateur & Transmitting Society meets on Thursdays at the Parkwood Community Centre, Rainham, Gillingham, Kent ME8 9PN at 8.30pm. If you are interested in joining the club, write to: Membership, The BRATS c/o The Club Room, The Parkwood Community Centre, Long Catlis Road, Rainham, Gillingham, Kent, ME8 9PN.

Hilderstone Radio & Electronics Club
Mike Howland E-mail: g4mix@waitrose.com
www.g0hrs.org.uk
Meetings now at The Science Block, Chatham House School, Chatham Street, Ramsgate, CT11 7PP on 2nd and 4th Friday of the month at 7-30pm.

Bromley & DARS
Graham
E-mail: bdars@grahamc.net
www.bdars.org
The Bromley & District Amateur Radio Society meets in The Victory Social Club, Kechill Gardens, Hayes, Kent BR2 7NH (off B265, Hayes Lane, Bromley) on the third Tuesday of the month at 7.30pm.

LANCASHIRE

Oldham RC
Christopher Cunliffe. Tel: 07749347142
E-mail: secretaryoarc@btinternet.com
www.oarc.org.uk
The Oldham Radio Club meets on Thursdays at Royton Air Training Corps, Hillside Avenue, Royton, Oldham OL2 6RF at 7:30pm.

Ellenroad RC
David. Tel: (01706) 358650
E-mail: info@ellenroadradioclub.org.uk
http://www.ellenroadradioclub.org.uk/info.htm
The Ellenroad Radio Club (ERC) meets every Monday evening from 7 to 9pm at the Ellenroad Steam Museum, Elizabethan Way, Newhey, Rochdale OL16 4LG. The museum houses the UK's only fully-working cotton mill engine, complete with its 220ft high chimney. Newcomers are always welcome and made to feel at home.

Thornton Clevelys ARS (G4ATH, & G6GMW)
John. Tel: 01253 399377,
E-mail: m3waz@hotmail.co.uk
www,tcars.org.uk
February 2nd Natter Night, 9th "Various ATUs" by Ken G3RFH, 16th "BAE SYSTEMS" by Denis Morley, 23rd "VOIP" by John G8RDP). March 2nd Natter Night, 9th "Vintage PCs" by John M0JFE, 16th "Tech Talk" by Ted G3WBB, 23rd "Computer Fault Finding" by John G8RDP. April 6th Natter Night.

LINCOLNSHIRE

Spalding & DARS
Graham Boor. Tel: 07947764481
E-mail: secretary@sdars.org.uk
www.sdars.org.uk
The Spalding & District Amateur Radio Society meets at the Castle Sports Swimming Complex, Spalding PE11 1QF on Fridays at 7.30pm.

LONDON

Cray Valley Radio Society
Bob Treacher. Tel: 020 8265 7735
www.cvrs.org
The Cray Valley Radio Society meets on the first and third Thursdays of the month at the Progress Hall, Admiral Seymour Road, Eltham, London SE9 1SL at 7.30pm for 8pm.

Southgate ARC
David Sharp. Tel: 01992 422622
E-mail: david.sharp1@tesco.net
The Southgate Amateur Radio Club meets on the second Wednesday of the month at Hazelwood Lawn Tennis and Squash Club, Ridge Avenue, Winchmore Hill, London N21 2AJ at 7.30 for 8 pm.

Wimbledon and District ARS
Jim Bell M0CON
Tel: 020 8874 7456
E-Mail: jamesm0con@o2.co.uk
http://www.gx3wim.org.uk
The Wimbledon & District Amateur Radio Society welcomes new comers to our meetings whether they are licensed or not. We hold our meetings the second and last Friday of each month at Martin Way Methodist Church, Buckleigh Avenue, Merton Park, London SW19 9JZ. The church is on the corner of Martin Way and Buckleigh Avenue.

THE LOTHIANS (Scotland)

Cockenzie & Port Seton ARC
Bob Glasgow. Tel: (01875) 811723
E-mail: gm4uyz@cpsarc.com
www.cpsarc.com/news.php
The Cockenzie & Port Seton Amateur Radio Club meets in the Thorntree Inn (Lounge Bar), High Street, Cockenzie, East Lothian EH32 0HP from 7pm till late. Organised talks are held in the Port Seton Community Centre, South Seton Park, Port Seton, East Lothian EH32 0EE. Timings 18:30 to 21:30hrs. February 6th Normal Club Night, 20th Radio Check Night by John MM0JXI

Lothians Radio Society
Tony Sigouin. Tel: 07739742367
E-mail: enquiries@lothiansradiosociety.com
www.lothiansradiosociety.com
The Lothians Radio Society meets on the second and fourth Mondays of the month in the Royal Ettrick Hotel, 13 Ettrick Road, Edinburgh EH10 5BJ from 7pm. Membership costs £12 per year and includes a free BBQ every June!

MERSEYSIDE

Wirral & District ARC
Tom. Tel: 07050 291850
E-mail: secretary@wadrac.com
www.wadarc.com
The Wirral & District Amateur Radio Club meets at the Irby Cricket Club, Mill Lane, Irby CH61 4XQ on the second and fourth Wednesdays of each month. Other Wednesdays are informal (D&W) meetings at a local hostelry.

NORFOLK

King's Lynn ARC Ray Dowsett, MBE.
Tel: (01553) 671307
E-mail: ray-g3rsv@supanet.com http://www.klarc.org.uk
King's Lynn Amateur Radio Club meets every Thursday at the Scout HQ, Chequers Lane, West Winch, King's Lynn, PE33 0NY off the A10 at West Winch at 7.30pm.

Norfolk ARC
Mark Taylor. Tel: (01362) 691099
E-mail: narc@g0lgj.co.uk
www.norfolkamateurradio.org
The Norfolk Amateur Radio Club meets every Wednesday at the Eaton CNS School, Eaton Road, Norwich, NR4 6PP, where it meets weekly,from 7-10pm, usually in 6th form centre at front of school, every Wednesday from 7-10pm. February 4th "An 80m SSB transceiver kit for £45" with Steve G6ALU, 11th Informal, 18th "Why Contest" - Roger G3LDI, 25th Informal evening.

North Norfolk ARG
Tony Smith. Tel: (01263) 821936.
E-mail: g4fai@btinternet.com
www.radioclubs.net/nnarg/
The North Norfolk Amateur Radio Group meets in the Radio Hut at the Muckleburgh Collection Military Museum, Weybourne, North Norfolk NR25 7EG on Wednesdays and Thursdays from 10am to 4pm and some Sundays from 1 to 4pm. New members always welcome.

NORTHAMPTONSHIRE

Kettering & District Radio Society Lorna Froggatt. Tel: 0153 676 2523 E-mail: LornaSteveLorna@aol.com The Kettering & District Radio Society meets each Tuesday from 7 to 9pm in the winter at The Lilacs Pub, Church Street, Isham, Northants NN14 1HD and in the summer at the Carpetbagger Aviation Museum, Sunnyvale Farm Nursery,

Harrington NN6 9PF. Foundation, Intermediate and Advanced courses are held regularly.

SHROPSHIRE

Salop ARS
Richard Golding. Tel : 01743 356195
The Salop Amateur Radio Society meets in The Telepost Club, Railway Lane, Abbey Foregate, Shrewsbury SY26BT on Thursday between 8 and 10.30pm.

Telford & District ARS
Mike Street. Tel: (01952) 299677
E-mail: mjstreetg3jkx@blueyonder.co.uk
www.tdars.org
The Telford & District Amateur Radio Society meets on Wednesdays at the Little Wenlock Village Hall, Malthouse Bank, Little Wenlock. Telford TF6 5BG at 8pm. February 4th Open House/On the air/Committee. (Away venue), 11th Video evening with MØTAW, 18th Under £5 construction competition, 25th Society project.

NOTINGHAMSHIRE

Worksop Amateur Radio Society (W.A.R.S.)
'Daz' Spence 01623 747314
Email- g3rcw@qsl.net
www.qsl.net/g3rcw/
Meets every Tuesday at 7:00 pm. Our cubhouse is located at 59 - 61west street, Worksop, Nottinghamshire. S80 1JP. Exams and courses run frequently for all licence levels. Construction nights due to start in the autumn, and we also put on various special events amongst which is the famous Sherwood Forest. Licensed bar & hot food available on club meet nights. Membership fee for the year is £10.

SOMERSET

North Bristol ARC
Dick Elford Tel:(01454) 218362
E-mail: g0xay@aol.com
www.nbarc.org.uk
North Bristol ARC meet Fridays at 7.30pm at SHE7, Braemar Crescent, Northville, Filton Bristol BS7 0TD. We carry out training for all the Radio Amateurs examoination, and our next training course is to be for Intermediate exams.

South Bristol ARC
Len Baker. Tel: (01275) 834282
E-mail: g4rzy@msn.com
www.sbarc.co.uk
The South Bristol Amateur Radio Club meets every Wednesday evening at the Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol BS14 0LN.

Yeovil ARC
Gary. E-mail: g.swain@tesco.net
www.yeovil-arc.com/
The Yeovil Amateur Radio Club meets at the Red Cross Centre, Grove Avenue, Yeovil BA20 2BE (on the corner where Grove Avenue meets Preston Road).

SOUTH GLOUCESTERSHIRE

Thornbury and South Gloucestershire ARC
Tony. Tel: (01454) 417048
E-mail: tonytsgarc@sky.com
The Thornbury and South Gloucestershire Amateur Radio Club meets in the United Reformed Church Hall, on the corner of Chapel Street and Rock Street, Thornbury BS35 2BA at 7.30 - 9.30pm.

SOUTH WALES

Barry ARS
Glyn Jones. Tel: (01446) 774522
E-mail: glyndxis@talktalk.net
www.bars.btik.com
The Barry Amateur Radio Society meets on Tuesdays from 7.30 to 10.30pm in the Sully Sports & Social Club, South Road, Sully CF64 9TG.

SOUTH YORKSHIRE

Axholme Radio Club
John Fennell. Tel: (01427) 872522
E-mail: g4hoy@tiscali.co.uk
The Axholme Radio Club meets at Hollytree Farm, Westend Road, Sandtoft, Epworth DN9 1LB on Wednesdays at 10amm to 4pm, Thursdays at 7 - 9pm and Saturdays from 10am - 4pm (other times by arrangement).

Spalding & DARS come to the rescue and assist **Keith Davis G3TYR,** a blind operator with the installation of a tower to assist his Amateur Radio operation.

Keith has been a Radio Amateur since 1965. He was introduced to the hobby by the South London Radio Club and a member of the RSGB for most of the time. He moved to Sleaford from Guilford in 2002 where he had been working as a computer consultant for City Bank, a job that took him to various parts of the world. Keith also worked as a Radio and TV engineer.

Two years ago Keith wanted to improve his antenna system and increase his range on h.f. so he erected a tower that had been donated by **Brian G3OOP** at the rear of his garage, but after a complaint by a neighbour he was forced to take it down and apply for planning permission from the local council. After a planning meeting at which Keith was represented by **Bryn Llewellyn G4DEZ**, permission was granted by a vote of 18 to 1.

The next hurdle to overcome was the erection of the tower and Cushcraft antenna. Keith is now blind and sought help from local radio groups to complete the installation. **Spalding and District Amateur Radio Society** (SDARS) came to the rescue and offered their help and over a weekend prepared and installed a concrete base for the tower. A subsequent Saturday was spent erecting and assembling the antenna and tower, and winching it up into a vertical position.

Once erected it was found that despite following the instructions to the letter the elevation winch handle fouled the winch tilt mechanism. The whole assembly had to be taken down and re-assembled so that unimpeded operation was possible. The antenna and tower were again raised and now worked perfectly. It only remained to feed the cables through into Keith's shack, test the antenna and the job was done!

Members of SDARS were only too happy too help Keith whose only hobby is Amateur Radio and hope that his improved aerial system will give him many happy hours on h.f. with lots of DX contacts.

See **http://www.sdars.org.uk**

Sheffield ARC
Trevor Wood. Tel: 0114 2216947
E-mail: trevorwood6@yahoo.co.uk
www.sheffieldarc.org.uk
The Sheffield Amateur Radio Club meets at the SYPTE Social Club, Greenhill Main Road, Sheffield S8 7RH every Monday at 7.15pm. All three types of classes are held for the Foundation, Intermediate and Advance levels of licensing.

STAFFORDSHIRE

Tamworth Amateur Radio Society
Colin Marks. Tel: (01827) 700893
E-mail: colin.marks2@ntlworld.com
The Tamworth Amateur Radio Society meets every Thursday at 7.30pm at St Francis Church, Masefield Road, Leyfields, Tamworth B77 8JB.

SURREY

Sutton & Cheam RS
John Puttock. Tel: 020 8644 9945
E-mail: info@scrs.org.uk
www.scrs.org.uk
The Sutton & Cheam Radio Society meets on the third Thursday of the month at 7.30pm in Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton, Surrey SM1 2EY. In addition to monthly meetings, licence training courses are held at regular intervals in Banstead Surrey.

TYNE & WEAR

Angel of the North RARC
Nancy Bone. Tel: 0191 477 0036
E-mail: nancybe2001@yahoo.co.uk
www.anarc.net
The Angel of the North Radio Amateur Radio Club meets every Monday 7 to 9pm at Whitehall Road Methodist Church Hall at the corner of Whitehall Road and Coatsworth Road, Bensham, Gateshead NE8 4LH. The entrance to radio club room is through door at the side of building next to the car park. The car park entrance is on Whitehall Road.

Tynemouth ARC
Tony Regnart G8YFA. Tel: 0191 280 1981
E-mail: mail@g0nwm.com
www.g0nwm.co.uk
The Tynemouth Amateur Radio Club meets each Friday from 7 to 9pm at St. Hilda's Church, Stanton Road, North Shields, Tyne & Wear NE29 9QB. It's known locally as 'the church near the fire station'.

WEST MIDLANDS

Aldridge & Barr Beacon ARC
Roy Horton. Tel: (01922) 691646
E-mail: leslie137@btinternet.com
www.g0neq.co.uk
The Aldridge & Barr Beacon Amateur Radio Club is a daytime club and meets at the Aldridge Community Centre, Middlemore Lane, Aldridge, Walsall WS9 8AN on the first and third Monday of every month at 2pm to 4pm. They have a long wire and a 2 metre antenna for radio operation using the club callsign G0NEQ.

Midland AX25 Packet Radio Users Group
Miles. Tel: 01384 254199
www.maxpak.org.uk
The Midland AX25 Packet Radio Users Group, MaxPak, meets on the first Monday of the month at The Sir Robert Peel, 104 Bell Lane, Bloxwich, Walsall WS3 2JS.

Stourbridge and District ARS
John. Tel: (01562 700513)
www.g6oi.org.uk
The Stourbridge and District Amateur Radio Society meets on Monday evenings, except for Bank Holidays at The Radio Shack, Old Swinford Hospital School, Heath Lane, Stourbridge, West Midlands DY8 1QX at 8pm. We have Open Shack Nights - Tea/Coffee always available, along with an opportunity to get on the air or just a natter with whoever attends

Sutton Coldfield RS
Andy Sherman. Tel: (01827) 875155
E-mail: peugeotnut@hotmai.com
www.hamradio.piczo.com
The Sutton Coldfield Radio Society Meets on the second and fourth Monday of the month at 7.30pm (no meeting on bank holiday Mondays) in the Sutton Coldfield Rugby Club, 160 Walmley Road, Sutton Coldfield, West Midlands B762QA.

Wythall Radio Club
Chris Pettitt. Tel: (07710) 412 819
E-mail: g0eyo@wythallradioclub.co.uk
www.wythallradioclub.co.uk
The Wythall Radio Club is based at Wythall House, Silver Street, Wythall, near Birmingham B47 6LZ. They meet every Tuesday at 8pm and meetings are informal and friendly. Their 2009 annual rally is planned for March 8th – see rallies pages in this issue.

WEST SUSSEX

Horsham ARC
Andrew Vine. Tel: (01483) 272456
http://www.harc.org.uk/
The Horsham Amateur Radio Club meets on the first Thursday of the month at The Guide Hall, Denne Road, Horsham, West Sussex.

Worthing & DARC
Roy or Joyce. Tel: (01903) 753893
www.wadarc.org.uk
The Worthing & District Amateur Radio Club meets every Wednesday at 8pm in the Lancing Parish Hall, South Street, Lancing, BN15 8AJ. There's a free car park at the rear and full disabled access. Visitors are always welcome.

WEST YORKSHIRE

Pontefract & District Radio Club
Colin. Tel: (01977) 677006
E-mail: info@pontefractradioclub.org
www.pdars.com
The Pontefract & District Radio Club meets every Tuesday from 7pm and Thursday from 8pm at the Carleton Centre, Carleton Grange, Carleton Road, Pontefract, West Yorkshire WF8 3RJ.

WILTSHIRE

Trowbridge & District AR
Ian Carter. Tel: (01225) 864698
E-mail: ian.l.carter@btinternet.com
http://uk.geocities.com/tdarc@btinternet.com
The Trowbridge & District Amateur Radio Club meets at Southwick Village Hall, Southwick (nearest postcode is BA14 9QN).

WORCESTERSHIRE

Worcester RAA
Martin Carter. Tel: 07976 917987
E-mail: secretary@m0zoo.co.uk
www.wraa.co.uk
The Worcester Radio Amateurs Association meets on the second and fourth Tuesday at the Hallow Scout HQ, off Main Road, Hallow, Worcester WR2 6PP. Visitors, as always, will find a warm welcome at the new clubhouse, as will potential new members.

Club Secretaries

Please remember to include full details of your club, E-mail and telephone contact details and the postcode of your meeting venue - it helps potential visitors to find you!

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Feature

Emerging Technology

Software Defined Radio - portable radios now a reality!

In the last *Emerging Technology* feature a few months ago, I detailed how software defined radio (SDR) might be likely to become not just used for fixed radio systems, as we Radio Amateurs have access to right now, with both commercial and home-brewed offerings, but following initial use by military radio users SDR is also available for portable use for two-way radio users.

This is because the **Harris Corporation** – who've been designing and supplying radio communications systems for military users around the world – including our own Ministry of Defence (MOD) – e.g. their 'Falcon' series of radios for Bowman use – have now come up with such a software-defined hand-held.

Here in the UK, we've settled on a digital **TE**rrestrial **T**runked **RA**dio (TETRA) system for inter-service operability where, for example, the Police, Ambulance, Fire and Rescue, St. John's Ambulance, RNLI and other 'Blue Light' emergency services can if they wish – and have the appropriate radios with them – communicate with each other during incidents. However, the USA doesn't have this facility, so each emergency agency would need a radio operating on the other's frequency to communicate.

The Harris 'Unity XG-100' handheld radio is the first of what I'm sure will be quickly followed by radios from different manufacturers. It's around the same size as a current single-band handheld, but covers 136 to 870MHz continuously with a variety of operating modes. For example, it can be programmed to operate on normal frequency modulation (f.m.), or be upgraded via software to operate on digital trunking systems such as P25 (as used in the USA), and future modes, as and when they become developed.

So, by simply changing channel, the handheld can operate on various emergency service frequencies and modes. My only reservation is that when they're using someone else's channel, their own service may not be able to get in touch with them!

Mind you, I'm sure the radio designers will have built in 'priority channel' scan facility, similar to the feature we use on our Amateur Radio handhelds. Or if they haven't, then at least it's just a software upgrade!

Germanium Nanotechnology & Magnetic Transistors

Back in the early 1970s when I was constructing some of my first electronic circuits, I commonly used OC71 Germanium transistors (remember them?), I still have one at home somewhere! But the advent of silicon semiconductors, with substantially less current leakage, rapidly took over and within a few years virtually all semiconductors used silicon technology with Germanium virtually dying a death.

Later came Gallium Arsenide (GaAs) semiconductors and field effect transistors (f.e.t.s), particularly for high frequency receiver front-ends. I certainly remember having built and purchased receiver front-end and masthead GaAsFET pre-amplifiers for my 144, 430 and 1.3GHz systems.

However, things are changing! Work at the **National Physics Laboratory** (NPL) has been looking into the problem of component density, ever increasing as time passes (ever more in a smaller space on that p.c.b!). But when nanowire parts go down to around a tenth of a nanometre (a thousandth of a millionth of a metre), heating and quantum effects become very severe, sometimes to the point where these wires can't be used.

Fortunately, there's a solution and that's to change not only the material used, but also the actual structure of the transistors themselves. Working with nanowires, the laboratory's idea is to add another degree of freedom of material by making the material magnetic!

Magnetic semiconductors of course don't exist in nature, so they have to be artificially engineered. This is where Germanium comes in. Germanium has a much higher hole 'mobility' (this is the factor that influences the speed of a semiconductor device) than either Silicon or Gallium Arsenide and right now they're getting on with creating these devices. **Dr Olga Kazakova**, who's a Senior Research Scientist at the NPL, says that transistors based on Germanium nanowire technology, " Could revolutionise electronics and computing devices, although realistically they could be ten years away from now."

But it's interesting how things go 'back to basics' with germanium getting a new lease of life! Now, how can I magnetise my OC71 to give me a super low noise pre-amplifier for 2m? ›

Chris Lorek G4HCL looks at the effects of Nanotechnology – and it appears we might soon be using transparent & flexible self-powered handheld transceivers!

The Morph; Communications of the Future?

Are you sitting comfortably? Then get ready to read something rather astounding and maybe at first incredible and which should probably be in a science fiction film, set well into the future. But this is probably less then 10 years away.

'Morph' is a concept that shows how future wireless communication devices might be stretchable and flexible, letting you transform your two-way wireless device into radically different shapes! It shows that nanotechnology could very well be capable of delivering flexible materials, transparent electronics and self-cleaning surfaces. At least that's a nanotechnology concept, that's been developed jointly by the **University of Cambridge** here in the UK and the **Nokia Research Centre** in Finland is looking at.

Nanotechnology

The nanotechnology concept can give us materials and components which are flexible, stretchable, transparent and remarkably strong. For this, 'fibril' proteins are woven into a three dimensional mesh that reinforces thin elastic structures.

Using the same principle as spider silk, this elasticity can let your mobile radio or other electronic device literally change shape and configure itself to adapt to whatever you're doing at the time.

Self-Cleaning

The same technology also can be used to create self-cleaning surfaces on mobile devices, ultimately reducing corrosion, wear and improving longevity. Nanostructured surfaces, such as 'Nanoflowers' can naturally repel water, dirt, and even fingerprints, so – no more blurred displays!

Power Sources

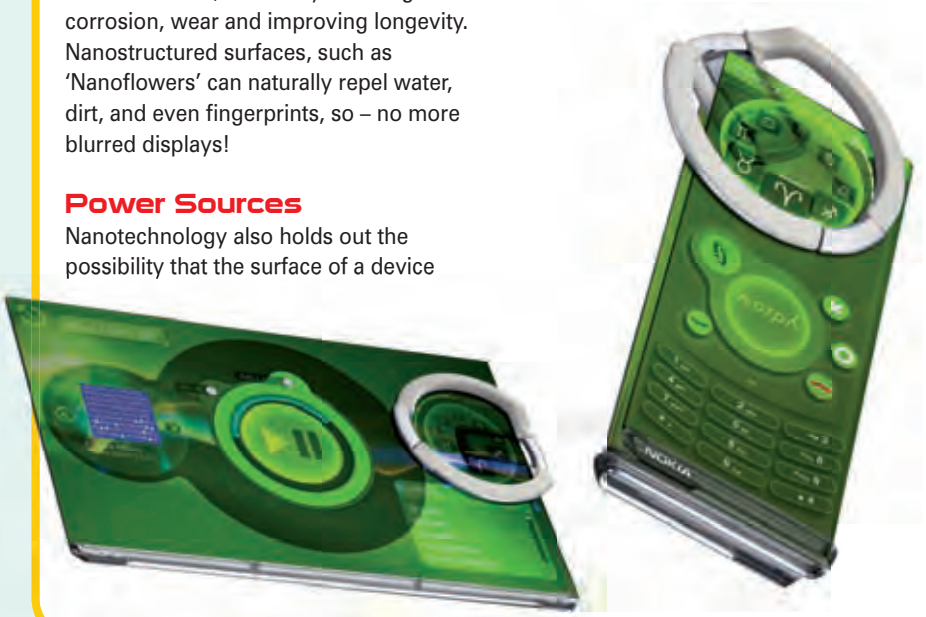
Nanotechnology also holds out the possibility that the surface of a device will become a natural source of energy via a covering of 'Nanograss' structures that harvest solar power. At the same time new high energy density storage materials allow batteries to become smaller and thinner, whilst also being quicker to recharge and able to endure more charging cycles.

Physically Flexible Hand-Held Radios?

So, what does all this new technology this mean to you and I? Well if you've not already realised, firstly it means that wireless devices will no longer need to be in a pre-defined box, such as a hand-held walkie-talkie, mobile 'phone, or whatever. Instead, they can actually be a part of something that you wear such as a pair of gloves, a hat, a belt, or evena watch strap!

They can even be flexible, and transparent if you wish. In other words, they could 'blend in'. Not only that (remarkable as it is) – the transparent electronics can have integrated environmental sensors, together with built-in solar absorption, to either entirely power the device or to charge batteries so that overall the physical space requirements for batteries becomes less or perhaps non-existent!

Yes, our future portable two-way radios, if you could call them that, could not only do all I've mentioned – but also cost less as they'll be able to include a lot more functionality in a smaller space. So, a folding design of, let's say, a dual-band 144/430MHz hand-held radio could easily fit into your pocket and not be damaged by being bent!



You could unfold the transceiver and then can use it – just like a traditional handheld. Alternatively, you wrap it round your wrist and use it that way. The unfolded unit could then display more detailed information like APRS maps of the location of your QSO partner, as well as having more input devices, such as touch-sensitive keypads.

However, everything I've discussed is not 'way into the future'. Instead, the research labs say that elements of Morph might be available to integrate into hand-held devices within just seven years, initially only at the high-end, but then into everyday low-cost devices. The 'bendable' future certainly isn't very far away!

Wearable Radio Communications

With flexible wireless communications coming to us, a natural progression will be to have this embedded in the clothes we wear, or on what we put on our bodies such as jewellery. Earrings – for example – could be used as wireless earphones, a necklace as a microphone and maybe a camera as well. A pair of spectacles, or active contact lenses, could be used as a video display.

Right now jackets are available for iPods which of course not only have a dedicated pocket for the music player but also buttons and a woven-in display in the sleeve, so that the jacket wearer can control the iPod remotely.

It's starting to happen, and with Nanotechnology round the corner we may soon be having wireless units woven into our jackets, socks, shirts, and so on.

Don't think it won't happen **as it's already happening**! Re-read the last *Emerging Technology* column where I detailed how RFID circuits are already being used in the clothing we buy and wear, telling the outside world our secrets as we pass by their sensors! (I told you so!).

Mass Transportation Over Radio?

Still on the subject of what could be called science fiction, how about transporting mass, rather than information, wirelessly? I'm talking here of transportation scenes from the classic *Star Trek* 'Beam me up Scottie' (Actually, a phrase that never appeared in the script!). Could this be a reality? Once again researchers have been investigating it as a possible emerging technology. In real transportation, it would mean information being teleported, rather than atoms.

So, when we talk of teleporting atoms, it's the information about their quantum states that's being transferred rather than the atoms themselves. Professor **John Rarity** of the **University of Bristol** explains, "Mass and energy are inextricably linked to something to absorb the energy you create. The energy of a human being disappearing would be enough to blow up the planet."

He continues, "In one hydrogen bomb, you have a few tens of grams charge in mass – a human being would be the equivalent of roughly a thousand hydrogen bombs". So there we are, we'll still be relying on cars, buses, pedal cycles, trains, ships and aircraft to get around with for the foreseeable future. Unless someone out there comes up with something different?

Radio Communications & Wind Turbines

It's been well documented that wind turbines have drastic effects on radar, so when offshore wind farms are used, ships can often disappear from radar screens under certain conditions. This could mean that a response to a maritime SOS near one of these turbines could very well have life threatening results as well as, of course, the hazard to search and rescue helicopters from the rotating turbine blades!

So, because of the communication problems an oil tanker with a spillage could take far longer to find, with serious environmental results as well as loss of human life. But the turbines can also seriously affect radio communications, as anyone who's experienced 'aircraft flutter' will know. Here the received signal varies rapidly in signal level due to null and peak reflections from a direct and reflected path from an aircraft. The good news is that digital signal processing (DSP) work is currently underway to try to reduce this and is being tested by the UK's Civil Aviation Authority and Ministry of Defence.

However, Radio Amateurs have been pioneering this work for many years with DSP noise reduction techniques, which can get signals 'out of the noise' and I've been using a W3GR amateur radio DSP unit here at G4HCL for ages!

Also, there are plenty of Amateur Radio DSP software programs that are freely available for use with your PC's soundcard, to remove clutter and interference on off-air received signals and the same can be done with a radar signal. Once again, Amateur Radio technology is being adapted and is now helping to save lives and the environment.

Portable Power · from Bacteria

Here's something for portable operation at radio rallies and field day contests – but I'm not talking here of sweaty 'anorak' participants providing power from bacteria! Although, I must confess I've just bought myself an anorak. However, it's a Swedish-made substantial winter parka for my few days over Christmas in Norway and it's fitted with the almost-now obligatory tailored pockets for portable communicators – including a mobile 'phone pocket. Hopefully it won't make me sweat and thus be a potential breeding ground for bacteria! But such bacteria could well provide power in the future.

Researchers at the University of Birmingham have been examining the effects of combining two types of bacteria in a bio-reactor to produce energy in the form of hydrogen. The novel thing about this is that the by-product of one bacteria provides food for the other. Not just that, but left-over enzymes can be used to scavenge precious metals from used car exhaust catalysts to help make fuel cells that convert the hydrogen produced by the bio-reactor into energy.

Fermentative bacteria use carbohydrates like sugar to give hydrogen and acids and others (such as purple bacteria) use light to produce energy and make hydrogen to help them break down molecules like acids. Combine the two together and 'Hey Presto', we have a source of energy from bacteria!

Portable Power For Your Hand-held?

On a larger scale, it's been reported that here in the UK we throw away a third of our food, and the majority of this is sent into landfill sites where it produces gases – such as smelly methane. But this useful gas can, of course, be converted into energy.

So, maybe the food we take with us to portable radio field day and contest day sites, rather than the left-overs being thrown away, could one day provide us with the ongoing power we need for our portable stations rather than using heavy batteries or petrol generators. It may not be less smelly than a petrol generator exhaust – but it should be a lot quieter!

See you soon as I explore the future on behalf of *PW* readers. Chris G4HCL.

Project

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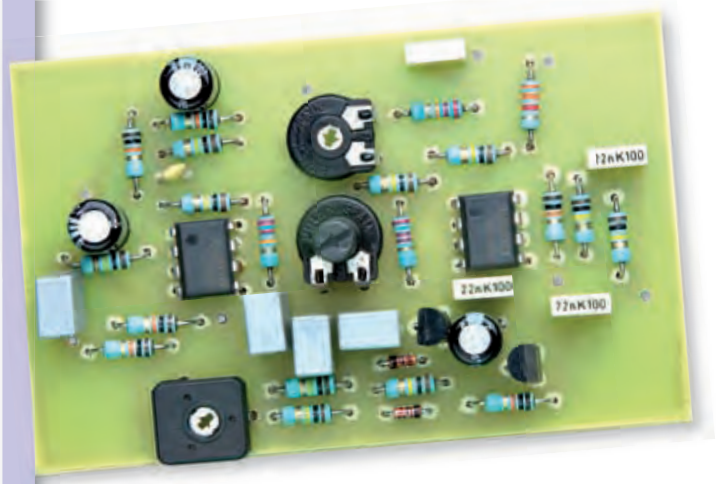

The Notch Filter assembled using pre-set controls (without knob).

This is a little project that will have innumerable uses around your shack to clean up received audio under difficult conditions. It was originally designed as an optional extra for a large project; but I added a few extra parts so that it will drive a loudspeaker, making it a general purpose receiving accessory.

The main circuit is a band-pass filter whose central frequency is adjustable by a single resistor – unlike most analogue filters! As a **peaking filter**, its obvious use, is as a narrow-band filter suitable for c.w. By the inclusion of a subtraction stage it can be instantly switched to become an adjustable frequency **notch filter**, suitable for eliminating nasty heterodynes! It can also act as an audio signal generator!

The heading photograph, shows the 50x80 mm single sided p.c.b., without the external switches, but including the frequency control in its simplest form, as a shafted preset. Complete kits are available (see separate panel) but the layout is not terribly critical and many builders will be able to make it by using their favourite form of 'ugly' construction!

Filter Concept

Let's look now at the filter concept. For an audio filter to have a good selectivity, it will almost certainly involve an active or oscillatory circuit to improve the inherent performance of the parts forming the selective circuit. So what we actually need is a potential oscillator! The frequency will be determined by the need for the oscillator's feedback signal to be in-phase with the original. So, by altering the phase of the fed back signal we can alter the tuning.

Provided the gain is greater than unity, at the frequency where the feedback is in phase, then it will actually oscillate! If the gain is less than unity it will still show oscillatory tendencies and can be turned into a useful filter!

One approach for an oscillator is to use a broadband inverting amplifier (180° delay) and two phase shifters (delaying X and Y°) in a loop to obtain the desired total of 360° – see **Fig 1**. The project, I'm going to describe, uses the less common all-pass filter stage for the phase shifters of Fig. 1, instead of the low-pass filter that's often used in such loops.

The main disadvantage of the low-pass filter stage is, that to change frequency, both stages have to be altered to maintain the same loop gain, and needs a pair of controls (dual-ganged). This is in contrast to the all-pass filter, whose circuit is shown in **Fig. 2**, because it has constant gain (normally unity) for all frequencies of interest. Used as either phase-shifter X or Y, the phase or time delay depends on the value of C, R and the signal frequency.

With the circuit of Fig. 2, loop gain doesn't alter with frequency, nor do the delay values of X and Y have to be equal. So, for any combination of values, there will be some frequency where the combined delay will be 180°, leading to oscillation at that frequency - assuming the gain is above unity. Hence the frequency can be controlled by altering either or both of these phase shifting circuits with a single resistor – a distinct advantage!

We now have a variable frequency 'oscillator' but provided the total loop gain is held below unity it will not actually oscillate. So, adding an input (shown dotted in Fig. 1) to the inverting stage converts the whole into a band-pass or peaking filter. The overall filter response (bandwidth or *Q*) is controlled independently of frequency by altering the amount of the feedback signal (approaching unity loop gain) from the phase shifters.

It's now simple to turn the peaking filter into a notch filter by subtracting the output of the peaking filter from the original signal. This is carried out in a fourth op-amp stage, which can also conveniently drive a higher powered buffer stage required for use with low impedance loud speakers.

The Circuit

The illustration, **Fig. 3** shows the complete circuit – and please note that all part numbers start from 500 as the design is part of a larger project! The required four op-amps are provided by two dual low-noise TL072 op-amps. IC500a is the inverting summing amplifier of the oscillatory loop; with IC501a/b arranged as the all-pass phase shifters.

Tim Walford G3PCJ present his versatile tunable filter, which can enhance or reject audio tones.

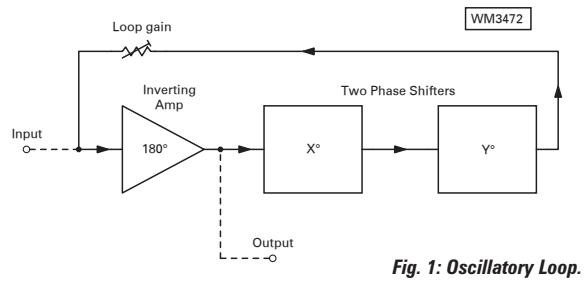

Fig. 1: Oscillatory Loop.

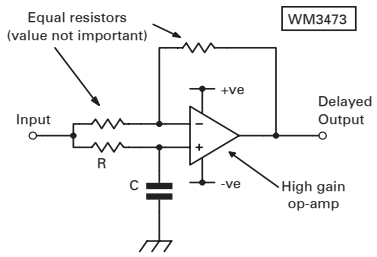

Fig. 2: All-Pass filter circuit.

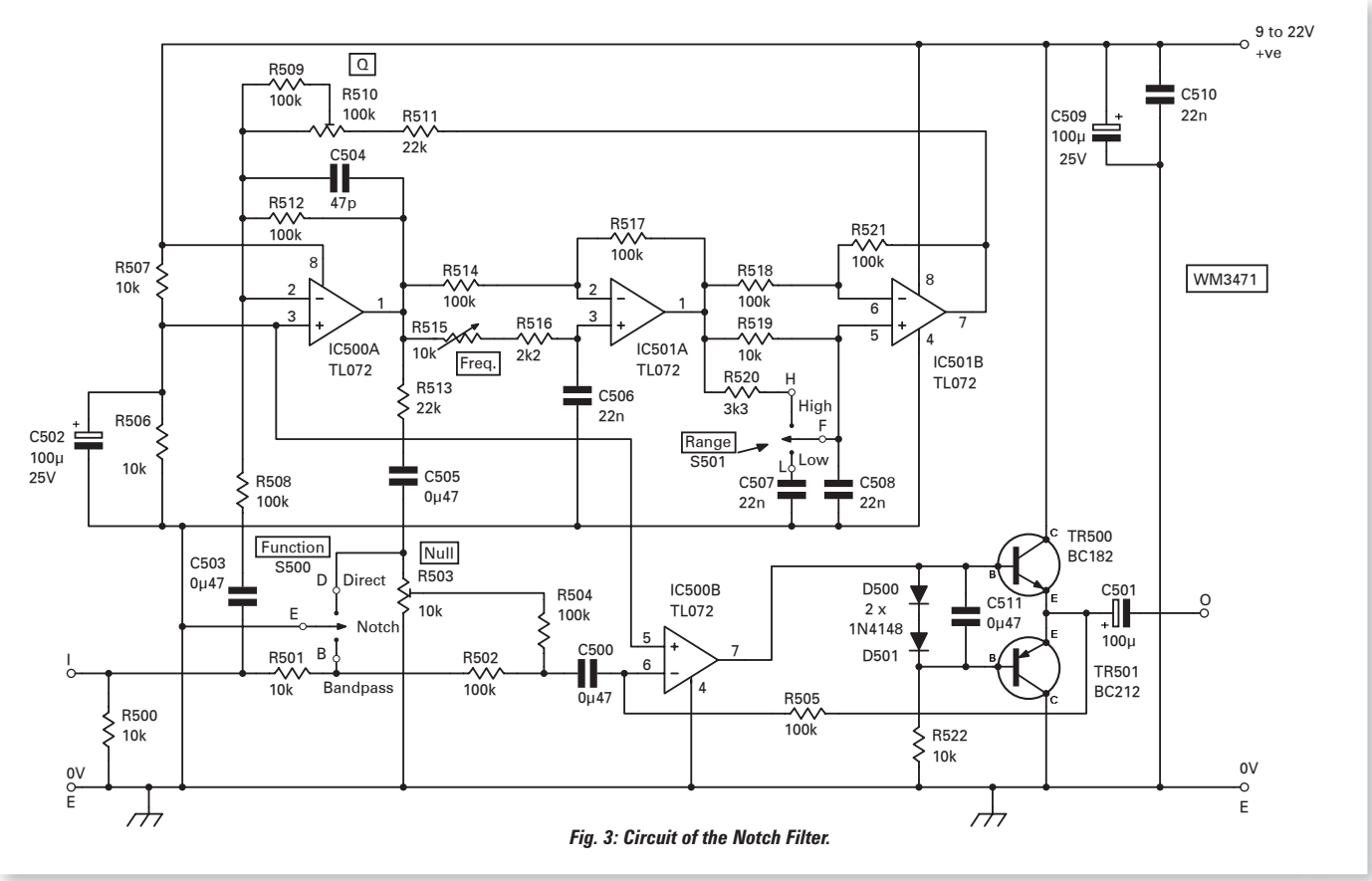

Fig. 3: Circuit of the Notch Filter.

IC500b does the subtraction for notch operation and drives the loud speaker buffer transistors Tr500/501.

All four op-amp outputs are biased to mid-supply (for maximum undistorted output) by the voltage divider R506/507. The main input signal is applied through R508 to the negative summing input of IC500a where the loop feedback signal is also applied. The oscillatory loop gain is adjusted with R510. Resistors R509 and R511 improve the smoothness of this control in the important section where oscillation is about to commence! (C504 has no effect on the audio signals but keeps the loop stable.)

The frequency control R515 (supplied as a shafted preset that can be easily changed to a front panel control) acts with R516 as the first R; while C506 is the C of the first all-pass filter. The second all-pass filter has R519 and C508 as the fundamental C and R components. The central range (of S501 a centre-off toggle switch) covers the probable frequency range for c.w. beat notes, but the outer positions extend the total range from about 400 Hz to 2800Hz by altering the values of the second stage R and C.

As the loop gain is increased, by reducing the combined value of R510 and R511, the loop approaches actually oscillating, leading to increased *Q* (narrowness of the filter peak response). An increase in signal gain from the input to the output of IC500a. Go too far with R510 and it will actually oscillate, turning it into an audio signal generator!

To create the notch function, the loop filter output from IC500a has to be reduced to the original level and then subtracted from the input signal; the preset R503 corrects the level, but because of the signal inversion in IC500a, the two can be just added at the summing input of output op-amp stage IC500b.

A second centre-off toggle S500 can ground the various inputs to this stage to provide the three functions of **Direct** (no filter action), **Bandpass** or **Notch** functions. Unfortunately, because alterations in *Q* (R510) change the loop filter gain, the preset R503 has also to be changed to regain the best notch cancellation (see later). Hence R510 and R503 are pre-sets that are not normally changed to shafted controls.

The buffer stage comprising Tr500/501 has been added to the output op-amp IC500b so that about 300mW (on 13.8V supplies) is available to drive a small 4Ω loud speaker. The diodes D500/1 (with C511) provide a little forward biassing for TR500/501 so that the 'internal' signal swing at the op-amp

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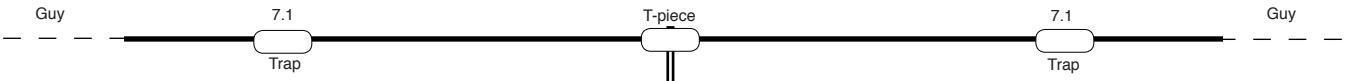

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output required to drive Tr500/501, is minimised, thus reducing potential cross-over distortion. (The very high open loop gain of the op-amp also helps.)

The bias current through the diodes is low (set by R522) to keep the voltage across them to just over a volt to reduce the chance of thermal runaway in the output transistors. If the kit is to be permanently installed within a receiver driving a logarithmic audio gain control (typically 4.7kΩ), then this buffer stage can be left out - connecting the junction of C501 and R505 direct to pin 7 of IC500b.)

The Construction

Now a look at the construction of the project, for which a p.c.b. with ground plane is not really needed, provided there are plenty of wide, low-impedance 'ground' tracks. Ideally there should be a 0V rail loop going all round the outside of the layout. Good supply decoupling is provided by C502, 509 and 510. My layout fits easily within 50x80mm, which is a quarter of a standard 100x160mm Eurocard.

Start assembly with all the parts associated with the biasing (and decoupling as above) of IC500a/b – R506/7, 512, 505, and all the buffer parts around Tr500/1 if a loudspeaker is to be used (see earlier). When switched on, both op-amp outputs should be at half supply voltage, which can be 9-22V. So, for this check, you can use a 9V battery.

Next, fit all the other parts associated with these two stages but leave R511 out for the present. Arrange for any audio signal (at a low level) to be fed across R500. Check that audio appears at the output point O. When point D is grounded, the input and output levels should be nearly the same, but grounding B will let it through with a reduced maximum level dependent on the setting of R503. You can use an ordinary a.c. voltmeter for these tests while listening to a heterodyne whistle from a receiver!

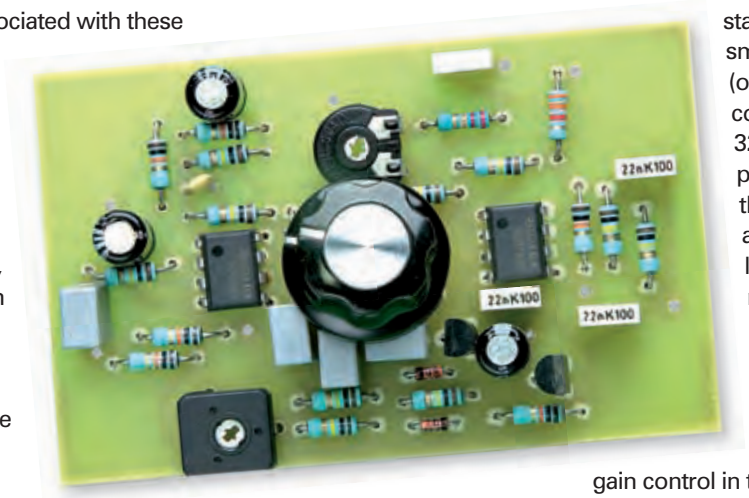

Fig. 4: The Notch Filter with an easily adjustable control.

Next, fit the parts associated with the biasing of the phase shifters IC501a/b – R515, 516, 517, 519 and 521. Check that the d.c. level on pin 7 (output of IC501b) is half of the supply rail. Then fit the rest of the parts but still leaving out R511. There's also no need to bother with S501 yet either. Apply the audio to point I and see that it's present on the output of IC501B – its level should be similar to the input. Then add R511!

Set R503 and R515 to about mid-position, then sweep the audio whistle across the main audio range – there should be a dip in output when it is somewhere between about 600 and 1400Hz. Adjustment of R503 should allow it to be nulled right out if it's a single frequency note! By tuning either side with R515 you will obtain a feel for the width of the notch. By grounding point B, the whistle should now come through on its own.

You can then experiment with R510 to alter the *Q* or width of the filter's peak, but bear in mind that for notch operation you'll have to readjust R503 to obtain the best null. The project's now ready to use!

Notching Filter

For use as a notching filter within a receiver, it's generally best to connect the filter just before the rig's audio gain control. Or if the rig has an audio automatic gain control (a.g.c.) circuit, just before this stage. Used like this, you're unlikely to need the output buffer stage TR500/1 and the filter can be supplied from the rig's normal (12–22V) supply as it draws only a few milliamps.

For general purpose use as a receiving accessory in its own box, it can be fed direct from the normal loudspeaker or headphone output. There **must not be** any d.c.voltages present on the receiver's output (this sometimes occurs with outputs for 'phones – please check) otherwise damage could occur to the project.

With the output buffer stage fitted, it can drive a small speaker or earphones (or a rig's audio gain control). For use only with 32Ω portable music player phones, you might find that it can be powered by a 9V battery; but for 4Ω loudspeaker use, you'll need a 12V supply, able to provide a greater peak current. The signal level at the notch's output will be very close to the input level so that the a.f. gain control in the driving rig can set the listening level as before.

Without either switch connected, the default mode is for notch operation between about 600 and 1400Hz. If desired, fit the two toggle switches to your front panel, and connect them by short leads to the p.c.b. You can also change the frequency control to a full sized front panel mounted 10kΩ pot, after removing the shafted preset R515, **Fig. 4**.

After a little use, especially as a peak filter, you will find a compromise setting for the *Q* preset R510 that provides good rejection without any ringing on c.w., which can occur at very narrow bandwidths. By then finding a steady heterodyne and changing to the notch role with S500, you can use R503 (maybe with slight readjustment of the tuning) to null this nasty tone right out!

If you want it as a signal generator, then advance R510 till it is just oscillating reliably. If you advance R510 too far, limiting will occur in IC500A causing flat topping of the output waveform. The tuning ranges will be as before and you ignore the input point I; R503 becomes the output level control.

I hope it proves its worth with plenty of use!

Tim Walford G3PCJ

Kits and Bits

A kit for the Notch filter is available from **Walford Electronics**. It includes all parts as in the photos, the two switches and a knob for the shafted preset. The price is £22 plus £3 for P and P. An alternative normal 10kΩ control costs £1 extra.

Please send your orders with a cheque direct to Walford Electronics, **Upton Bridge Farm, Long Sutton, Langport, Somerset TA10 9NJ**.

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NEW 20' SLEEVED MAST SET

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Connectors	Length	Price
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PL-259 - PL-259	4m	£14.99
PL-259 - PL-259	20m	£49.99
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DB-770H (BNC)

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Heavy duty universal mount. Includes 5m cable **£29.99**

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No tuning required

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PL-62M 6m/2m 1.4m (PL-259).....	£23.99
PL-627 6m/2m/70cm (1.7m) up to 7.2dB (PL-259).....	£44.99

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6m + 2m + 70cm (2.15/6.2/8.4dB).
2 section (2.5m long) PL-259 fitting.
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Superb quality **£94.99**

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8mm screw bolt wall fixings.....	£1.70
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2" extra long U-bolt/clamp.....	£5.50
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15" long (2") sleeve joiner.....	£18.99
3-way guy ring.....	£5.99
4-way guy ring.....	£6.99
Heavy duty guy kit (wire clamp, etc.).....	£39.99
Set of 3 powder coated heavy duty fixing spikes (~0.7m long).....	£29.99
30m pack (4.4m) 480kg B/F nylon guy.....	£12.50
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N-type plugs (high quality).....	£4.50
1¼" 6 foot ally poles.....	£13.00
1¼" 6 foot "cranked" ally pole.....	£14.99

The Rev. George Dobb's

carrying on the practical way

The Rev. George Dobbs G3RJV describes a one knob a.t.u. system for the W3EDP antenna – after the quotation!

"The first rule of intelligent tinkering is to save all the parts."
Eugen Ehrlich (1862-1922)

This month's project provides one-knob antenna tuning for George G3RJV's W3EDP antenna at his new home.

Following our retirement, my wife **Jo** and I had to reduce all that we owned to less than a half of what we had in St. Aidan's Vicarage. This proved to be an interesting challenge in every facet of our lives after so many years in a large house!

The challenge sharpened when dealing with my Amateur Radio items. The available space at the new house suggested that I would have to reduce my accumulated Amateur Radio 'stuff' by about two-thirds. Naturally, over the years I had followed the advice of **Eugen Ehrlich** in his quotation and saved all the parts, and the half-built projects, and test equipment, and the cases, and cables and connectors and almost everything else!

When living space is generous many things are saved because they are simply interesting or might prove to be interesting. I remember the 'Month Rule'; throw anything away and a use for it will emerge within the month! Despite this, a whole set of new questions begin to be asked, such as "Why have I had this for 20 years and never used it?", or "How many of these do I really need?".

So, gradually a large proportion of my Amateur effects accrued over many years was sold, given away or thrown out. It was sad but good for the soul (as I reminded myself constantly!).

The Real Test!

I knew that the real test would come when I started setting up my new mini-workshop and operating space. What essential items would be missing? In fact, I set up the workshop area before the operating position mainly to keep *PW* readers happy because **Rob G3XFD** had asked me to recommence this column for the December 2008 issue. This was because readers were missing their regular dose of *COTPW* and this was when I described the 1932 'Mystery Crystal Set.'

As the 'Mystery Set' radio was completed, I thought I would put out a simple wire antenna around my rather small back garden to see what it could receive. For this purpose I have a large reel of heavy duty p.v.c. covered wire that has been my source of antenna wire for many years. Unfortunately, a lengthy search showed that it had not made the journey with me and I had to manage and make-do for that project – but it did leave the question of what I was going to do for an antenna at the new location.

Colin Turner G3VTT, has been an Amateur Radio friend of mine for well over 25 years. In fact I celebrated my 40th birthday in his garden in Kent! In recent times Colin has taken over the antenna column (*Antennas Anecdotes Awards*) in *Sprat*; the journal of the **G QRP Club**.

Colin was coming to stay with me prior to the G QRP Club mini-convention in Ripponden in October 2008 and promised to bring me suitable wire and other useful items, so that we could erect an antenna at the new location. His suggestion for an easy antenna option in my limited space was to use the W3EDP antenna. This was a pleasing idea, because I had already had good results with this simple antenna from our family's wooden lodge in mid-Wales.

The W3EDP Antenna

The W3EDP Antenna was first described by **Yardley Beers W3AWH** in his 'For the Experimenter' column in *QST* for March 1936 and I actually have a copy of the original article – if I can find it! In the article W3AWH tells how his friend **H. J. Seigel W3EDP**, consumed over a thousand feet of wire experimenting with unusual antennas.

The W3EDP antenna was the result of cut-and-try experiments to find a suitable simple antenna for a range of h.f. bands. After much experimentation W3EDP found that an 84ft long wire (I think this is best left in Imperial measurements *) with a 17ft counterpoise wire worked well on the 1.8, 3.5 and 7MHz (160, 80 and 40 metre bands).

**Okay George, as it's historic I*

Rev. George Dobbs G3RJV
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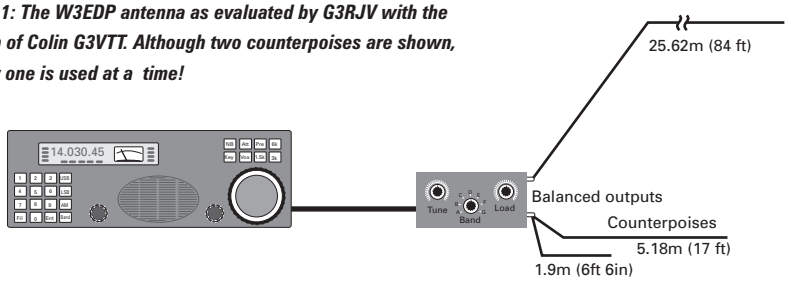


Fig. 1: The W3EDP antenna as evaluated by G3RJV with the help of Colin G3VTT. Although two counterpoises are shown, only one is used at a time!

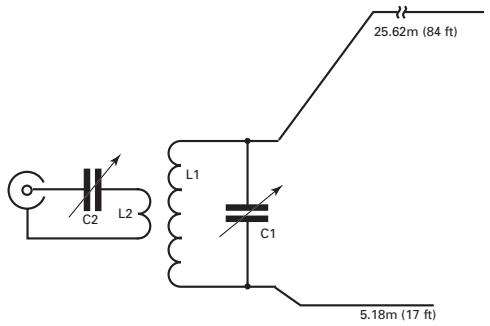


Fig. 2: A tuner design used by G3RJV at a former QTH.

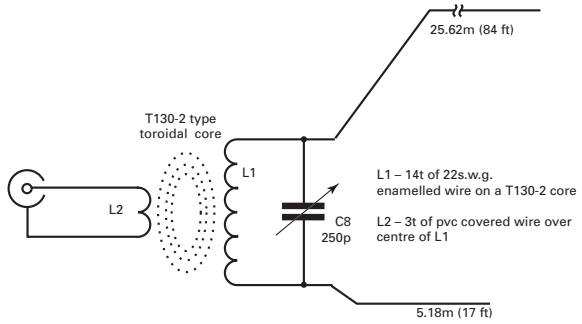


Fig. 3: The final design of the 'One-Knob' a.t.u. as built by G3RJV.

think we'll leave it in Imperial! ***Editor***.

Changing the 17ft counterpoise wire with a 6ft wire worked especially well on on 14MHz and the higher bands. Although, W3EDP found that on the 28MHz(10m) band the results were just as good without any counterpoise.

Incidentally, there's a delightful picture, published in *QST* for November of 2004, of Yardley Beers as W0JF in his latter years, taken as he operated his Amateur Radio station at the age of 92. He was a professor of physics for many years at New York University and died in October 2005.

Basic Configuration

I have often used the W3EDP in its basic configuration of the 84ft wire and 17ft counterpoise and found it possible to tune on all Amateur bands from 3.5 to 28MHz (80 metres to 10 metres). The usual explanation for the success of the W3EDP is that it functions like an end-fed Zepp antenna.

The Zepp antenna takes its name from the antennas that once trailed from Zeppelin airships. If this explanation is accurate, the counterpoise wire is part of the radiating system and is best not left trailing along the ground. The W3EDP antenna is shown in **Fig. 1**.

The W3EDP requires a balanced line antenna tuner and – fortunately – many commercial antenna tuner units (a.t.u.s) provide a balanced line input, often via a balun (balanced-to-unbalanced) transformer. The popular Z-Match antenna tuner should also provide a good match between the W3EDP and transceiver.

However, it's back to my own antenna saga now and Colin, as promised, did indeed, bring a collection of materials and wire to install a W3EDP antenna at my new QTH. We soon strung out the 84ft wire from the station, located upstairs at the front of the house, running it down the side of the house to a pole attached to my shed in the back garden.

In the shack I made use of my old Ten-Tec antenna coupler, which allows for a balanced input. Tests showed a reasonable match to be possible on all of the popular h.f. bands. Colin then ventured on to the 14MHz band on c.w. with 5W of r.f. power output. His first contact was with **Luther Lord N4DA**, in Cartersville, Georgia, USA, who gave an RST report of 579. Not bad for a bit of wire down the side of the house!

The Best Tuner?

Colin and I mused on the best way the tune the antenna and concluded that the best tuner circuit for a W3EDP would be a parallel tuned circuit link coupled to the transceiver. And in fact, I had used a version of this circuit several years ago for my portable version of the W3EDP.

The diagram, **Fig. 2**, shows my old W3EDP tuner where L1 and C1 provide a parallel tuned circuit for the required band. The inductor L2 is a link coupling wound over the centre of L1 and C2 adjusts the coupling to match the impedance of the transceiver.

I recalled that in most cases C2 did not have a great effect on matching the antenna to the transceiver; in fact it spent most of its time set to maximum capacitance. So, I lashed up a quick version of Fig. 2 and tried it without C2 – and this confirmed that I might be able to get away without C2 and have a single control knob antenna tuner.

My aim was to build a tuner that would cover the h.f. bands from 3.5 MHz upwards. The intended method was to place the link coupling winding in the centre of the parallel tuned inductor and to vary the inductance by switching the number of turns on the coil from either end of the tuned winding. I began by

winding a coil on a piece of plastic electrical conduit tuning and making tapping points at equal intervals at both ends of the coil. All I can say it that it wasn't an easy exercise!

However, I did manage to make two versions of a tapped coil with six tapped positions on each side and used a 2-pole, 6-way switch, to reduce the number of turns equally from each end of the coil. Sadly, my work led to disappointment as physics got in the way! The two-to-one frequency ratio between 3.5 and 7MHz made that range switch very difficult and the coupling turns ratio didn't allow for a single control tuner.

Revert to Fixed Value

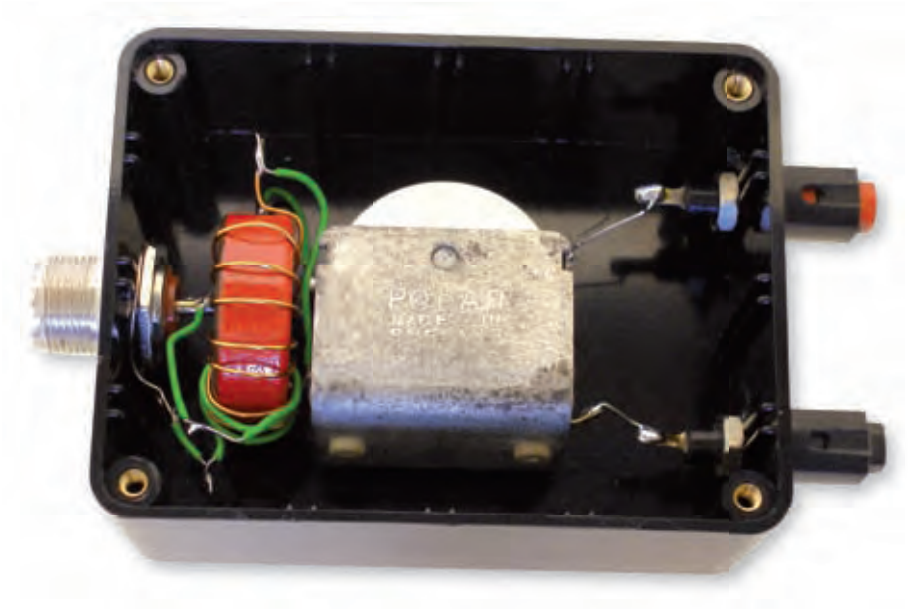
So, I decided to revert to a fixed value of inductance and a simple link coupling and see how many bands I could cover from 7MHz upwards with the basic circuit. At this stage I laid aside my plastic tube coil formers and decided to wind the single coil on a T130-2 toroidal former. This would allow for a smaller tuner and gave me to opportunity to calculate the inductance of the coil before it was wound.

I also located a compact 250pF air-spaced variable capacitor which would allow me a useful tuning range. To complete the tuner parts, I rummaged around and found a plastic box 10 x 75 x 40mm. (There's merit in not building an antenna tuner in a metal case). **Note:** Both sides of the tuned circuit are isolated from ground so the shaft and casing of the variable capacitor should not come into contact with metal casing which would be connected to ground.

One Knob Tuner Circuit

The circuit for the final version of my 'One Knob Tuner' is shown in **Fig. 3**. The inductor L1 is 14 turns of 22s. w.g. enamelled copper wire wound on the T130-2 core. The link winding, L2, is three turns of p.v.c. covered solid copper wire wound over the centre of L1.

Using three turns for L2 worked out as a good compromise over a range of h.f. bands. The capacitor, C1, is the 250pF variable capacitor. Naturally nowadays, not many readers may have a 250pF air-spaced variable capacitor to hand as they are becoming quite rare unless you've removed them from older valved receivers.



The assembled tuner (a plastic case is recommended).

Close-up look at the inductor wound on a T130-2 toroid.

A good alternative to an air-spaced variable may be to use a polyvaricon variable capacitor of the type often found in cheap a.m./f.m. broadcast receivers. These can be culled from old radios or even bought from electronic component outlets.

Notes: They would be suitable if the tuner is only to be used with powers of less than about 10W of r.f. output. Remember also that if the components are to be mounted in a metal case, neither the frame nor the shaft of the variable capacitor should be connected to ground.

Winding L1 and L2 is very simple. The designation 'T130' indicates that the outer diameter of the core is 1.30in. So, this is a very generous area for only 14 turns. About 28 inches (a little over 700mm) of wire will be required to the wind L1.

Each time the wire passes through the centre of the core counts as one turn. Winding the turns side by side would occupy less than half of the circumference of the core. So, after adding all 14 turns open up the spacing so that the winding occupies about three-quarters of the circumference. The wire is thick enough to hold itself in place. The link winding (L2) can then be added in the centre of the L1 winding. Simply count turns to find the centre and wind three turns of p.v.c. covered wire over L1.

Acceptable Matches

The original tuner was initially tested using an standing wave ratio (s.w.r.) analyser and the results suggested that the tuner would probably work from 7 to 21 MHz. When connected between a low power transceiver giving about 5W of r.f. output and the W3EDP antenna I was able to obtain good, or acceptable, matches in the 7 to 21MHz range.

The purists would probably want to add the series capacitor L2. If so, this should have a value of 500pF or more. When used in conjunction with an s.w.r. meter the tuning is quite sharp so a large control knob – or even a reduction drive – is very useful. The tuner would serve well for portable work with a W3EDP antenna strung between trees and I must try that next summer at our Welsh lodge! ●

Mike Jones's

antenna workshop

Mike Jones G3UED describes his low profile vertical antenna design, suitable for use either at home or for portable operating.

A Low Profile HF Multi-Band Vertical Antenna

So low profile – the antenna almost disappears in the Wisteria bush!

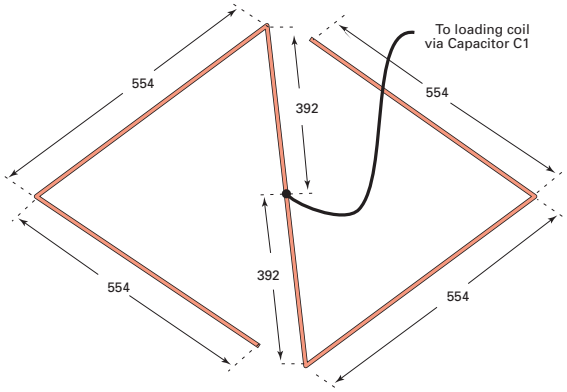


Fig. 1: Fold the counterpoise end-plate, made from 10mm diameter copper pipe or stout wire on a wooden frame, into this shape.

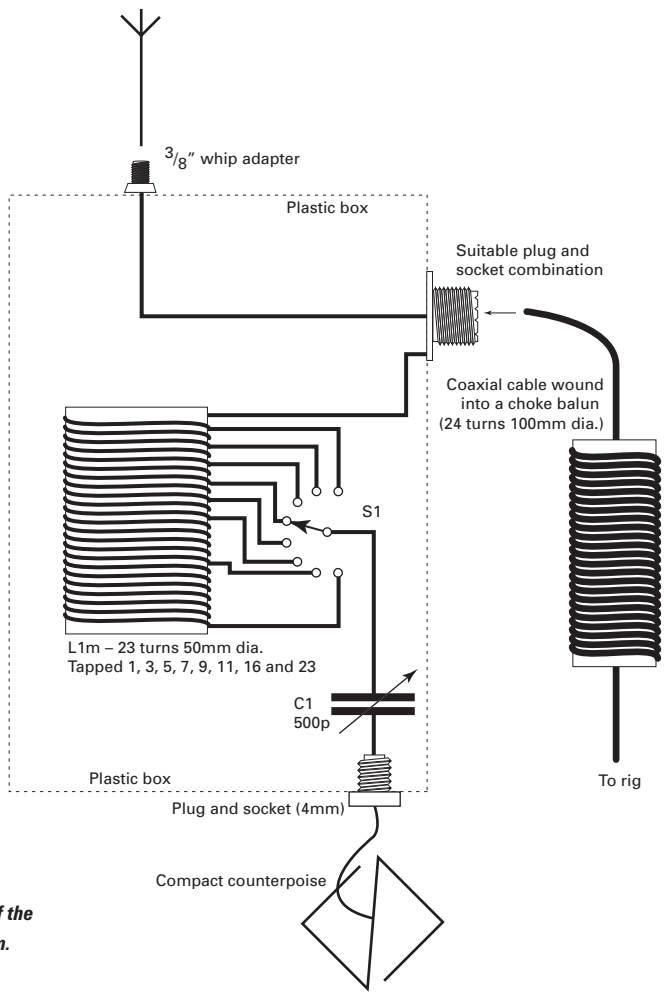


Fig. 2: Overall arrangement of the antenna system.

My problem was how to operate on more than one high frequency (h.f.) band using a cost effective antenna system with a very low visual impact. My aspiration was to be able to operate on 14MHz (20m) particularly, but also on 18 to 24MHz (17, 15, and 12) and, maybe, 28MHz (10m) when the next sun-spot cycle progresses. Working long distance (DX) was not a priority, but Europe and maybe a little beyond was my hope!

A Vertical Solution?

My thoughts were that a vertical antenna of some sort might be an ideal solution. This conjured up images of ¼ wavelength (λ/4) vertical rods and a multitude of buried earth wires for the ground-plane. So, more research was needed.

A short loaded vertical radiator would be visually acceptable, omni-directional and have the potential for low-angle radiation. So, I decided to investigate even further!

Mobile whips sprang to mind as they offer the advantages of being commercially available and readily brought to resonance on their respective bands. Designed for use on vehicles, they normally use the vehicle structure as the ground plane.

However, reference to *HF Antennas for All Locations* (by the late **Les Moxon G6XN**) suggested that a compact loaded counterpoise might be effective.

I purchased a set of six 2.25m-long whips, for 3.5, 7, 14, 18, 21, 24MHz, for about £80 and, although hopeful that I could do something useful for 14 to 24MHz, I didn't expect good results on 3.5 or 7MHz.

My wife **Peggy** and I have a pergola just outside our house and this supports a Wisteria. This seemed like a good position to mount my whips as it offered a mounting height of about 2m (approx 6ft 6in) and was readily accessible using a short step-ladder.

Compact Counterpoise

Next, I set about making the compact counterpoise and to minimise losses, I made my counterpoise out of a 3m length of 10mm diameter copper tubing. Following G6XN's suggestion, I bent the tubing into the shape shown in **Fig 1**. **Note**: An alternative form of counterpoise might be a wooden cross-piece supporting stout wire bent into the same shape.

Because I expected different values of loading coil to be required for each band, I used a coil of 23 turns on a 50mm diameter former out of the junk box. I also incorporated a switch to enable a fairly wide range of inductance values to be selected. In addition, I included a variable capacitor in series with the loading coil to allow precise loading for each whip.

The diagram, **Fig 2**, shows the overall arrangement with photograph, **Fig. 3,** showing the finished article, minus a whip.

Waterproof Box

The coil, switch and variable capacitor were installed in a waterproof ABS plastic box. I then fitted a 3/8in coupler for the whips, to the top lid using a small (approx 100mm x 30mm) strengthening plate.

To minimise hand capacity when making fine adjustments, I think that the variable capacitor is best mounted towards the rear of the box, with a plastic extension shaft to reach the front panel. I used a brass bush (taken from a scrapped light fitting) for the shaft and lubricated it with plenty of petroleum jelly to prevent water ingress.

Installation of the items within the box depends upon the actual items used. In my case, a piece of copper clad board secured to the base of the box provided a mounting platform for the coil and an off-cut, drilled to take the variable capacitor and was soldered to this platform providing a rigid installation.

A lead from C1 to a 4mm socket located on the rear panel of the box provides for the final connection to the counterpoise. Switch positions were marked on the box using a waterproof marker and a similar scale marked in 5° steps using a protractor for C1. The photograph, **Fig. 5**, shows the completed installation of the components within the box.

The counterpoise was secured to the top of the box using 10mm cable clips and a fly-lead soldered to its centre taken via a 4mm plug to the socket on the rear of the box. The whole assembly was secured to one of the cross members of the pergola (**Fig. 4**) embedded in the Wisteria – with no ill-effect to the vine-like plant! A height of about 2m seemed to be optimum, bearing in mind the need to easily replace whips to change bands and to make adjustments to **S1** and **C1**.

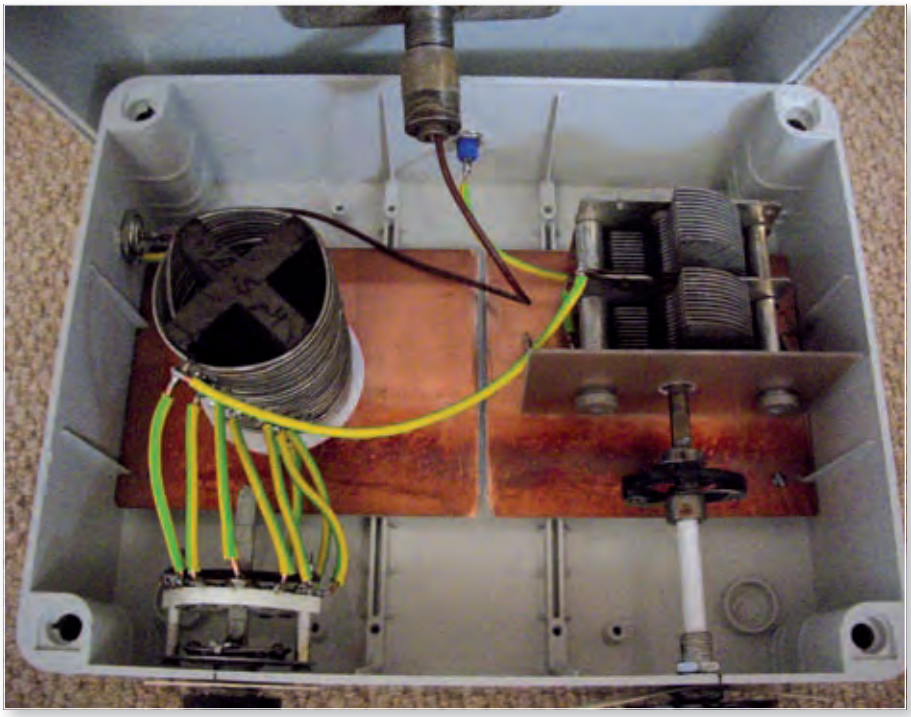


Fig. 3: Looking inside the counterpoise tuning unit.

Testing Time

Then it was time to test the system and initially, there was unacceptable r.f. coupling from the antenna to the feeder cable screen, giving erratic results. Some experimentation proved that the best solution was a choke of 24 turns (cable is 6m in length) of RG213 coaxial cable, close wound on a 300mm length of 70mm diameter plastic drain pipe inserted between the plastic box socket and the feed cable.

I installed the choke horizontally from the box, running the feeder cable down one of the vertical posts and then to my ground-floor shack and the photograph, **Fig. 5**, shows the choke in-situ. This completely resolved the coupling problem on all bands.

Whip Adjustment

The whips are adjusted simply by loosening grub screws at the base of the top whip section and moving this in and out as necessary to bring the antenna to resonance. Although I used my main standing wave ratio (s.w.r.) meter for specific measurements at my transceiver, I temporarily connected an old ex-CB radio s.w.r. meter in line between the feeder cable and the choke to enable adjustments to be made.

Initial adjustment was carried out using the instructions accompanying the whips. With a **low** level r.f. output from the transceiver, I adjusted **S1** and **C1** for the lowest s.w.r. reading on the meter outside. then, by adjusting the frequency from one end of each band to the other, it was possible to identify whether the whip should be shortened

Fig. 4: The tuner and counterpoise at the top of a pergola, and hidden in a Wisteria!

or lengthened to achieve resonance. An alternative approach is to use a 1-turn link at the shack-end of the feeder cable and couple this to a grid (or gate) dip oscillator (g.d.o.), then adjust whip lengths accordingly and adjust S1 and C1 for the lowest s.w.r. reading.

The adjustment procedure was quite time demanding and tedious – but the results were very rewarding! In fact, I have achieved s.w.r. readings of less than 1.5:1 across all bands except 7MHz.

Bandwidth on 7MHz was limited (approximately 65kHz) and adjustment of C1 was required as I moved from one end of the band to the other. However, on the higher-frequencies, adjustment at the band centre provides a low s.w.r. across the entire band.

Unfortunately, 3.5MHz was not so successful, even with two additional 6m long wire radials attached. However, I think my arrangement should operate just as well on 28MHz as on the other h.f. bands.

Contrary to my expectations, only slight variation was found between summer and winter. This was despite the fact that the Wisteria produces abundant foliage in the summer and sheds it all in the autumn!

Resistive Losses

Resistive losses can be reduced by the use of copper tubing for the ground plane and stout wires for the coil and connections within the matching box. My coil was wound with 2mm bare tinned copper wire and I used 1.5mm copper wire for all internal connections.

Because the feed point is at low impedance, r.f. currents here are high and voltages low. Consequently, C1 can be any good quality air-spaced capacitor without the need for wide spacing. Switch S1 also needs to be of good quality with low losses. I used an eight-way ceramic wafer switch.

My final results suggest that for 14 to 24MHz, only 2-tap positions are required and therefore it should be possible to use a coil of only six turns and a three or four-way switch. In fact, because these switches are now difficult to come by, a 4mm wander plug and three or four matching sockets could be used thus reducing cost. The illustration, **Fig. 6**, shows how this could be done. (For 7MHz, all 23 turns were required).

On 14MHz, received signal strengths are generally comparable with my 20m sloping dipole installed in the attic of my two-storey house. Using the 14MHz whip, signals are often stronger and never more than two S-points down! Interestingly, the noise level is lower when using the vertical whip.

Pleasing Results

I've been very pleased with the results using 100W from my Icom IC-718 transceiver. On 14MHz, my best DX was **3B8CF** in Mauritius and I've also received good reports from North American stations. Interestingly, 7MHz gave unexpectedly good results, my first call to a Norwegian station **LA0HK** resulting in a very pleasing R5 and S9 report. Numerous European contacts on the 7 to 24MHz bands have given me great satisfaction – with a low visual impact antenna that causes no domestic conflict!

As well as making a useful main-station h.f. multi-band antenna system, this design would also be ideal for temporary or portable operation. It could also be installed in a loft, but don't forget the need to make adjustments and change whips, if multi-band operation is planned. I'm hoping my new antenna system will prove very effective, particularly on the higher bands, as the next sun-spot cycle progresses. ●

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Fig. 5: The choke balun runs down, and is attached to a leg of the pergola.

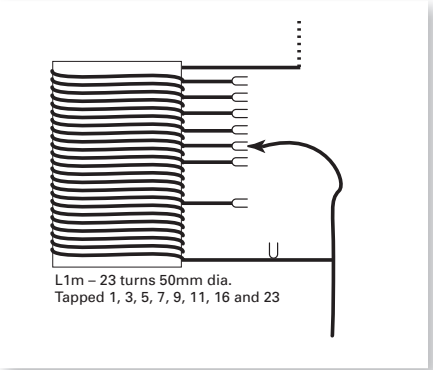

Fig. 6: An alternative to using a switch for band-changing, is to use a 4mm plug and sockets.

Ben Nock's

valve & vintage

Ben Nock G4BXD looks at a rather unusual Eddystone receiver.

A very happy New Year to you all! I hope you had a very good Christmas and that Santa bought you that all-important radio toy? Another year has passed by and there's been plenty of new additions to the 'Kidderminster Kollection' here meaning even less space to move around in!

Despite the fact I didn't visit one rally last year, I still seem to have acquired a lot of new kit. So, to finally round off 2008, I'll comment on the last of that year's arrivals.

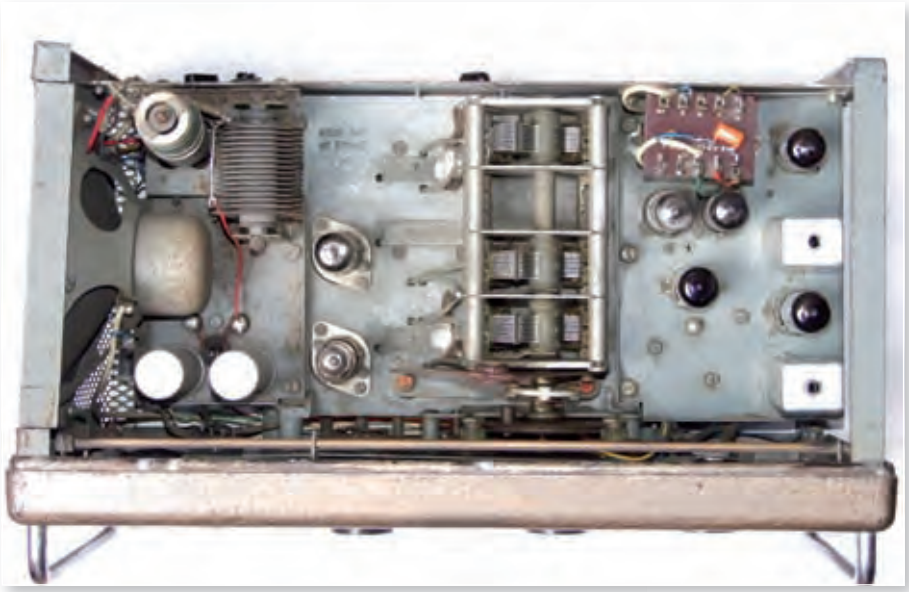

Fig. 2: Internal view of the receiver, with the p.s.u. on the left, tuner unit in the centre, and the i.f./audio on the right. (Note the replacement audio output transformer).

Eddystone & Marconi

A late addition in 2008 was a Stratton-made Cabin Tuner Unit Type 2245A, made for the Marconi International Marine Co. Ltd and sold under the MIMCO badge. The set is in fact a hybrid of the Eddystone 670 and 670A circuits having the push-pull audio output of the 670 with the magic eye tuning indicator and case of the 670A.

The set, **Fig. 1**, was (knowingly) purchased as not working, the seller sent me pictures showing various wires hanging off but as the receiver looked basically intact I happily bought it. However, on arrival – despite the seller placing adequate protection for the long glass front – the glass was smashed in transit. Luckily, the Eddystone User Group web site has a link to a spares supplier and a replacement glass was soon on its way to Kidderminster.

I examined the set on my bench and found that the loose wiring was around the power unit, which being an a.c./d.c. design, consisted of a large dropper resistor and metal rectifier. A few resistance checks later showed no obvious short circuits or such, but for the sake of safety, I decided to run the set off an isolation transformer at 110V.

Fig. 1: The 2245A front view – the super tuning dial is typical of Eddystone receivers.

Reminder: In an a.c./d.c. receiver power supply the heaters are wired in series with a dropping resistor across the supply, which is also rectified (using a half wave rectifier) to drive the high tension, (h.t.). The photograph in **Fig. 2** shows the internal layout of the set.

By carefully and slowly increasing the mains voltage on a variable transformer, I watched the valve heaters as they began to glow and at the same time a hum was coming from the loudspeaker. However, no signals were evident at this point and, as there was some poorly done wiring additions to the set, I stripped them out, along with a few 'extra' components and I could start to see the original circuitry of the set, **Fig. 3**.

Thermistor Protection

After a few times switching the set on and off, I noticed that one of the valves was lighting up like a Christmas tree! Checking the wiring, I found the heater circuit thermistor was missing. A thermistor – as many readers will remember – is a resistor which reduces in value as its temperature rises. This protects valves in a.c./d.c. sets by limiting the heater current flow on switch on. If you ever work on a

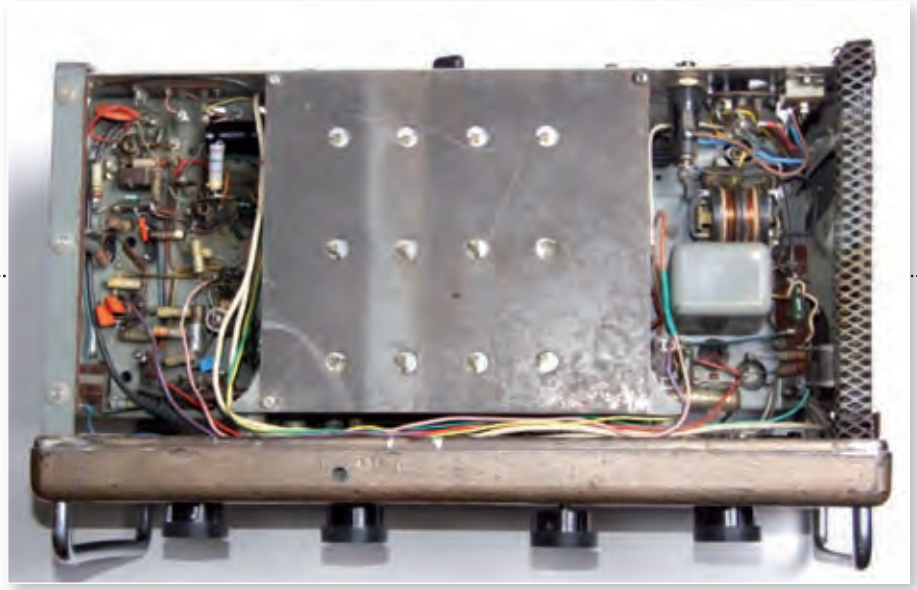

Fig. 3: Underside view of the Eddystone, note the modern multi-coloured plastic wiring.

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set of this type, it's best to ensure a thermistor is present to extend the life of the valves. Luckily, my junk box had one which I quickly fitted!

However, I think it's pointless, and time consuming, to check the de-coupling capacitors so I simply replace them as a matter of course in equipment of this age. This set had some quite large 0.1μf de-couplers that were held in by nuts. Trying to work around them was very difficult, so in the end I simply removed the lot and replaced them with small modern types.

Incidentally, I thought I had spotted a fault when I measured the h.t. on the audio pre-amplifier stage anode at a ludicrous 15V – until I checked the handbook and found this to be correct, with **Fig. 4** showing the output stage! But despite the voltages all looking to be at the right levels, there was still no sign of life in the set – other than the audio hum.

A few checks later led me to remove the screening can from the first intermediate frequency transformer (i.f.t.) and as it came away so did the shaft with the two coils. They were left hanging by just one wire – obviously not a good sign. I then used cyanoacrylate adhesive to glue it back on to its base and the re-connected the windings and I found that a good pair of reading glasses are required for this work – certainly at my age!

With the i.f.t. replaced, signals could then be heard – certainly Radio 4 on long wave – which is always very strong here as the Droitwich 198kHz transmitter is only a few miles from Kidderminster. There was still something odd though, as I tuned into Radio 4 it overloaded the set indicating the automatic gain control (a.g.c.) wasn't working correctly. I wasted a lot of time trying to figure out the circuit because certain component values didn't match the 670 circuit – until I realised that they matched the 670A circuit!

A few more measurements and a bit more thinking and I had the second i.f.t. out and found one of its wires on the secondary winding, directly affecting the a.g.c. path, was also adrift. This was soon repaired and the i.f.t. replaced, which resulted in a marked improvement in reception. After a quick alignment (by ear) even signals on the higher bands could be received with just a metre or so of wire as the antenna, with the a.g.c. working perfectly.

Antenna Considerations

We should remember that when we're working on the a.c./d.c. type of broadcast receiver, that the antenna connections on the rear are designed for a 400Ω feeder. If a 50Ω coaxial cable feeder is plugged into the set there will be a considerable loss of signal and you'll be misled to believe the set to be 'deaf'. In practice I've

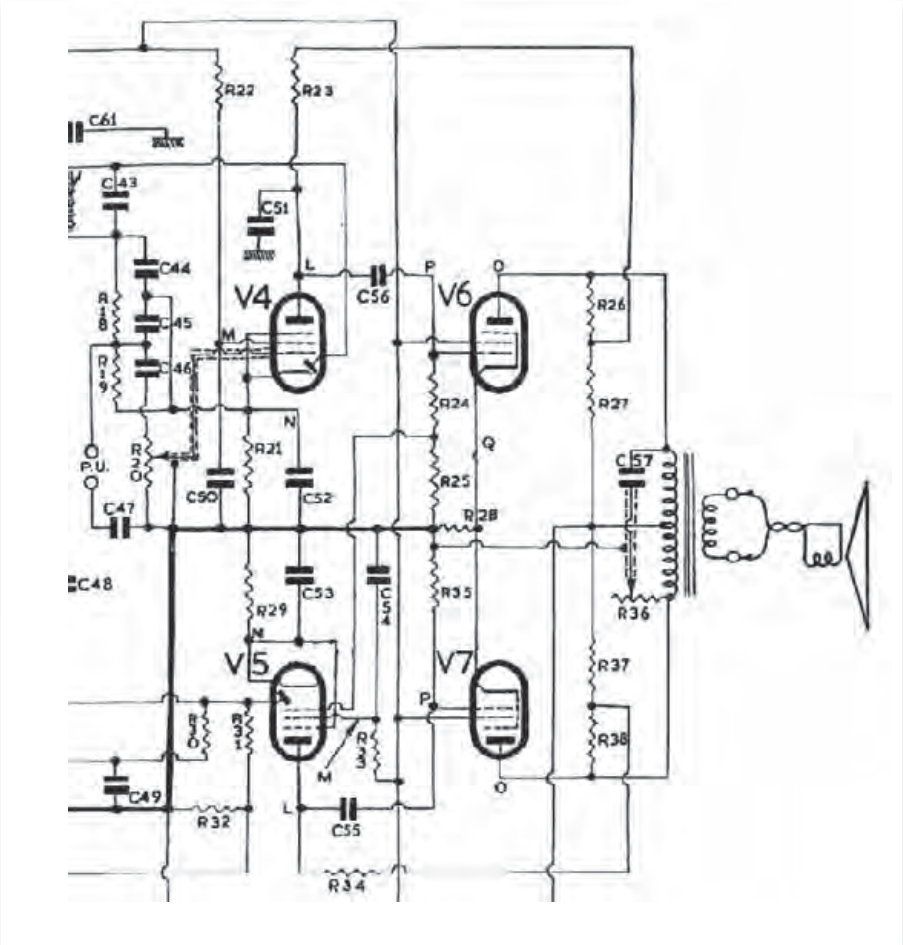

Fig. 4: The audio output stage circuit, which employs two UL41 valves working in a push-pull configuration.

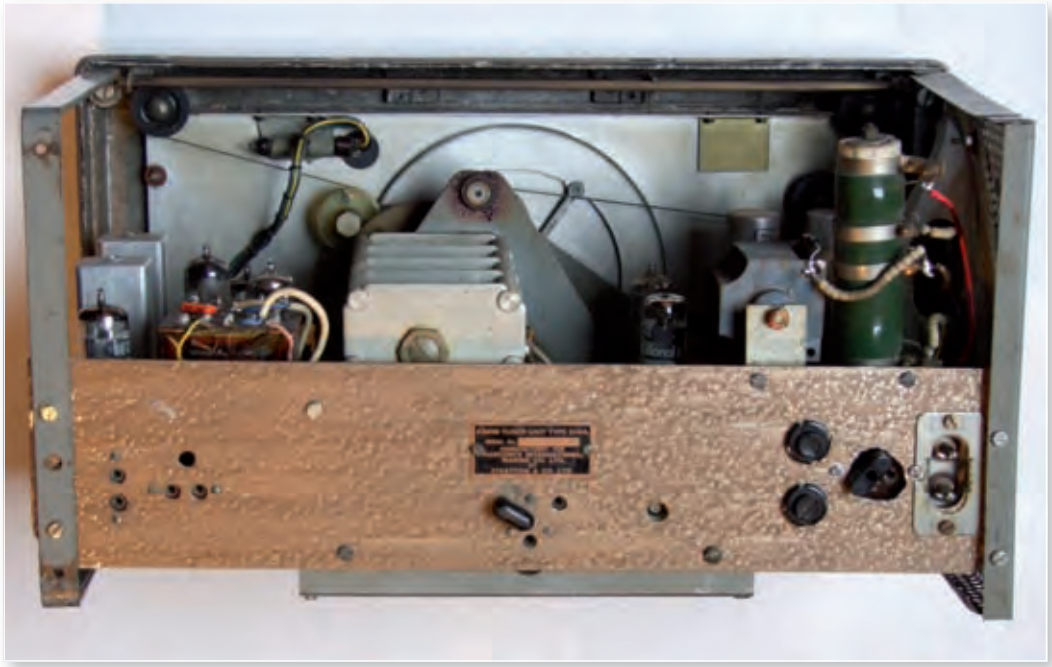

Fig. 5: The receiver's rear panel, antenna sockets centre, with the mains input and selector on the right.

found that a short length of wire, one metre or so in length, clipped to the top of the aerial circuit tuning capacitor works very well while the set is on the bench.

With the set then working, the rest (or so I thought!) of the work would have usually just involved tidying up of wiring, etc. It's funny though that – when you think you're winning – fate throws another spanner into the works!

The extra problems surfaced because I decided to try the receiver on 240V, with the voltage selector at the rear adjusted accordingly and again increased the volts slowly using my transformer. Suddenly, there was a sparking and a frying noise! The selector was arcing over to the chassis. A quick examination then showed that someone had replaced the selector at some time, inserting a section of rubber between it and the case and it was this that had tracked over. It was quickly removed, the area cleaned up, **Fig. 5**, and the selector mounted correctly on spacers and I also replaced the missing 2-pin mains plug.

Then the new glass had to be fitted! The glass was, quite obviously as I handled it, much bigger than the hole in front of the tuning scale. I had to think long and hard how to get it back in without taking the entire front off. And it can be done, as I discovered!

I started the process with the pointer wound to the left (with the set placed top towards me) and with the front down on its large chromed handles. Then, with the tuning drive cord removed from the tension pulley on the left, I unscrewed the right hand top pulley, together with the small bracket on the top right.

Next, I offered the glass into the front hole, with the top right corner first, before sliding it up and to the right until the left hand edge of the glass pushed its way (gently!) through the hole. Then I raised the bottom of the glass and slid it into the bottom runners, the top then drops into the recess. All I had to do then was re-fix the bracket, the pulley, restring the tensioning pulley and screw in the two top glass holders and hey presto – that was the job finished!

Basically, the set is now up and running although the case needs a full re-spray. However, there are other points to note about these types of set and we have to remember that a.c./d.c. sets simply rectify the mains supply to derive the h.t., without the use of an isolating transformer. This means that it's possible – if we're not careful – have the 'live' side of the mains connected to the set's chassis. Even though Eddystone receivers using the a.c./d.c. system had the internal chassis isolated from the outside case, over the years that isolation can reduce or even disappear.

Indeed, on my example the internal chassis and the outer case weren't isolated from each other. Fortunately, I could see one obvious point where an alteration had actually electrically connected the case and chassis – but even with it removed there was still the chance that one or more of the many other isolation points would break down with age. This is why I think that anyone who is contemplating working with a.c./d.c. receivers should really use a mains isolation transformer and ensure that fuses – of the correct ratings – are fitted.

Apparently, according to sources deep within the EUG, there were many different variations on these MIMCO sets, which used various combinations of the power chassis, the tuner unit and the i.f./audio chassis. However, my 2245A i.f./audio chassis doesn't match either the 670 or the 670A layout! Instead, my 2245A tunes 150 to 350kHz, 520-1450kHz and 3.7 to 30MHz and so just misses out the bottom of the 3.5MHz and all of the 1.8 to 2MHz 'Top Band'.

There's also another model, the 2273, which has a top frequency of 10.5MHz and provides exceedingly good coverage of the 1.8, 3.5 and 7MHz Amateur bands. If anyone has one spare I'd be very interested!

And Finally

And finally, I've posted a short video of this set working on Youtube, search on the Eddystone receiver. Well, that's about it for this stint at the V&V shop and once again, I wish you all a very happy New Year! For more pictures, please visit my web site at **www.qsl.net/g4bxd** and as always I can be contacted via E-mail at **military1944@aol.com** Cheerio for now! ●

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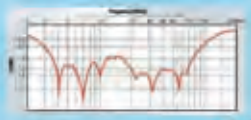

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Colin Redwood's

what next?

Colin Redwood G6MXL looks at an interface for transmitting and receiving PSK31 so, you can join in yourself!

Last month I showed how easy it is to receive and decode PSK31 signals with just a simple coaxial cable lead and *Digipan* software running on a computer running Windows. This month I am going to look at how to transmit PSK31. To do this, we need an interface unit between the computer and the transceiver.

Whilst it's possible to buy an interface unit from many suppliers, it really is quite easy and economical to build your own. So, I decided that this was an ideal time to offer a detailed description of how to build your own interface. The interface is available as a complete kit from Spectrum Communications and it will deal with many data modes and I'll show you how deal with Slow Scan Television (SSTV) next month.

The main purpose of the interface is to switch the transceiver between receive and transmit. The second purpose is to electrically isolate the transceiver from the computer, to remove the possibility of 'earth loops' causing hum on the transmit signal. If we only isolate the transmit side, without isolating the receive side and the Push-to-Talk (p.t.t. switching), then we are no further forward as earth loops could still exist. So, our interface unit has to provide isolation for transmit, receive and the p.t.t..

At the computer end, the receiving and transmitting connections are both made to the computer sound card. The p.t.t. connection is derived from the presence of signals on the transmit side. Some commercial interfaces use the computer serial output to provide p.t.t. switching but many modern computers don't have serial ports, a trend that's also finding its way to desktop PCs.

Receive Side

Let's look at the receive side first starting with the circuit diagram, **Fig. 1**, which like most circuits, it's best understood if we break it into chunks.

The receive part of the interface is the easiest to understand. The signal from the receiver comes in via the flying lead on the low right-hand side of the circuit diagram.

The signals from the rig, pass via the flying lead to an isolating transformer T2, the purpose of which is not to change the voltage, but to electrically isolate the signal going into the computer from the transceiver. The other side of the transformer is connected via a flying lead to a 3.5mm stereo jack plug which plugs into the computer's sound card line in (or microphone in) socket, just as I described last month.

More Complex

The transmit part of the circuit is only slightly more complex than the receive part. This time the signal comes in from the computer, using a flying lead with a 3.5mm stereo jack plug plugged into the sound card. The signal passes via another isolating transformer, T1. But before being connected to the output, the signal passes through a 10kΩ resistor (R6) and to the top end of a 10kΩ variable resistor (VR01).

The variable resistor enables the audio signal level to be adjusted to suit the transmitter, so as not to overload the microphone amplifier stage of the transmitter. The output to the rig, again goes via a flying lead, but this time with a connector suitable for the transceiver's microphone socket. A second conductor comes from the p.t.t. part of the interface to the same microphone connector.

Transmit Switching

The final part of the interface is the transmit switching. When a signal to be transmitted comes from the sound card, a small amount is 'siphoned off' via capacitor C2 to be amplified by Tr1. The amplified signal is passed through C3 to remove any d.c. current. The amplified a.c. signal is rectified by diode D1 and passes through resistor R3, to be smoothed by capacitor C4, before being passed to the base of Tr2 which acts as a switch, turning on and providing a signal current to the opto-isolator IC1.

Inside IC1 there's a small light emitting diode connected between pins 1 and 2. When this illuminates, the transistor connected to pins 4, 5, and 6 conducts causing the p.t.t. to operate. The input and output of IC1 are 'connected' only by light – again no electrical connection. Diode D101 is a red light emitting diode (l.e.d.), which is mounted on the outside of the box, comes on when in transmit. Resistor R5 is used to limit the current flowing through the l.e.d. and the opto-isolater to about 20mA.

The p.t.t. part of the circuit uses power

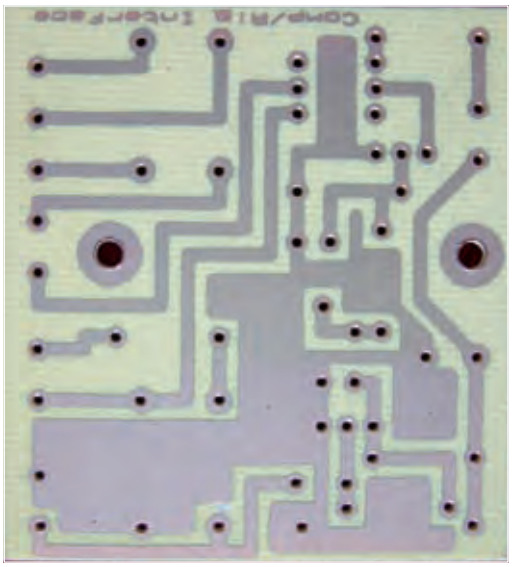

Fig. 2: The p.c.b. showing the layout from the track side. Clean the copper tracks with wire wool before starting construction.

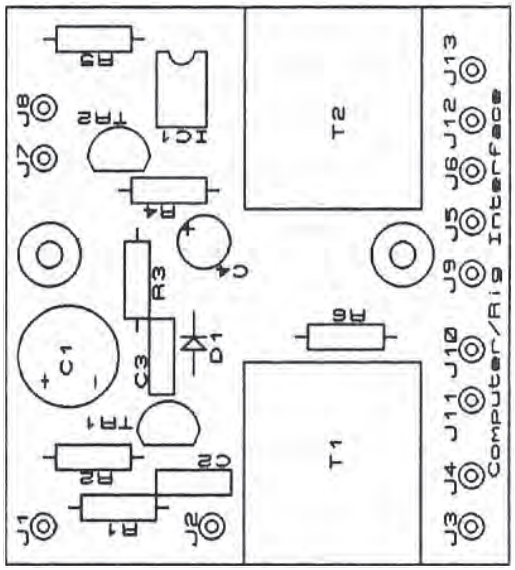

Fig. 3: The component layout seen from the top (component side) of the p.c.b.

(Both illustrations may not be accurately sized!)

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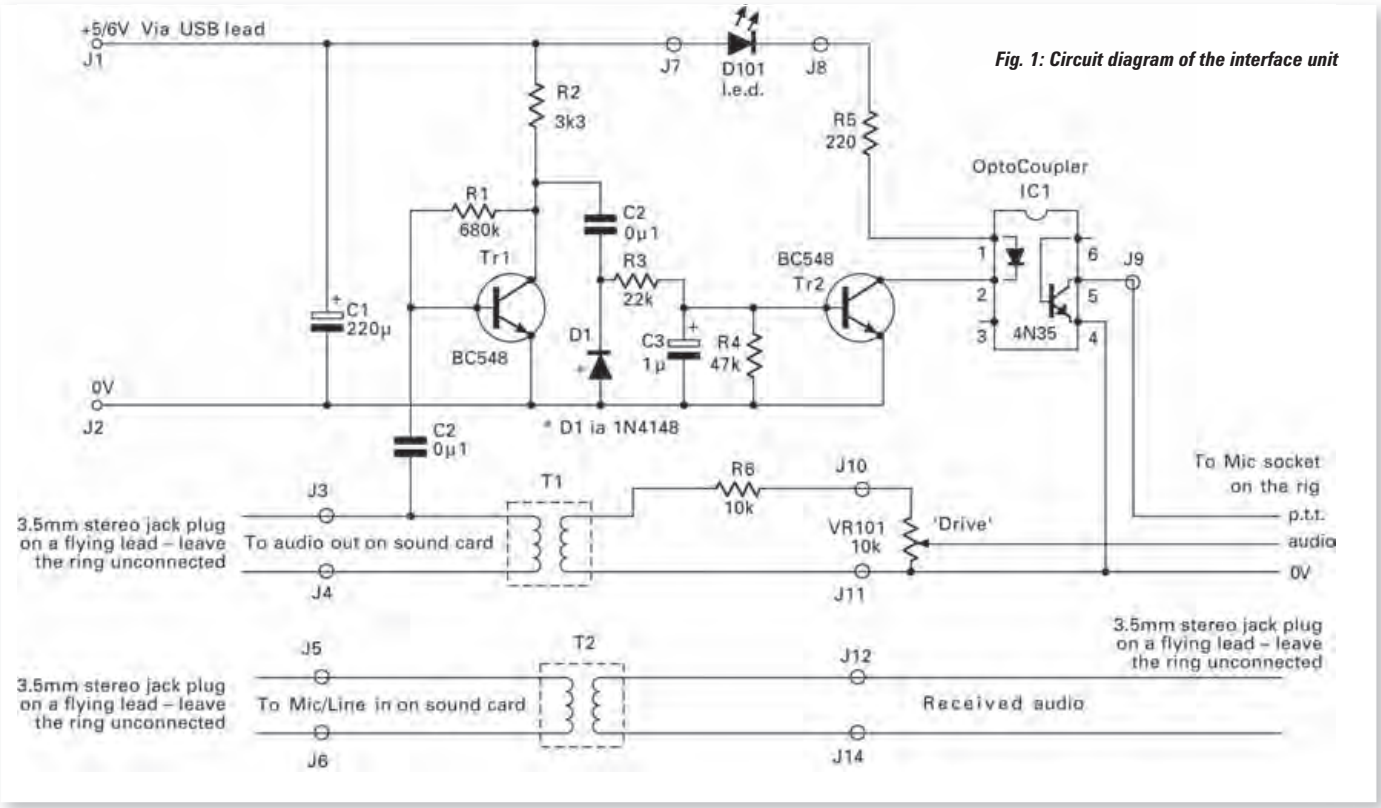

Fig. 1: Circuit diagram of the interface unit

from the computer's USB socket, which can supply up to the designed maximum of 500mA. So, if you already have other items powered by your USB ports or via an un-powered USB hub, you may need to use an external 5-6V d.c. power supply. In any case, using an external power supply is recommended for initial testing.

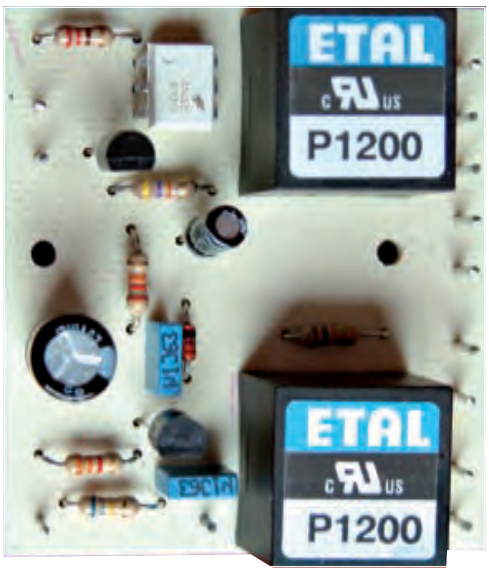

Fig. 4: The assembled board.

First Construction Project

I am aware that for some readers, this may be their first construction project. Because of this, I'm therefore including more details about the individual components and assembly than usual to help readers. Originally designed as a club project, this is an excellent project for the Intermediate Course.

If you're new to soldering, you may want to look back at the February 2008 issue of *Practical Wireless* where I covered soldering in the *What Next?* column. That issue is still available from the *PW* offices if you don't have that one.

If you buy the kit, then in the time between the p.c.b. being made and building the kit, the tracks on the p.c.b., **Fig. 2**, may have oxidised a little, which will make it difficult for the solder to flow. So, immediately before starting construction, rub the tracks very lightly with some wire wool so that they shine. Make sure that no wire wool remains are left on the p.c.b. to cause shorts later!

Assembly Challenges

One of the assembly challenges facing anyone presented with a pile of components and a p.c.b., is to work out which components go in which holes. Readers should refer to **Fig. 3** and **4**, the component layout and completed board, which between them should help.

Start by fitting the p.c.b. pins (Vero pins), supplied as part of the kit, into the holes near the edge of the board. Push each pin through from the track side of the board, so that the head of the pin is tight up to the copper track. Each pin will need just a little bit of force to get it into the board, and it is better to do this without any other components, that might be damaged, on the board.

Insert each pin from the track side of the board and then turn the board over and push down with the head of the pin against a solid surface. Add the remaining pins one at a time down one edge, and then the other edge. Be careful not to flex the p.c.b., as you may risk the copper track peeling away from the substrate.

Once all the pins are firmly in place,

they can each be soldered to the copper tracks to ensure a good electrical connection. Make sure that the soldering iron is really hot before doing so. Allow the soldering iron enough time to get really hot. Tin the soldering iron bit before the first joint and then again every few joints. If at any stage of construction you find it difficult to keep the board still while you solder, I suggest a lump of Blu Tack will help keep the board where you want it.

The Resistors

After the pins, the resistors should be inserted and soldered one at a time. Be careful to positively identify each resistor using its colour code (see the **Parts List**).

Resistors may be put into the p.c.b. either way round. Bend the leads at either end of the resistor so that the leads will pass through the holes in the p.c.b. Once the solder has cooled, snip off the excess lead with some wire cutters.

The Capacitors

After the resistors, there are four capacitors to be inserted and soldered. Capacitor C1 is the largest of the two electrolytic capacitors, which must be inserted the correct way round if they are to function correctly.

As you can see in **Fig 5**, the negative is clearly marked on the body of both electrolytic capacitors (Capacitor C4 is the smaller of the two electrolytic capacitors.)

Capacitors C2 and 3 are small 100nF (0.1µF) capacitors and can be inserted either way round. Those supplied in the kit are blue in colour and marked 'μ1363'.

The Transistors

The p.t.t. part of the interface uses two BC548 n.p.n. transistors. There are three leads (called the emitter, base and collector) coming from the bottom of each transistor, **Fig. 6**. It's important that these leads are connected correctly.

Although the transistor is in the industry-standard TO92 layout, not all TO92 transistors have the same order. Note that the pin-out is as seem from the underside of the transistor, with the leads pointing at you.

The Diode

The 1N4148 diode (D1) has two leads and is slightly smaller than the resistors. It too, must be fitted the correct way round. The band at one end corresponds to the cathode in circuit diagrams, **Fig 7**.

Opto-Isolator

The opto-isolator is easily identified, as it is the only component with six legs! By looking carefully at the top, you'll see that there's a small dimple, **Fig. 8**, next to Pin-1 of the opto-isolator.

Please be very careful to insert the opto-isolator round the right way. I strongly suggest that readers double check this. You may need to squeeze the pins from each side of the opto-isolator towards each other very slightly to get them to line up with the holes on the p.c.b..

I'd solder just one corner pin first, then check that the opto-isolator is properly seated on the p.c.b. If not, you can re-heat the pin, melting the solder and push the opto isolator a little closer to the p.c.b. Then carefully solder the remaining pins, taking care not to bridge the gap between adjacent tracks on the p.c.b.

Transformers

Finally the two transformers can be inserted. As they are just isolating transformers, the primary and secondary of each transformer both have the same number of turns, so it doesn't matter which way round they're installed. This concludes the assembly of the p.c.b..

The board should now look the same as Fig. 4. Before moving on to the case, have a careful look at the track side of the p.c.b. Make sure that there are no solder bridges, and that all leads of all the components have been soldered. A few minutes spent checking at this stage can save a lot of time later!

The Box

Having got the p.c.b. assembled, it will be time to deal with the box. The recommended box is 110x60x30mm high and it's quite easy to drill (a plan is supplied with the kit) although it makes sense to centre-pop the holes so that the drill doesn't slip.

Readers who may be tempted to use a metal box instead of the plastic one, should remember to ensure that no part of the circuit including connectors comes into contact with the metal box otherwise the electrical isolation, which is one of the key aims of the project, will be lost.

The Grommets

Fitting the grommets is probably the fiddliest part of the assembly. Have patience and eventually they'll fit into the holes. Please avoid the temptation to use a sharp object – we don't want any injuries!

Level Control

If you buy the full kit from Spectrum Communications, the spindle of the level control, VR101, may already have been cut to length. If not put the spindle in a vice, and using a small saw, cut off most of the spindle, leaving 5-6mm of spindle from the thread of the body, **Fig. 9**. This can now be tightly mounted on the box.

Make sure that the little spigot lodges into one of the dips between the ridges on the side of the box. This will prevent the variable resistor from becoming loose. The knob can also be fitted by loosening its grubscrew, sliding the knob on to the spindle and re-tightening the grubscrew.

Fig. 5: The negative lead clearly marked on the body of one of the electrolytic capacitors

Fig. 6: The pin-outs for the BC548B transistors

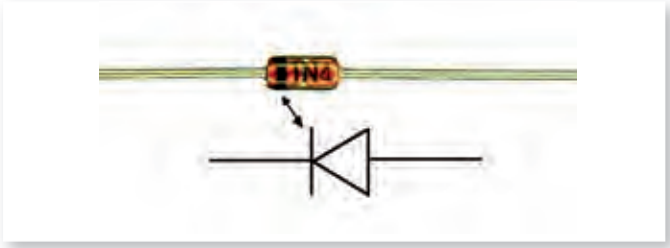

Fig. 7: The orientation of the 1N4148 Diode D1

Mounting Screws

The two p.c.b. mounting screws can now be inserted through the bottom of the box. One nut should be put on each screw, holding them in place. The p.c.b. can then be carefully pushed onto the screws and a second nut put on each screw, holding the p.c.b. in place. The p.c.b. is a tight fit in the box. If you do need to remove it, flexing the box sides slightly will ease things a little. **Note:** I found it easier not to push the p.c.b. onto the screws until I had soldered some of the the leads onto it.

Connecting Leads

Readers will need to make up several leads for the interface. I started by building the leads for the receive side. But make sure that the leads are long enough! Because of the layout of my shack, the leads between the interface and the PC are about 2m in length! Although I kept the leads between the interface and my transceiver quite short (roughly 300mm).

While I was soldering the various external leads and box mounted components to the p.c.b., I found it helpful to push the other leads out of the way, so that I didn't melt the insulation on them. Be careful not to allow the soldering iron to come into contact with the sides of the plastic box. (Spectrum Electronics' wiring layout is shown in **Fig. 10**).

Remember that the tip of the plug is the signal-carrying contact and the sleeve is the screen (see last months *WN?*). By leaving the ring unconnected, you can be certain that regardless of whether the receiver has a mono or a stereo socket, you'll not short out the audio output stage of your receiver or the input/output of your computer's soundcard.

If you use a metal-bodied jack plug, don't forget to put the plastic sleeve over the connections to help prevent a short circuit. The audio amplifiers in receivers aren't usually designed to handle a complete short circuit. So, I would recommend that you test the lead for continuity and then check to ensure that there are no short circuits between the signal and screen.

Microphone Connections

The other lead from the interface to the rig's microphone socket is in fact two separate leads coupling into the rig's connector. Many modern transmitters have an 8-pin male (but socket-like) on the transceiver, and require an in-line socket on the microphone lead. Unfortunately, each of the main manufacturers has adopted a different convention for wiring their connectors.

If you look at the front of the transceiver, the pins are numbered from the notch at the top from 1 to 7 anti-clockwise, with pin 8 being the central pin, **Fig. 11**. **Table 1** shows the pins used by the three big manufacturers that use these 8-pin connectors.

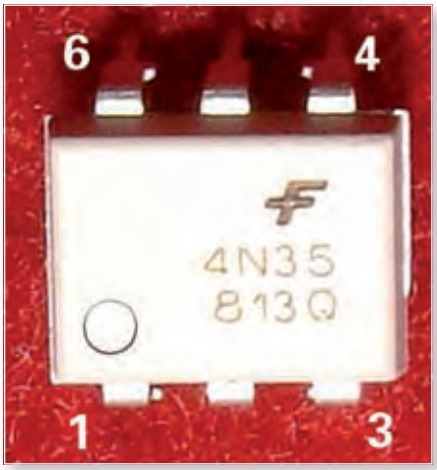

Fig. 8: The Opto-Isolator with the dimple by pin 1.

Fig. 9: The variable resistor with the spindle cut to 5mm length.

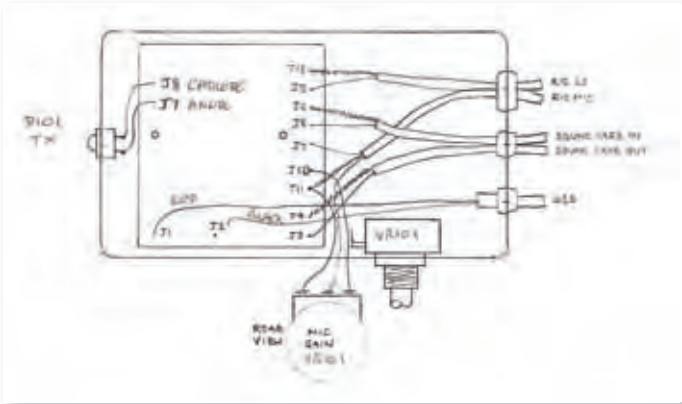

Fig. 10: Interconnections to the p.c.b. as shown in the kit instructions.

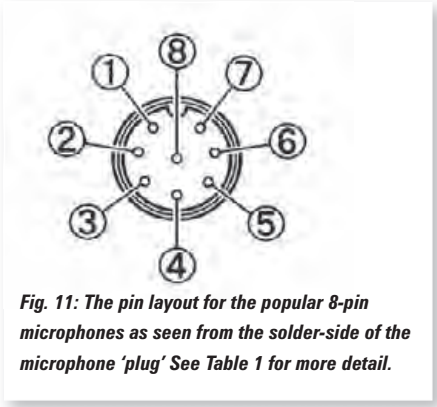

Fig. 11: The pin layout for the popular 8-pin microphones as seen from the solder-side of the microphone 'plug' See Table 1 for more detail.

Fig. 13: Connection for the l.e.d.

Function	Icom	Kenwood	Yaesu
Microphone	Pin 1	Pin 1	Pin 8
p.t.t.	Pin 5	Pin 2	Pin 6
Microphone Ground	Pin 7	Pin 7	Pin 7
p.t.t. Ground	Pin 6	Pin 8	Pin 5

Other details can be found at Roy G4WPW's site at:
http://homepage.ntlworld.com/rg4wpw/date.html

Table 1 - The pins used by the three big manufacturers for 8-pin connectors.

If you have a transceiver from a different manufacturer or it has a different connector (many do, even from the 'big three'), you will need to find out the correct pin-outs. Refer to your transceiver's manuals. Alternatively, **Roy G4WPW**, has an excellent web-site with microphone connector details for almost all popular amateur transceivers.

The kits from Spectrum Communications do **not** include a microphone connector. You'll need to obtain one to suit your transceiver. Most amateur radio shops will stock these.

When it comes to soldering the lead, you will certainly need to connect the microphone line, the p.t.t. pin and the microphone ground. If you are very careful, it's possible to remove the pins that you don't need which can make soldering the remainder a little easier. Don't forget to pass the lead through the metal outer and then the internal insulating sheath before soldering.

I also found that it helps to tin just the pins that you're using so that you can concentrate on soldering one pin at time. A lump of Blu-Tack works wonders for keeping the microphone connector still whilst soldering!

Finally, the p.t.t. leads can be installed together with the l.e.d. It's easier to put the nuts holding the p.c.b. on before soldering the l.e.d. leads. The l.e.d. must also be fitted the correct way round. So, make sure that you observe polarity by connecting it the right way round, see **Fig. 12**! The anode (longer lead as supplied) goes to pin J7 and the cathode (slightly shorter lead) to pin J8 on the p.c.b.

Parts listing

Part	Value	Notes
R1	680Ω	Blue Grey Yellow - 0.25 Watts
R2	3.3kΩ	Orange Orange Red - 0.25 Watts
R3	22kΩ	Red Red Orange - 0.25 Watts
R4	47kΩ	Yellow Purple Orange - 0.25 Watts
R5	220Ω	Red Red Brown - 0.25 Watts
R6	10kΩ	Brown Black Orange - 0.25 Watts
VR101	10kΩ	Variable resistor (Logarithmic)
C1	220µF	Electrolytic 6V working (at least)
C2 & C3	0.1µF	Polyester
C4	1µF	Electrolytic 6V working (at least)
Tr1 & Tr2	BC548B	N.P.N Transistor
D1	1N4148	Diode
D101		Red Light Emitting Diode & Holder
IC1	4N35	Opto-Isolator
T1 & T2		Isolating Transformers

Vero Pins, 3.5mm Stereo Jack Plugs, Knob, Box 110x60x30mm, plastic Grommets, 6BA x 9mm, 2 x Countersunk Screws, four off 6BA Nuts, 2 off 1m Stereo Screened lead for computer sound card (In/Out), 1m twin screened lead for microphone lead, 1.5 m USB lead for power.

Connecting Up

Connect all the leads, switch on the transceiver and tune it to 14.070MHz in u.s.b. mode, load *Digipan*, and make sure that you can receive signals.

Testing Time

I would strongly urge readers to test the circuit using an external five or six volts d.c. power supply before using the USB lead for power. And four 1.5V AA batteries would be ideal. This will prevent any damage to the computer. Make sure that when you click on 'transmit' in *Digipan* the transceiver changes to transmit, and when you click on 'receive' in *Digipan*, the transmitter returns to receive. If you get any unexpected results, check your sound card settings.

To power the interface using the computer use a suitable length USB 'A' to 'B' lead. Cut off the 'B' (square) plug - the end that would normally be plugged into a scanner or printer. Strip back the outer sheath and screen to reveal four wires. The red and black wires are positive and negative as might be expected and may be soldered to their respective pins on the p.c.b., replacing the temporary power supply. The white and green data wires are not needed and can be cut off so as not to come into contact with anything else.

When I started testing, everything seemed to be constantly oscillating between transmit and receive. I soon discovered that in *DigiPan* I needed to select the 'Config> Waterfall Drive', and deselect (i.e. '**un-tick**') the Stereo Mix box so that it was not selected. If you get any other unexpected results, I suggest that you methodically check the settings in *Digipan* and your sound card settings.

Transmit Level

It's important not to overdrive your transmitter, which is easily done, as the signal coming from the sound card is much higher than needed for most microphone inputs. An overdriven transmitter will produce multiple yellow lines on the waterfall of a receive station, reducing the possibility of multiple QSOs within the audio passband of the receiver.

To find the right level, raise the audio level to the point where you first see the automatic level control (ALC) starting to kick in on your transmitter and then back off the audio level a bit. It really isn't necessary to run a lot of power to make contacts with PSK31 as the QRP operators have discovered. It also makes PSK31 particularly suitable for Foundation Licencees.

To transmit, type your message on the key board and press the T/R button at the top of the *Digipan* screen. Once your message has been sent, don't forget to change back to receive by pressing the T/R button again. The l.e.d. on the interface box will help remind you when you are transmitting.

My Thanks

I would like to thank **Tex Swann G1TEX**, for developing the original design as a **Poole Radio Society** project, and **Tony Nailer G4CFY** for developing the p.c.b. design and making the kit of components available to WN? readers.

Next month I will be looking at Slow Scan Television (SSTV) which also makes use of the interface I've just described. In the meantime – have fun building the interface and making some PSK31 contacts on 14.070MHz upper side-band (u.s.b.) during the middle part of most days. Please let me know how you get on.

●

David Butler's

vhf dxer

Share your news, views and reports with fellow readers. Reports to David by the last Saturday of each month please.

This month David Butler G4ASR takes a look at recent and impending v.h.f. and u.h.f. contest activity.

Your reports highlight a substantial lack of propagation events during November. Not surprisingly only four Sporadic-E (Sp-E) openings were reported on the 50MHz band. All were very brief, with the only the stations of IG9/I2ADN (Lampedusa Island JM65) being worked on November 1st and EA7AH (Spain IM67) being contacted on November 11th. It was a pretty desperate situation!

The other Sp-E openings on November 8th and 14th were similarly poor with only 50MHz beacons located in Portugal (CT0SIX, CT1ART, CS1RLA) and Spain (EA3SIX, EA2B, EA4Q) being received. No propagation events were reported on the 70MHz band other than the usual daily meteor scatter (m.s.) contacts made with stations up to 1500km distant. Stations worked on the 70MHz band from the UK during November included CT1FFU (Portugal IM59), IK0BZY (Italy JN61), IK0SMG (JN61), IK1EGC (JN35), IS0AWZ (Sardinia JM49), OZ1DJJ (Denmark JO65) and OZ3ZW (JO54).

Last month, I mentioned that Radio Amateurs in Spain now have temporary access to the 70MHz band. So it is particularly good to report that two stations EA1YV and EA3GLJ are now active and have already made contacts with UK stations. **Agustin Quintas EA1YV** (Vigo IN52) reports that his first QSO on the 70MHz band was achieved at 1317UTC on November 8th when he contacted the station of CT1FFU over a 302km tropo path. A little later in the day he went on to make m.s. contacts with the stations of G8HVY (Hampshire IO90) and EI7IX (Ireland IO53).

Other initial contacts made from Spain included the stations of IS0AWZ (Sardinia) on November 9th, GM3NKG (Scotland IO85) and GW8ASD (Wales IO83) on November 15th and GD0TEP (Isle of Man IO74) on November 28th. Agustin also mentions making m.s. contacts using JT6M digi-mode with the stations of G0CHE, G1OAR, G3SHK, G3VYF, G4DEZ, G4FUF, G6HIE and G8VYK. The other Spanish 70MHz station is operated by **Fuco Mera EA3GLJ** (Barcelona JN01) and he is using an Elecraft K3 h.f. transceiver, a Spectrum transverter and a 5-element Yagi. He made initial JT6M contacts from November 20th with the stations of LX1FX (Luxembourg JN29), S51DI (Slovenia JN76), CT1FFU, IK0BZY, IS0AWZ, G0CHE and G8HVY.

Spanish stations have been allocated two spot frequencies, 70.150MHz and 70.200MHz, until April 25 2009. Hopefully they may get an extension to this authorisation to allow c.w. and s.s.b. contacts to be made during the summer sporadic-E season. So keep a look out to the south if you want to work a new country - and don't forget that the allocation also includes territory in EA6 (Balearic Islands), EA8 (Canary Islands) and EA9 (Ceuta & Melilla).

It is expected that a few more European countries will gain access to the 70MHz band during 2009 but unfortunately the Amateur Radio service in The Netherlands won't be getting permission for some time, if at all. Their national society VERON has held many discussions but the regulator has recently announced that the formal dossier is now closed. Apparently the primary user of the band did not support 70MHz access for Amateur Radio. This is particularly disappointing as stations in The Netherlands did get special permits issued during the International Geophysical Year (IGY) in 1957. Some of their first ever 70MHz contacts made over 50-years ago included the stations of PE1PL to G2HCG (England)

Fig. 1: An impressive 144MHz array at the location of YU7XL.

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Fig. 2: An even more impressive array 144MHz array at KB8RQ!

on February 11th 1957, PA0WO to F9BG (France) on August 9th 1957 and PA0WO to FA7VN (Algeria 7X) on June 22nd 1958.

Your Reports

Nick Peckett G4KUX mentions that he was very active on the 50MHz band during June, July and August 2008. He was using the call sign **YA4F** from Kabul, Afghanistan (MM44), a very rare country on the 'Magic Band'. Unfortunately his work schedules and the distances involved meant that openings were few and far between. He reports having only two openings into the UK, the first on July 2nd when he made c.w. contacts at 1542UTC with G3XPO, at 1548UTC with G4DEZ and at 1601UTC an s.s.b. contact with the station of MM0AMW.

The second opening occurred on July 24th with c.w. contacts being made between 1145-1230UTC with G7RAU, MM0BSM and GM3YTS. This was followed by another brief opening between 1408-1437UTC with more c.w. contacts being made with the stations of G4ASR (at 5890 kilometres!), G4AFJ and G4EZT.

Mark Lee MW0MJB (Pembrokeshire IO71) has recently caught the bug for DXing on the 144MHz band. Unfortunately his QTH is very close to the coast of west Wales - the next stop is Ireland - and everyone seems to be beaming east towards continental Europe! Using a Yaesu FT-897 transceiver running 40W into a 5-element Jaybeam Yagi his recent s.s.b. contacts have included the stations of EI4GHB (IO52), F1NUM (IN88), G1SWH (IO83), G2BQY (IO81), GM4DHF/P (IO78) and GM4JR/P (IO85).

The French station incidentally, at a distance of 360km, was worked when the 5-element Yagi was located in the attic to protect it from the winter gales. I've mentioned before that an antenna mounted in the loft space is better than no antenna at all. So if you have real problems putting an antenna outside - think loft! You may be very surprised at the results.

Contest Activity

Tropospheric propagation on the 144MHz band was quite poor during much of November but there were a few days when DX stations could easily be worked from the UK. These occurred during scheduled contest periods but I prefer to think of contests more as being periods of high activity. The word 'contest' often makes people think of the fast-paced chaos sometimes experienced at h.f. but v.h.f. contests usually have a much different feel.

The problem with the v.h.f. bands is that they are often underused. You put out a call on the s.s.b. calling frequency during the week and nobody is there. Dead silence. But during a v.h.f. contest you can be sure that someone is going to be on the air. So these events dramatically increase activity by bringing people out of the woodwork. A v.h.f. contest is therefore more like a friendly reunion of local v.h.f. enthusiasts.

A very popular 144MHz c.w. contest was held over the weekend of November 1st-2nd. It's better known as the **Marconi Memorial Contest** and is run as an international event for the whole of IARU Region-1. Tropospheric conditions were rather poor this year, but UK stations did report making c.w. contacts with numerous German stations and with HB9RF (Switzerland JN47), LX7I (Luxembourg JN29) and OE5D (Austria JN98). The best propagation, rather strangely, was into the Czech Republic and Slovakia with contacts being made with the c.w. stations of OL3Z (JN79), OL4A (JO60), OK5Y (JN79), OL8R (JN69), OM3W (JN99) and OM6A (JN99). It was probably an elevated duct that enabled these contacts to be made into the UK as all the contest stations would have been located on high mountain sites.

An RSGB 144MHz activity contest was held on Tuesday November 4th and as it coincided with the Nordic activity contest (NAC) held at the same time there was a reasonable number of stations waiting to be contacted. Some of the DX worked from central UK during this short contest, included the stations of DF5NK (Germany JN59), DF9IC (JN48), HB9G/P (Switzerland JN36), HB9RDE (JN37), OK1RI (Czech Republic JO60), OZ1ALS (Denmark JO45), OZ1BEF (JO46) and SK7MW (Sweden JO65).

The French national society, REF, runs a series of short duration contests (concours de courte durée) throughout the year. On Sunday November 16th between 0500-1100UTC there was a 144MHz session and I've always found this event a very useful way of picking up French locator squares. Some of the s.s.b. stations worked included F0EJW (IN78), F4EMK/P (IN93), F5ADT (IN94), F6BQX (IN96), F1CKB (IN97), F8BRK (IN99), F0ELR/P (JN04), F5HGO (JN05), F8CHM (JN07), F5HGO (JN12), F6KRK

(JN18), F0FNC/P (JN25), F1DLT (JN27) and F6ELB (J000).

Another contest, though this one is a bit specialist, was the ARRL Moon-Bounce contest, held over the weekend of November 15th-16th. Although it is a specialist event, all the very large stations were active and it was possible to contact some of these at moonrise or moonset when the Moon is on the horizon. Amongst the 144MHz stations known to have been active during the contest were EA6VQ (Balearic Islands), HA0HO (Hungary), PY2SRB (Brazil), RA6AX (Russia), SV8CS (Greece), VE2DSB (Canada), VK2KU (Australia), KB8RQ (USA), YU7XL (Serbia), ZL3TY (New Zealand), ZS6OB (South Africa) and 8J1AXA (Japan).

As you can see, contests are a rather useful method of increasing activity on the v.h.f. and u.h.f. bands. They are often organised by national amateur radio societies such as the Radio Society of Great Britain. Their v.h.f. contest committee run a number of contests throughout the year from 50MHz right through to the 248GHz band. Other UK contests are organised by the British Amateur Television Club (BATC), UK Microwave Group (UKuG), UK Six Metre Group (UKSMG) - and don't forget the *Practical Wireless* 144MHz QRP contest either!

There are also RSGB activity contests, held on Tuesday evenings between 2000 to 2230 hours local. The 144MHz events are held on the first Tuesday of the month, the 430MHz events on the second Tuesday and the 1.3GHz/2.3GHz activity contests on the third Tuesday of the month. The fourth Tuesday in the month is scheduled for the 50MHz section and if there is a fifth Tuesday (there are five in 2009) then they're for the 70MHz band. So keep a look out for these on January 13th (430MHz), January 20th (1.3GHz/2.3GHz), January 27th (50MHz), February 3rd (144MHz), February 10t (430MHz) and February 17th (1.3GHz/2.3GHz).

Nordic activity contests (NAC) align with the RSGB 144MHz, 430MHz and 1.3GHz events, but on the fourth Tuesday in the month a microwave contest is held instead. The Nordic 50MHz contests are held on the second Thursday of the month and the 70MHz NAC, on the third Thursday of the month.

A cumulative series of RSGB 70MHz contests are held in January, February & March every year. There's normally two events every month, on a Sunday morning between 1000-1200UTC. At the beginning of February you'll also find the RSGB 430MHz affiliated societies contest. Further details of all these contests and many more can be found in the Web Links, **Table 1**. Most contest operation is carried out in the s.s.b. (or c.w.) part of the band but to get the most out of the event you should be using a horizontally polarised antenna.

A dipole or a Yagi beam with radiating elements parallel to the ground produces a horizontally polarised signal. A vertical whip antenna, commonly used for f.m. mobile operation, produces a vertically polarised signal. There is a significant signal loss of many S-points between the two polarisations, so it is always best to maintain the same polarisation as used by contest stations and for serious s.s.b. operators this means horizontal polarisation.

Morse code (c.w.) is also used in the weak-signal segment of the v.h.f. bands, often intermingled with s.s.b. operation. It is fairly common to have a station switch from s.s.b. to c.w. when signals get very weak, since c.w. will often get through when s.s.b. is down in the noise. You don't need to be able to work c.w. to enjoy a v.h.f. contest but it does have advantages.

Table 1: Some website addresses for v.h.f./u.h.f. contest details.

VHF Contest Committee (RSGB)
http://www.vhfcc.org/

British Amateur Television Club (BATC)
http://www.batc.org.uk/

Practical Wireless 144MHz Contest (PW)
http://www.pwcontest.org.uk/

UK Microwave Group (UKuG)
http://www.microwavers.org

UK Six Metre Group (UKSMG)
http://www.uksmg.org

Nordic Activity Contests (NAC)
http://www.vushf.dk/Pages/contest/nac/nacopen.htm

French Contests (REF)
http://concours.ref-union.org/calendrier/calendrier.php

Meteor Scatter Contest (BCC)
http://www.bavarian-contest-club.de/

Make More Miles on VHF (MMM)
http://www.mmmonvhf.de/ctest.php

Moon-bounce Contest (ARRL)
http://www.arrl.org/contests/

Moon-bounce Activity Contest (DUBUS)
http://www.sm2cew.com/dubus-aw.html

Deadlines Time

Ah well, that's it again for this month, hopefully conditions will improve soon but unfortunately, this isn't the best time of the year for v.h.f. propagation. There will be no Sporadic-E, aurora or tropospheric propagation to speak of and it's also the worst period of the year for meteor scatter!

The Quadrantids meteor showers have gone and we will have to wait until April 21st for the next major meteor shower of the year. If you do hear or work any DX stations then please send me your reports - or any other news - to reach me before the last Saturday of the month. Happy New Year!

73 David G4ASR

Graham Hankin's

in vision

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E-mail: g8emx@tiscali.co.uk

Graham bows to editorial pressure (really!) and agrees to continue writing the column.

Hello everyone – I'm back! Well, I never went away, really! Thanks to those readers who wrote hoping that I'd continue with the column, and to our editor **Rob G3XFD**, who locked the doors of the Castle Donington Rally until I agreed to keep writing! Only kidding…no persuasion was actually needed.

So, here we are – another year ahead – but the comments from visitors to the rally last October did not indicate a particularly Happy New Year for Amateur Television. When he was introducing his programme on the CERN Particle Accelerator during the BBC's 'Big Bang Day', Professor **Brian Cox** began his commentary with the words: "Physics is stuck". I would echo this for our hobby; Amateur Television is stuck too - at least, in my opinion, the radio frequency side is!

From chatting to visitors at the rally at Castle Donington, some ATV repeaters are reported to be closing down, near to closure or moved to unknown sites. Certainly not all, but many repeater groups are suffering from galloping site rental and power costs so, when the number of users drops too, is it any wonder that some groups decide to pull the plug? Yet if an interested radio amateur wanted to put a new ATV repeater on air, or keep an existing one going, where would they find the hardware these days?

Okay, I know everything can be built, but I am not into constructing antennas and no-one is presently advertising to supply the omni-directional Alford Slot. There is only one known (by me) UK supplier of transmit and receive modules. But the ATV repeater groups used to produce transmitters of a watt or more as kits and very nice they were too! But where are these people and suppliers now?

Alford Slot

Fortunately I already have a few decent transmitters and bought another from the 'Members Sales' area of the British Amateur TV Club (BATC) web site. So, I have transmitters, but can anyone – please, anyone – supply or suggest a source of Alford Slot antennas? As for ATV receivers, the usually quoted "modify an analogue satellite TV tuner" is now 'wearing a bit thin'; I have not seen many of these around and they're not ideal anyway. They're not very sensitive and are too wideband. A dedicated ATV receiver kit used to be advertised but they're no longer to be seen.

Crossing the Atlantic for a moment, **Bryon Foster N6IFU** E-mails me an ATV newsletter from America, (unsurprisingly titled *ATV Newsletter*). In the newsletter, he sets out the ATV scene across the USA and it's not uncommon for Byron to include UK ATV news. From the latest issue, some updating news of the BATC's 'streaming' service, sent by club chairman **Trevor Brown**: "Just to keep everyone up to date; following suggestions from various people, I have made some changes to the streamer website:

1) When selecting a live channel, there is now a pre-selection screen that allows you to pick which stream you want to watch, it also tells you whether each stream is currently on–air or not, so you don't waste time selecting empty streams.
2) The multi-screen selector page also now tells you if a stream is on–air or not.
3) I have replaced the online chat script that I cobbled together in a hurry one evening with one that's had more time and attention to it. There are, no doubt, some problems still, but I'm sure folk will point them out to me as they are found!"

Trevor finishes with: "The new 'chat screen' has a 'tick box' called "Chat active?" which if it's 'unticked' will stop the updates to your browser, so you can scroll back and read earlier posts. I have also included a command function, so you can issue commands to it, for example... /nick name – this will change your displayed name to "name".

Byron's newsletter also includes some of the UK ATV repeater activity nights; **SCART** net **GB3IV** Southampton 'meet' on Mondays. 'SCART' is **Solent Club for Amateur Radio and Television**, so no wonder they abbreviated it!
http://g7jtt.camstreams.com
Torbay Amateur Television & Microwave Group. Every Tuesday, Thursday and Sunday at 2000 to 2200 UTC/1:00pm PT/4:00pm. Have a look at **www.batc.tv** then look under GB3TB Repeater. Chat Nights, **GB3ZZ** (Bristol). Every Wednesday and Sunday at 1900 to 2100UTC. BATC. TV streaming video **www.batc.tv** then go to member streams. **GB3GG, Grimsby Amateur Television Group** Net meet every Friday at 2100z 2:00pm PT/5:00pm ET **www.batc.tv**
Now of course my obvious question is this is: why do I only read of these in an American magazine? Why not on the BATC's own website and in its own magazine *CQ-TV*?

The BATC Website

What I did find on the BATC web site at: **http://www.batc.org.uk** was the announcement of a 'Big Birthday': "The BATC turns a youthful 60 in 2009 with signs of the club entering a new era thanks to the streamer project. In order to celebrate this milestone birthday the committee of the BATC is pleased to announce that there will be a special event in the summer of this year. The format of this event is still being worked on but the general idea is that of a technical conference with an exhibition of past and present hardware followed by a dinner. It is hoped to gather together as many of the original members as possible - we're on the look-out for them! A good turnout of our membership (and guests) would make this a memorable event and it is hoped that it will receive attention from the media. It will be an opportunity to celebrate, to socialise and to plan our future direction"

So, keep watching that web site and (of course) 'In Vision'!

Harry Leeming's

in the shop

Sluggish crystals, the camera shutter tester project and radio frequency interference are Harry Leemings G3LLL's subjects this time!

I received an E-mail about a fairly simple fault that was occurring on an FT-480 belong to **'Bert'**. Bert explained that he felt that his main crystal on his FT-480 was faulty! On cold days his FT-480 would not transmit, and that at the same time the receiver went very deaf and was a few hundred kilohertz off frequency. After warming up for an hour or so however, the rig would usually burst into life, and everything would then be normal.

When I have a rig brought to me with a fault like this, my standard practice is to fire up my AOR 8000 multi-mode scanner, and tune it to the frequencies of the various crystals in the synthesiser. I suggested to Bert that he borrow a suitable scanner and try this out. I indicated that the likely cause of the trouble was the 10.24 MHz crystal connected to Q07. After the tests, Bert confirmed that when the FT-480 was having an 'off day' that this crystal was not operating, and asked me as to where he could obtain a replacement; and in reply I informed him that he probably didn't need one.

On many FT-480s, between pins 2 and 3 of Q07 and in parallel with the crystal is an extra capacitor, this is not shown on the Yaesu circuit **Fig. 1**, and seems to have been squeezed in as an after thought . I might be wrong but I suspect that Yaesu may have bought 'off the shelf' 10.24 MHz synthesiser crystals, then found them to be a fraction high in frequency, adding the capacitor to correct the error.

Loading a crystal with extra capacity does reduce its activity, though with a highly active crystal this doesn't matter, and many FT-480s have worked fine for 20 years or more. Unfortunately, just like yours truly, crystals get less active as they get older, and so by now quite a few FT-480s are becoming faulty due to some crystals failing to oscillate when cold. (I've had this problem with crystals loaded with extra capacity in other makes of rig as well).

Removing the extra capacitor usually restores operation, but then the rig is a few kHz off frequency. To cure this I next try experimentally fitting capacitors of around half of the original value, until I find one that will give reliable oscillation, but with as little frequency error as possible. Once the unit is operating near to the correct frequency, normal alignment procedure, or the following 'short cut' should pull it exactly on to frequency.

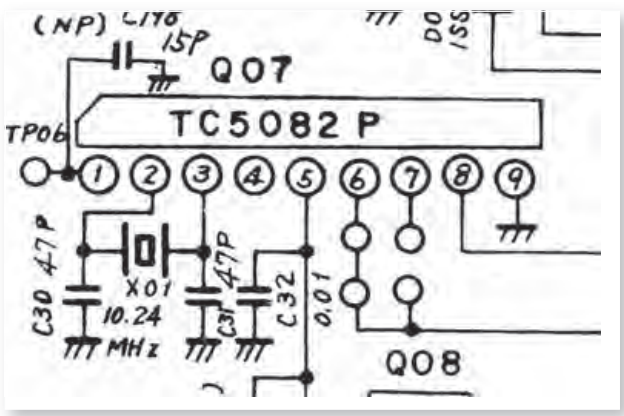

Fig. 1: The crystal that sometimes causes problems is shown lower left , in this part circuit, There was an unmarked capacitor across the crystal.

Short-Cut

The short-cut to getting the rig back on frequency is quite easy, set the rig to around 145 MHz in u.s.b. mode, and tune in to the 145MHz harmonic of an accurate one or 5MHz crystal calibrator. (If you want to build a really accurate crystal calibrator see **Tony Nailer**'s article in the September issue). Zero beat should occur at exactly 145MHz, but if it does not, tune TC3002 (see page 26 of the FT-480 manual) until it does.

Next, check that the pitch of beat note alters smoothly as you tune, and that the fine-tuning steps fit in correctly between the larger steps, if not adjust TC3003. Repeat these two actions until the tuning is smooth without sudden jumps, and that the frequency is correct. Bert went through this procedure, and was happy to report full success at zero cost, which is how we all like it.

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The Icom IC-240

I received the following note from **Alan Crookes G8UCN**, "In the October 2008 *PW* I was interested in your article about the FDK rigs, and the problems with feed-through pins. Well, the Icom IC-240 had the same problem. As a young G8 back in 1979, I got myself a nice new state-of-the-art IC-240 with diode matrix channel selection. We were starting to move on from crystal control channels, it was a great mobile rig, but after 18 month it started to do real weird things, i.e. changing channels or suddenly going into transmit.

I contacted Icom at Herne Bay and they told me that a fault had been found in production. The feed-through pins which had been used turned out to be some sort of wire which was coated, and did not quite 'take' solder. This meant, that after a period of time (approx 18 months) they would become 'dry joints'. The nice man at Icom told me to get a solder sucker and remove the 18 feed-through pins, and replace them with some tinned copper single strand wire. I did the said repair and the IC-240 burst back in to action and I never had the problem again."

Thanks Alan for that tip! The IC-240 is an ideal simple to operate mobile rig, let's hope that a few now get the dust blown off, and put back into operation.

How It Worked

Let me turn now to how our Camera Shutter Tester worked. The final circuit is shown in **Fig. 2**, and the

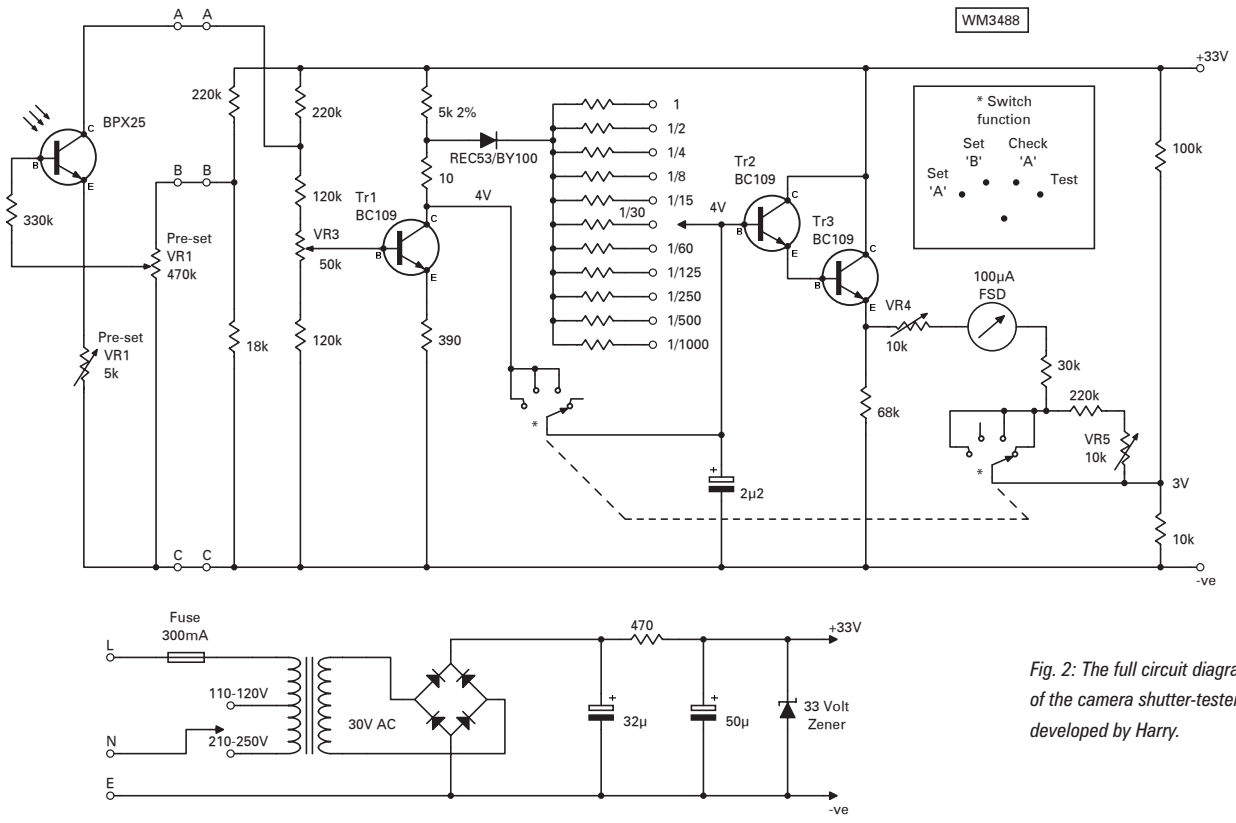


Fig. 2: The full circuit diagram of the camera shutter-tester developed by Harry.

approximate voltages shown are with the switches in the **Test** position with no light falling on the photo diode. In this position with the pre-set calibration control VR4 set halfway, the meter has a sensitivity of about 3.5V full-scale deflection; its negative terminal being +3V relative to chassis. The two transistors Tr2 and Tr3, known as a 'Darlington Pair', are connected to C1 and have a very high input impedance. With 4V applied from Tr1 to Tr2 via the timing resistors, or via the 'Check A' position of the switch, approximately 3V will be applied to VR4.

The meter is in the centre of a balanced bridge circuit, and if less than 4V is applied to Tr2 the meter will move backwards; with more than this it will move forward, and with about 7.5 volts applied it will read full scale.

When the switch is in the 'Set B' position the sensitivity of the meter circuit is reduced to around 30V full-scale deflection (f.s.d.). As its negative terminal is at +3V and around one volt is 'lost' in the Darlington pair, it would then need about 34V on the base of Tr2 to give full scale deflection. The circuit saturates before this point is reached, and the exact sensitivity is set during calibration by VR5.

The variable resistor VR3, is the front panel 'Set zero' (Set A) control, and VR2, mounted in the photo diode head, is a pre-set coarse Set zero control. Resistor VR1 is also mounted in the photo head and is pre-set to determine the sensitivity to light. The photo head unit is a small plastic box along with the BPX25 photo diode, one resistor and the two pre-sets.

The tester requires an even, but variable strength light source, such as a 6V torch with the glass covered with tissue paper or opaque plastic. This should be fed from a regulated d.c. supply with a variable resistor of about 10Ω in series. The camera being tested must be firmly mounted and earthed to prevent variation of light strength or electrical interference. A crude but effective set-up is shown in the picture with an early version of the tester, the photo-head being held on the camera with a rubber band.

Once everything is mounted, testing a camera is very simple. With the shutter closed switch first to 'Set A' and with the 'Set A' control, zero the meter at point 'A' (next to the 100% fast mark). Next select 'Set B' on the tester, set 'B' on the camera speed dial, open the lens aperture fully or remove the lenses, and then fire and hold open the camera shutter. The set up can be seen in a picture I took at the time, **Fig. 3**.

As light falls on the photo diode the voltage on the collector of Tr1 will increase, and meter will move to the right. Adjust the position of the light and camera for maximum reading, and then set the brightness of the light so that the pointer moves to point, 'B' near the 70% slow mark on the scale. From now on make sure that the camera and the light do not move, and close the camera shutter.

Switch the camera and the tester to the same speed, switch to 'Check A' and check that the pointer still rests over the 'A' mark on the scale. Switch to test, fire the shutter, and C1 will be charged via the selected charge resistor, which is in series with the 5kΩ resistor in the collector circuit of Tr1. The charge into C1 is proportional to the brightness of the light, and to the lengthy of the pulse, and so the reading shown on the meter is the error of effective exposure, just as a film would register it. A good camera should read within the ±25% marks, any that read outside the ±50% marks, will over or under expose the film and need attention.

Fancy having a go at making your

Fig. 3: The camera shutter-tester in action on the photographic test-bench.

own camera shutter tester? Our patent was allowed to expire years ago, so there's nothing to stop you reproducing the project. The p.c.b. layouts have long since disappeared, but if you can work from a circuit using your own 'ugly' or strip-board layout, you should have no problem. Next month I will give you a few more details and the values of the charge resistors.

Hi-Fi RFI

Despite the fact that new Hi-Fi equipment is now supposed to comply with EEC Electromagnetic compatibility regulations, all sorts of r.f.i. problems still do crop up. When trying to effect a cure on a Hi-Fi system the best approach is to disconnect all the accessories including the speakers, turntable, tape deck, f.m. antenna etc., and then see if the equipment is clear with only a pair of headphones plugged into the amplifier.

If the breakthrough still occurs it can be presumed that either it's coming via the mains (the most likely cause at h.f.) or by direct pick-up on the circuit boards. Direct pick-up only being likely at v.h.f. or u.h.f. and there's not much you can do to stop this form of pick-up, unless your neighbour fancies operating his equipment in a biscuit tin, or covered with metal foil, (not advisable on safety grounds). Where mains fed breakthrough is concerned the cure is usually a simple matter of filtering the mains lead.

Once the equipment is operating without breakthrough on headphones, start connecting the peripheral devices such as the gramophone turntable, CD player, tuner etc. If the interference reoccurs when an item is re-connected, first filter the lead coming from the item to the main amplifier, and then if necessary also filter the mains and other input leads to the problematic device.

Longer leads tend to pick-up lower frequencies, and short interconnecting leads are the first suspect at v.h.f. and u.h.f. One of the worst culprits in the h.f. range can be the leads to remote extension speakers, as these provide a very efficient end loaded antennas on the h.f. bands.

I remember that one of our customers had problems with breakthrough from the BBC on 198kHz. On investigation, I found that he had installed extension speakers all over his large rambling house, including a pair in a top attic, there must have been 60 or more metres of connecting wire. I advised him to be a little less enthusiastic with his extensions, and to buy a portable radio instead! The downlead from a roof mounted f.m. antenna can also pick-up quite a signal, and feed r.f. into the system, as is of course the case with TVI.

Filtering leads

I prefer filtering leads as I'm always rather reluctant to do internal additions and modifications, when dealing with other peoples equipment. Often, from then on you'll get the blame for any fault that develops.

There are also safety requirements that will have to be taken into consideration, which is particularly true when the mains supply is involved. A circuit with a few capacitors and a couple of chokes may look good on paper, but making sure that it will be safe in the presence of children, family pets, or enthusiastic cleaners, is quite an other story. But more about filtering leads next time.

Being Bugged?

We seemed to attracted a steady trickle of people into the shop, who were convinced that their neighbours, MI5 or the Russians were listening in to them. Strangely however, they always seem to be the type of person who you would have thought eavesdropping on them, would be about as interesting as watching paint dry. No doubt had I gone along to their homes in the guise of some kind of modern day witch-doctor, with a couple of scanners, and some impressive looking test equipment they would have been happy.

When faced with this type of person, I would always 'be unable to help', and tried politely to get them out of the shop as quickly as possible. Getting rid of customers, who make some peculiar request, can be quite a problem in the retail trade, and most businesses have a list of organisations and competitors they re-direct them to, only to have them re-directed back!

Some businesses get over the problem by telling them to write to their MP or a magazine such as *Practical Wireless*, or *Women's Weekly*, almost anything to get rid of them! (And I bet Rob and Tex could tell a few tales*).

*We certainly can Harry! ***Editor***

See you next month. ●

Harry's waiting to hear from You!

I like to hear about problems with older equipment, particularly pre 1990 Yaesu rigs. Please E-mail me, (add some radio related term in the subject heading, to differentiate against spam), or write and enclose a stamped addressed envelope. Remember that electricity is dangerous, if you are not familiar with safety precautions you must never work on your equipment whilst it is plugged into the mains (Switching off at the wall socket does not necessarily make equipment safe).

Carl Mason's

hf highlights

Share your news, views and reports with fellow readers. Reports to Carl by the 15th of each month please.

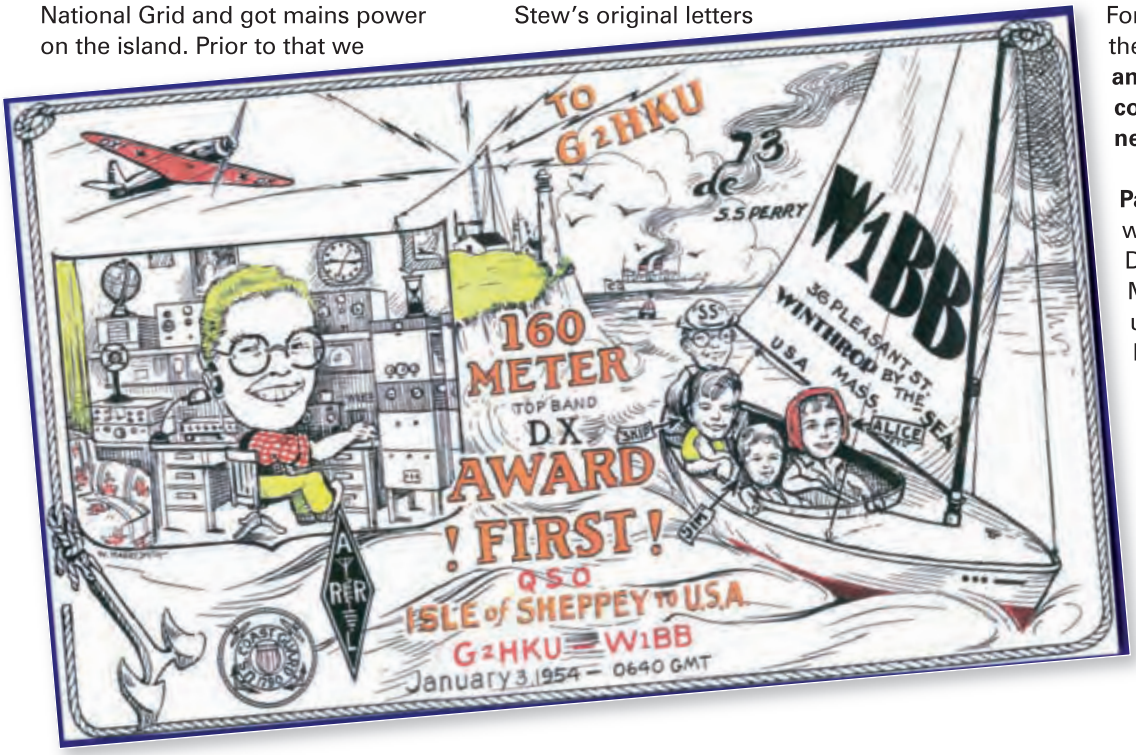
What's been on the h.f. bands over the last month, and things to look out for in the coming moths.

I begin this New Year with a nice story sent in by regular reporter **Ted Trowel G2HKU** on the Isle of Sheppy who says "I am sending you a copy of an award sent to me by American **Stew Perry W1BB** who was a pioneer in the development of DXing on Top Band and the holder of the first 160 DXCC Award. Stew and I kept in touch by mail over many years and always used to send me excellent reports of activity world wide. He used to issue an award for the first contacts he had with any 'new' countries on 1.8MHz and these were drawn up by an artist friend of his. He was so delighted to work the Isle of Sheppy, especially as I was only running 3W, that he sent me the certificate.

"The QSO took place on 3rd January 1954 at 0640GMT with me on 1.830MHz and Stew on 1.838MHz. Just a year after I lost all my equipment in the flood of 1953 and just before we were connected to the National Grid and got mains power on the island. Prior to that we had 230V d.c. supplied by a generator from an old tram system, which dropped to around 180V at lunchtime Sunday! My equipment at the time of the contact was a HRO receiver, the transceiver was v.f.o. 6SN7, 6J5, 6V6 p.a. with 3W output from 230V d.c. and the antenna was a 66 foot (20m) centre-fed with 6in (150mm) open wire feeder at 30 foot (9m) high at my QTH some 6 feet (1.8m) below sea level".

I think that Ted must be very pleased that he holds a bit of Amateur Radio history and although Stew is now a 'Silent Key' his callsign lives on through the **Stew Perry Memorial Radio Club** in Hopewell, New York. Stew's old W1BB callsign was issued to the club on May 9th 1997, as it was considered by many, to be 'too big' for one person to hold. A copy of an original QSL card from the 1950s was modified with the club name on the front by **Harold Coughlin WA1J** and it's this which is sent out to confirm a QSO or s.w.l. report.

The W1BB call is now used only in casual QSOs and contests on 1.8MHz where Stew made his presence known and heard for many years. Some of Stew's original letters can be found at **www.w8ji.com/160_history.htm**



The DX News

To the DX news now and it's appropriate with this cold weather that we head to the German 'Neumayer II' Station on the snow covered Ekström Ice Shelf, in Antarctica. A shelf that is about 200m (650 ft) thick and almost completely flat. Neumayer is a research observatory for geophysical, meteorological and air chemistry measurements and it's also used to monitor the ozone layer. It's at Neumayer that **Torsten Grasse DL1TOG** and **Felix Riess DL5XL** will be working and may be active as **DP0GVN** during their spare time. It's not known, as I write, what bands you can expect them to operate on, but if you do work them the QSL route is via DL5EBE.

In February 2009 the base will be replaced by the new "Neumayer Station III" and Felix will be a member of the first team staying through the winter. He plans to operate as **DP1POL** from the new station until early 2010 and the QSL route will be via DL1ZBO). For further information on the station look up **www.antarcticconnection.com/antarctic/stations/neumayer.shtml**

Also in Antarctica **Bob Paton VK2ABP/VK2MRP** will be working at Davis Base until at least March 7th and possibly until December this year. Bob doesn't know when he will be able to operate on the Amateur Radio bands, but when he does, his callsign will be **VK0BP**. The QSL path will be via **Allan Meredith VK2CA, POB 890, Mudgee NSW 2850, Australia**. Davis Station is a permanent base in Antarctica managed by the

Carl Mason GW0VSW
2, Golwg-y-Bryn,
Woodland Road,
Skewen,
Neath Port Talbot,
SA10 6SP
Tel: 01792 501176
E-Mail: gw0vsw@btinternet.com

Australian Antarctic Division (AAD) and is located in Princess Elizabeth Land, which is an unusually ice free area of Antarctica known as the Vestfold Hills.

The Davis base has become the busiest of Australia's Antarctic stations supporting a wide variety of scientific research in the local and surrounding areas in the summer. In the winter the main activity is the study of Upper Atmospheric Physics. Updates on this operation will be available at **www.vk0bp.org**

From the Antarctic to a warmer clime now! The Republic of Lebanon is a country in Western Asia lying on the eastern shore of the Mediterranean Sea and bordered by Syria to the north and east and Israel to the south. **Salvo Vitale IV3YIM** is active from here as **OD5/IV3YIM** until April and can be found using s.s.b. and RTTY on the 3.5, 7, 14, 21 and 28MHz bands. There may be the possibility of other modes being used, including PSK31 and other bands including WARC. You can QSL via the bureau or direct to **Via Toscanini No. 5, Gorizia, 34170, Italy**.

Also operating from Lebanon will be **Ken W5YFN** who has received approval from the local authorities to operate as **OD5/W5YFN** until November.

The annual DXpedition of **The Radio Club Dr Provins F6KOP** will be on the Kerkennah Islands AF-073 which are a group of low-lying islands in the Gulf of Gabes lying off the east coast of Tunisia and are no more than three metres above sea level. The callsign **TS7C** will be aired by a large group of operators using up to seven stations until January 19th. The QSL will be via **Sylvain Lefevre F4EGD** via the bureau or direct to **10 rue Ste Agathe, 37390 Chanceaux Sur Choisille, France**.

Finally, Hungarian operator **Peter Brucker HA3AUI** is back in Western Africa and will be active in his spare time from Senegal as **6W2SC** and Guinea-Bissau (one of Africa's smallest nations) as **J5UAP** until the March 31st. Peter plans to operate digital modes most of the time with some c.w. and s.s.b. by request on all bands from 1.8 – 28MHz with 500W in 6W and using 6–100W from J5. The QSL is via the bureau or direct to HA3AUI at **POB 15, Zamardi H-8621, Hungary**.

Your Reports

On to your reports now and the first is from Athens, Greece where **Panos Dadis SV1GRN** managed to get two s.s.b. contacts on 1.8MHz using a Icom IC-756 PROIII and about 50W to a long wire antenna. They were with the the Bou-Saada Radio Club 7X5VRK (Algeria) 1235 and the Contest Team LZ9W (Bulgaria) at 1557UTC.

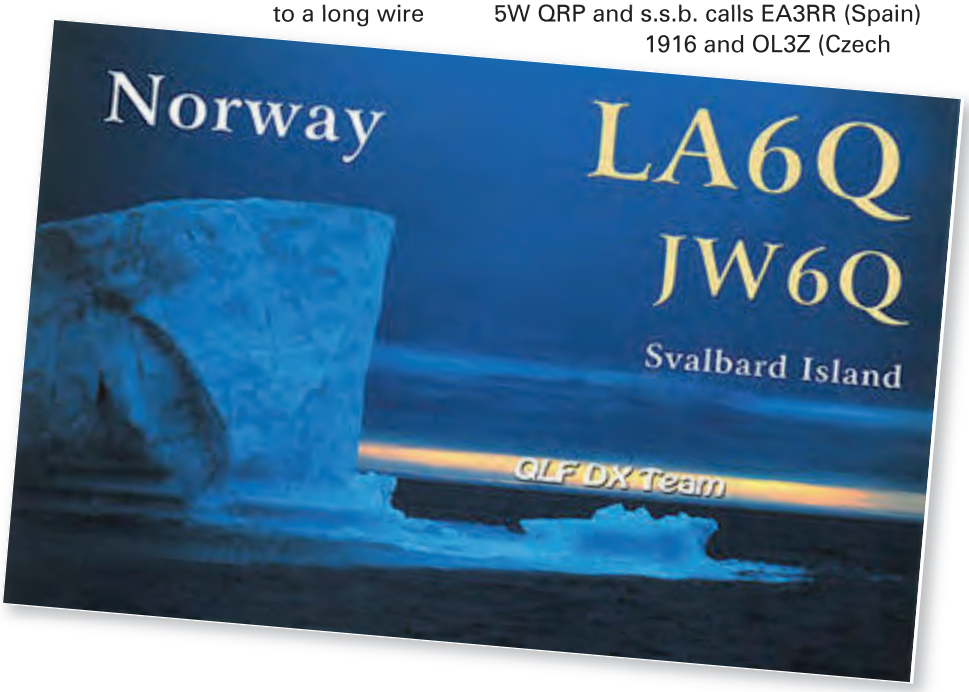
The 3.5MHz band provided PSK31 stations YU7NW (Serbia) 1648, YL90GBL (Latvia) 1657, OM3CHP (Slovakia) 1820, UT9LB (Ukraine) 1832, HG1848I (Hungary) 1952, a special call to commemorate the 160th Anniversary of The 1848-49 Hungarian War of Independence QSL via HA3HK and LZ1HK (Bulgaria) at 2007UTC.

In Middlesbrough, **Keith Winward 2E0JKD** has sold his microphone and now concentrates on c.w. using a Kenwood TS-570D and Sandpiper MV10 'all h.f. band' vertical antenna. Using 30W, he had QSOs that included TM6VG (France) 1840 QSL via F6KUF and OZ1CTK (Denmark) at 2030UTC.

Also on the band was **Eric Masters G0KRT** in Worcester Park, Surrey who used 5WQRP to make c.w. contacts with Robert G4LAM 1855 and Derrick GM4CXP at 1926UTC using a Kenwood TS-570 and a modified W3EDP antenna and tuned with a SG230 auto tuner.

The 7 & 10MHz Bands

On 7MHz, Eric managed c.w. station DL1EGR/FOX (Germany) at 1815 with 5W QRP and s.s.b. calls EA3RR (Spain) 1916 and OL3Z (Czech



Republic) at 1914UTC with 100W level.

Back in Greece Panos SV1GRN tried PSK31 on 10MHz working EW6AG (Belarus) 1831, F4ABQ (France) 1838, EA1GN (Spain) 1843, CT1BWU (Portugal) 1848, OK1AKU (Czech Republic) 1852, PH0AW (Netherlands) 1857, 9A70LPC (Croatia) 1905 QSL via 9A7KM, IK6IKJ (Italy) 1907, Fred G3YJQ in Plymouth at 1925, ZL3RG (New Zealand) 1942 and RX3DTN (European Russia) at 2117UTC.

The Hi-Mound 'twin' paddle of Keith 2E0JKD was worked hard as his log showed a good number of calls. These included DJ2OD (Germany) 1245, The editorial Office of *QTC Magazine*'s special call HF90PR (Poland) 1305 marking the 90th anniversary of Poland's independence, QSL via SP2FAP, YL90GN (Latvia) 1315, LY70GW (Lithuania) 1320 and LA5LT (Norway) at 1534UTC.

As the weather is getting colder **Paul Morrison G0VHT** in Silverstone, Northamptonshire decided to spend "more time in the shack than operate /P from the car" and was tuning up on 10MHz when he heard 9H3YL (Malta) EU-023 calling CQ with a signal 539 at best in deep QSB/QRN. He got Anne, whose home call is OH2YL, first call and could only assume that the QRN at Anne's end was at a much lower level! And 9L0W (Sierra Leone) QSL via DK2WV was also worked the same way. Paul went on to say "even though a signal may appear weak to you it is surprising how many times you can manage a QSO." This is something that seems to work for me recently while operating QRP.

The 14MHz & 18MHz Bands

The 14MHz band was in reasonable shape when **Martyn Medcalf M3VAM** in Chelmsford, Essex could operate. He spent a fair bit of time on the band and using s.s.b. worked 9A/I2CK/P (Croatia) on EU-090 at 1057, YO8KVS (Romania) 1451, 3V8BB (Tunisia) 1459, UT0RZA (Ukraine) 1504, PF0EMC (Netherlands) 1656, K1ZM (U.S.A.) in Hopewell Junction, New York at 1725, 7X4AN (Algeria) 1805, The QLF DX Team LA6Q (Norway) 1816 QSL via LA6VDA, ON5GO (Belgium) 1828, OZ0MJ (Denmark) 1900 and DH8TJ/P (Germany) at 1917UTC using his Icom IC-746, SGC-237 auto tuner and half-size G5RV antenna.

Also spending a little time on the 14MHz band was Keith 2E0JKD, who logged K0BLT (U.S.A.) 1400 in Bridgeport, Nebraska and HA5AWT (Hungary) at 1424UTC with his 30W c.w. signals.

The 18 & 21MHz Bands

Now on to the highest bands, that I have logs for this month, where using s.s.b. at 100 watts Eric G0KRT worked hard to pull 9H4DX (Malta) out of the noise at 1600UTC on 18MHz before the band finally closed. Meanwhile Panos SV1GRN managed PSK31 contacts with ON170M (Belgium) at 1158 before moving up to 21MHz and used s.s.b. to find 4X0V (Israel) 1209, EI7M (Ireland) 1220 EU-015 QSL via EI6HB and 6V7M (Senegal) at 1237UTC QSL via DH7WW.

Signing Off

That is it for this month and my thanks to all our reporters for their logs. As this column was put together slightly earlier than usual I apologize if your log did not make it this time. However, they will appear in the next issue. Thanks also to **Mauro Pregliasco I1JQJ/KB2TJM** editor of the 425 DX Newsletter for all the DX information. Until next time I wish you all a very Happy New Year and good DX in 2009.

73, Carl GW0VSW

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Please insert this advertisement in the ..... **issue of** *Practical Wireless* (if you do not specify an issue we will insert it in the next available issue of *PW*) for ..... insertion/s. I enclose Cheque/P.O. for £.....(42p per word, 12 minimum, please add 15% VAT to total).

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BARGAIN BASEMENT

SEND YOUR ADVERT TO:-

***PRACTICAL WIRELESS*, BARGAIN BASEMENT, ARROWSMITH COURT, STATION APPROACH, BROADSTONE, DORSET BH18 8PW**

For your advert in Bargain Basement please remember to include your dated, coloured corner flash from this page along with your entry.

BARGAIN BASEMENT RULES - £4 per advert

Please write your advert **clearly** in **BLOCK CAPITALS** up to a maximum of **30 words**, plus **12 words f**or your contact details on the form provided and send -it together with the dated corner flash and your **payment of £4 (subscribers** can place their advert **free of charge** as long as they provide their **subs number and corner flash),** cheques should be made payable to **PW Publishing Ltd.**, credit card payments also accepted.

Send your advert to **Bargain Basement, Practical Wireless, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW** or E-mail your advert to **peter@pwpublishing.ltd.uk** (If you don't want to include your credit card details on your E-mail, just 'phone us on **0845 803 1979**.

Please help us to help you by preparing your advert carefully. Any advert which contains **??** marks indicates that the advertiseing dept. could not read/interpret the wording.

Please avoid FAXing your advert - it could delay publication.

Advertisements from traders or for equipment that it is illegal to possess, use or which cannot be licensed in the UK, will not be accepted. **No responsibility will be taken for errors and no correspondence will be entered into on any decision taken by the Editor on any of these conditions.**

You should state clearly in your advert whether equipment is professionally built, home-brewed or modified.

The Publishers of *Practical Wireless* also wish to point out that it is the responsibility of the buyer to ascertain the suitability of goods offered for purchase.

FOR SALE

AR88 0.5-32MHz in very good condition. Front panel and writing exceptional. Offer close to £100. Mutual delivery arrangements.
Tel: Chris 01603 736147 (Norwich).

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Receivers R-1155, £125. B40, £100. Yeasu FRG-7, £80. R-210, £80. Advance signal generator, £40. Solartron PSU, £50. Muirhead test set type D-30-A, offers.
Tel: Mike 01798 342338 (West Sussex).

PRIVATE COLLECTION of USN/ USAAF Aircraft radio/Nav equipment 1940s vintage, plus misc. items to be sold as one lot. Est. 950Kg.
Tel: 01636 821191 (Newark).

SILENT KEY SALE G3ZWH. Drake 2B plus Q-multiplier, £150. IC-7000, £625. IC-706 MkII, £375. IC-55 PSU, £75. FT-817 with case, £275. 20A PSU, £40. MFJ keyer, £35. Icom auto ATU, £150.
Tel: Colin 01634 250427 (Kent).

TRIO TR-2300 TRANSCEIVER with VB 2300 amplifier, £150. Kenwood TH-D7 2m/70cm with TNC dual-band, £175. Uniden Bearcat twin turbo, nine bands radio scanner, £50. Morse tutor Datong model D70, £25 collected or post.
Tel: Ken M0DDD 0151 348 1233 (Cheshire).

YAESU FT-101B 2 x 6JS6Bs, 2 x Zaeuxs. Good working order, £120 o.n.o. Boxed to go. Buyer collects.
Tel: 01296 738029 (Buckingham).

YAESU MD-100 A8X desk microphone. Boxed, as new, £80 including P&P.
Tel: Gordon M0GIQ 01724 734742 (North Lincolnshire).

YAESU VR-5000 scanner/receiver. All-mode, in mint condition. Boxed, hardly used, £430 o.v.n.o. Tel: Stephen 0796 148 7607 anytime after 6pm. E-mail sw84jw@aol.com

WANTED

FT-101ZD display unit as mine keeps freezing. Tel: Ross 01726 891320 (St. Austell).

OLD HALF INCH FERRITE RODS must be half inch, 12.7mm, in diameter and be six inches long or more. Will pay very good money for the rods. Tel: Peter Tankard 0114 2316321 between 9am and 9pm (Sheffield).

SELINA RUSSIAN 8-band radio (multiband).
Tel: 01908 511709 (Milton Keynes).

Bargain Basement order form

Please insert this advertisement in the next available issue of Practical Wireless.

☐ **For Sale** ☐ **Wanted** ☐ **Exchange**

PLEASE NOTE: as a security measure, you must include your house number and postcode.

Name .....

Address .....

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..... Post code .....

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CARD NUMBER

Signature ..... Security number

LAST THREE DIGITS ON THE BACK OF THE CARD

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Start date of card ..... Expiry date of card .....

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B.B. Feb '09

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Award-winning reviews of world band radios and accessories, with ratings of dozens of models from Sony, Grundig and others. Radios for emergencies, too.

Wealth of helpful how-to articles, along with a directory of station contacts, webcasts and a glossary.
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592 pages

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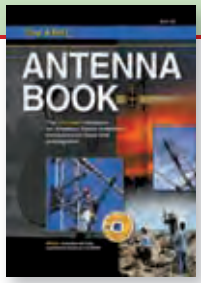

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The ARRL Antenna Book as THE source of current antenna theory and a wealth of practical how-to construction projects. Use this book to discover even the most basic antenna designs, wire and loop antennas, verticals, and Yagis--and for advanced antenna theory and applications. Many of the antennas in this edition benefit directly from advances in sophisticated computer modeling.
This 21st edition has been extensively revised to include information you can use to build highly optimized or specialized antennas. The book includes new content on Near Vertical Incidence Skywave (NVIS) techniques, phased arrays, S-parameters as used in modern vector network analyzers (VNA), Beverage receiving antennas, mobile, screwdriver antennas, ionospheric area-coverage maps, and much,much more.
A fully searchable CD-ROM is included containing The ARRL Antenna Book in its entirety, using the popular Adobe® Reader® software for Microsoft® Windows® and Macintosh® systems. View, search and print from the entire text, including images, photographs, drawings, everything!
The CD-ROM contains additional utility programs, including:
YW -- Yagi for Windows (view manual)
TLW -- Transmission Line for Windows (view manual)
HFTA -- HF Terrain Assessment for Windows (view manual)
Range-Bearing -- compute range/bearing or latitude/longitude
Arrayfeed1 -- designing phased-array feed systems
EZNEC-ARRL -- antenna modeling for Windows
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Propagation forecasts for more than 170 QTHs around the world for all portions of the solar cycle are included on the CD-ROM
944 pages, softcover book with CD-ROM.

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● **CIVIL AIRCRAFT MARKINGS 2008** Alan S Wright. (abc)	436	£9.99
● **MILITARY AIRCRAFT MARKINGS 2008** Howard Curtis. (abc)	226	£9.99
● **AIRWAVES 2008** (Photavia)	144	£11.50
● **CALLSIGN 2008**. (Photavia)	111	£11.50
● **DIRECTORY OF AIRCRAFT SELCALS** 8th edition. (Seldec)	205 PLUS CD	£15.95
● **HF AIRBAND FREQUENCY GUIDE** (Seldec)	225	£14.75
● **NORTH ATLANTIC WAYPOINT ATLAS** (Seldec)	50	£9.50
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● **BACKYARD ANTENNAS** Peter Dodd G3LDO (RSGB)	200	£18.95
● BACK IN STOCK **ARRL ANTENNA BOOK** 21st edition, INC CD (ARRL)	944	£30.99

You can see full descriptions of all these books & order securely on-line at www.mysubcare.com see the magazine's related products section.
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● **HF ANTENNA COLLECTION** Edited by Erwin David G4LQI. (RSGB)	233	£19.95
● **HF ANTENNAS FOR ALL LOCATIONS** 2nd edition. Les Moxon G6XN. (RSGB)	322	£19.99
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● **SIMPLE AND FUN ANTENNAS FOR HAMS** (ARRL)	200	£16.99

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● **DXPEDITIONING - BEHIND THE SCENES FOR RADIO AMATEURS WORLDWIDE** N Cheadle & S Telenius Lowe	180	£6.95
● **THE RIG GUIDE** S W White. (RSGB)	88	£3.99
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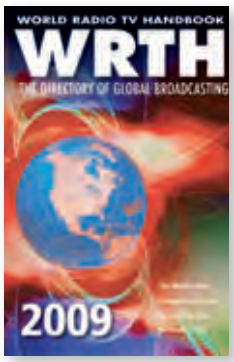

WORLD RADIO TV HANDBOOK 2009 EDITION

The 63rd edition of the best selling directory of global broadcasting on LW, MW, SW and FM.
The Features section has a stimulating introduction to the art of FM DXing, reviews of the latest equipment and a fascinating account of visits to five All India Radio stations.

The remaining pages are, as usual, full of information on:
- National and International broadcasts and broadcasters
- Clandestine and other target broadcasters
- MW and SW frequency listings
- Equipment reviews and articles
- Terrestrial TV by country
- Extensive Reference section and much more!

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ONLY £23.00

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The RSGB Yearbook 2009 contains 512 pages and over 1.25 million words. With close to 200 pages of information it remains the most comprehensive guide to amateur radio in the UK and worldwide. Fully updated information is combined with the very latest licensing data for the UK & Ireland to produce the essential publication for the well-equipped shack.

In the Clubs pages you'll find up-to-date information on National Affiliated Societies, Local Clubs and Societies, Emergency Communications Groups, plus pages of Featured Clubs. RSGB Yearbook 2009 contains a full colour Review of the Year, with synopses from RadCom July 2007 - June 2008. There are over 100 pages on Operating including a full RSGB Contesting Guide for the 2009 events, both HF and VHF. Of course there is all the latest licensing information, a complete list of UK Special Contest Callsigns, Irish Callsigns, plus listings of UK licensees in surname and Postcode order.

£18.99

The CD-ROM version of the RSGB Yearbook 2009, but with a lot more besides!

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Well-known antenna expert Peter Dodd explains what makes an effective HF antenna, how to build one and how to measure its performance. The book deals with real locations, such as small gardens, apartment blocks, lofts, etc and how to obtain optimum performance within the constraints of your location.

£14.99

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A 32-page soft-covered book that takes you through the syllabus, reinforcing what you will learn on the Foundation Course. The course has been designed and introduced for people of all ages and abilities. To take the course you need no formal qualifications. £4.99.

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The second course book in the RSGB's series is structured to progressively obtaining an Amateur Intermediate Licence. It contains practical exercises, broken down into half-hour worksheets. The ideal companion book for all Amateur Radio Intermediate Licence students. £6.99.

ADVANCE! THE FULL LICENCE MANUAL.

This is the third book in a course structured to obtain an Amateur Radio Licence. Advance is the final stage in gaining the full licence and has been updated to suit the new syllabus structure. Broken down into logical sections, it's presented in an easy-to-understand way, making it perfect for home study. £11.99.

AMATEUR RADIO EXPLAINED

Written by well-known author and radio amateur Ian Poole, G3YWX, this book provides the ideal introduction to the wonderful world of amateur radio. Amateur Radio Explained is for people first taking an interest in amateur radio and those ready to move on from Foundation level. Written in a readable and easy-to-understand fashion, Amateur Radio Explained is the perfect introduction to the exciting world of amateur radio. 80 pages.

£5.79

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RADIO LISTENER'S GUIDE 2009

Frequencies and transmitter information for all BBC and commercial radio stations, plus DAB digital transmitter details.
Radio Reviews Independent reviews of analogue and DAB digital radios.
News from BBC and commercial radio stations.
Digital Radio (DAB) The latest news and information. Sky and Freeview radio information and channel lists. Advice on how to get the best from your radio.
160 pages.

£5.95

NEW IN STOCK POCKET UK & IRELAND AIRBAND FREQUENCY GUIDE 13th Edition

The 13th Edition of this popular "POCKET FREQUENCY GUIDE" is now available, the contents represent the most comprehensive and up to date frequency listing currently available.
128 pages A6 (10.5 x 15 cm) Spiral Bound with Colour Cover. **£5.50**

The Pocket UK & Ireland VHF Marine Frequency Guide

This handy, small, ring-bound book lists the frequencies and channel numbers for marinas and ports all around the UK and Ireland. The list runs alphabetically by region, with separate lists for ports, marinas and inland waterways. There are also helpful sections on both the HM and Irish Coastguard, including when to listen to weather forecasts. At the back of the book is the complete list of channel numbers, their equivalent frequency and notes on their use, which means it doesn't matter whether you are using a scanner or a marine receiver you can find the stations you are looking for. 108 pages.

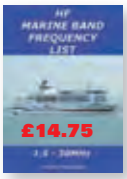
£4.99

HF AIRBAND BAND FREQUENCY GUIDE

The book is intended to enhance the enjoyment in listening to civil, military and government aircraft on short wave throughout the world. In addition to an extensive frequency list, covering from 2MHz to 30MHz, plus ACARS frequencies, the book includes sections on Antennas, Receivers, including DX Tuners (www.dxtuners.com) with information and guidance on decoding ACARS, HFDL, SELCALS, FAX, RTTY and CW. Listings of Major World Air Route Areas (MWARA), Regional and Domestic Air Route Areas (RDARA), and Long Distance Operational Control frequencies (LDOC) are included. A section is devoted to suppliers of Radio equipment, with their addresses and telephone numbers.
225 pages, wire spiral "lay-flat" bound with colour cover.

£14.75

HF MARINE BAND FREQUENCY LIST



The new HF Marine Band Frequency List is our latest publication for listeners with a general interest or a particular interest in Marine Radio. Listed are frequencies of Civil, Military & Government shipping on the HF bands throughout the world. In addition to an extensive frequency list covering from 1.5 - 30MHz (with MF shipping, yes the 500kHz band is still in use!) the book includes sections on antennas, receivers, including DX tuners, with chapters on decoding RTTY, SITOR, CW, FAX and other modes.
225 pages, wire spiral "lay-flat" bound with colour covers.

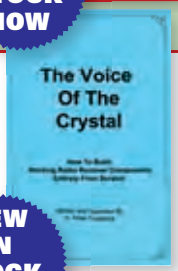
NEW IN STOCK NOW

INSTRUMENTS OF AMPLIFICATION

Rob Mannion G3XFD writes: Peter Friedrichs has written a truly superb book but has chosen a title that really hides its 'light' under the proverbial bushel! Armed with the book an interested constructor can literally build a radio from scratch anywhere! Perhaps a better title could have been *Desert Island Radio for the Shipwrecked* because everything from simple earphones, detectors and mechanical amplifier to home made valves (tubes) and transistors. If you enjoy Rough Science on BBC2 you'll love this book! **Very highly recommended**.

£14.95

NEW IN STOCK NOW



VOICE OF THE CRYSTAL

185 pages of practical information on the fabrication of electronic components suitable for use in building crystal radio sets. Basic theory and simple analysis is combined with dozens of examples of historical practice, work by contemporary experimenters, and construction details for many instruments fabricated by the author himself.

£11.95

NEW IN STOCK NOW

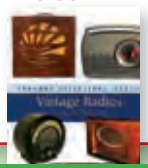
RADIO PIONEERS 1945

Discover the history of the Veteran Wireless Operators Association and the Amateur Radio Relay League. See some of the early wireless catalogues and amateur stations. Get a brief but to-the-point chronology of radio developments to 1925. You get pictures of early tubes, Poulsen in his lab, Marconi parabolic reflectors, a Fessenden alternator and more. The history is brief, fast reading, but informative. You'll read about the personalities and discover what they did.

£7.95

VINTAGE RADIOS

£19.95



This book tells the collector and the armchair wireless enthusiast everything there is to know about classic radios from the 1920s to the end of the 1960s. All the important makes and models are discussed and the author also covers buying and selling, care and restoration and many other topics, including foreign radios and radio-related ephemera. Illustrated with many colour photographs, this is the perfect collector's companion to the fascinating hobby.
208 pages.

	Pages	Price
● **LF TODAY - GUIDE TO SUCCESS 136kHz** M Dennison. (RSGB)	128	£11.95
● **LOW PROFILE AMATEUR RADIO** 2nd edition. (ARRL)	64	£14.99
● **RADIO AMATEURS WORLD ATLAS** (A4)	23	£12.00
● **RSGB AMATEUR RADIO OPERATING MANUAL** (RSGB)	224	£19.95
● **RSGB PREFIX GUIDE**. 8th edition. (RSGB)	34	£8.95
● OUT OF STOCK **RSGB RADIO COMMUNICATIONS HANDBOOK + CD** 9th Edition. (RSGB)	800	£29.99

QRP

● **More QRP Power** (ARRL)	176	£16.99
● **LOW POWER COMMUNICATIONS**. 2nd edition. (ARRL)	240	£14.99
● **LOW POWER SCRAPBOOK** (RSGB)	320	£12.99
● **QRP BASICS**. George Dobbs G3RJV. (RSGB)	204	£14.99

VHF & HIGHER

● **ALL ABOUT VHF AMATEUR RADIO** W. I. Orr W6SAI. (ARRL)	163	£8.95
● **GUIDE TO VHF/UHF AMATEUR RADIO** Ian Poole G3YWX. (RSGB)	180	£9.99
● **VHF/UHF HANDBOOK** Andy Barter G8ATD. (RSGB)	302	£14.99

HISTORICAL

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● NEW **RADIO PIONEERS 1945** (Lindsay)	64	£7.95
● **FJ CAMM - THE PRACTICAL MAN** (RSGB)	110	£10.99
● **VINTAGE RADIOS** (Crowood)	208	£19.95
● **1940s AMATEUR RADIO BOX SET** (RSGB) 6 book set	450	£15.99
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Rob Mannion's

topical talk

This month, Rob G3XFD reflects on readers' letters regarding recruitment to Amateur Radio and the practicalities of using SMDs.

The *PW* Letters pages are literally overflowing with helpful feed-back from readers this month regarding Amateur Radio recruitment and training. Indeed, it was most interesting to hear from **Kevin Luxford VK3DAP/ZL2DAP** regarding the situation in Australia. Additionally, Kevin's 'foot in both camps' experience – as he also holds a New Zealand callsign – enables him to see two differing approaches to the recruitment of new faces to our hobby.

The letter from my long-time friend **Colin Topping GM6HGW** is also illuminating. In fact, Colin's experience in the world of sports sailing has many parallels in Amateur Radio.

For example, I know from personal family experiences in boating and yachting that after a number of years, other commitments – such as further education for the children, getting established in a career and other interests – can push the demanding (time-wise) pastime away from the top of the priority list. Indeed, several relatives of mine – now that their families have 'flown the nest' so to speak – have been able to return to the water, in some cases after many years ashore.

A Privilege

As Editor of *PW* it's my privilege to meet many people who have returned to our hobby after many years away, often for the same reasons I've mentioned. And I think their wish to return to Amateur Radio is yet another reason for us to welcome them with open arms – and **GB4FUN** can play its part.

Although it's not my place to advise the **Radio Society of Great Britain** (RSGB) what to do (even though I'm a member!), I think that in order to get the utmost value from the truly excellent new GB4FUN trailer unit we should ensure that it's presented and operated in the best way possible for **all visitors** showing an interest.

Having heard and seen **Carlos Eavis G0AKI** in action on video, working in his own unique way, and reacting with youngsters as they visited the old GB4FUN vehicle, it's obvious to me that he's the **perfect choice** for that job. Carlos is at home working with the youngsters and they warm to him – indeed the enthusiasm generated by **G0AKI** and his audience as they explore radio together is almost tangible!

However, for older people, particularly mature adults, perhaps a different approach is required? For example, some mature adults (myself included!) can be slower on the uptake as we aren't often able to soak up the information on tap from GB4FUN in the same way as younger people. In fact, youngsters seem to act like sponges when it comes to absorbing new knowledge!

To illustrate the need to adopt a different approach to promoting our hobby **to everyone** through GB4FUN, I think it's worth mentioning the reaction I received from my teenaged Grand-daughter **Georgia** when I forgot something!

"Grandad!", she complained, "Why didn't you remember that? I only told you last week!" (This was uttered with an accompanying – and obvious – impatient stamp of her foot!).

My slightly weary reply was, "Oh well Georgia, you must think of Grandad's busy brain as being a bucket of water, brimming to the top with thoughts, memories, etc. And when more is added, a little over-flows and is sometimes lost!"

Georgia seemed satisfied – and rather amused – with my reply! Since then, she makes sure I'm concentrating on her questions and requests!

I've mentioned my 'Senior Moment' to illustrate why I think we must be prepared to adopt a different – patient – style when we're dealing with older people. However, it's obviously no problem for the many clubs I'm in contact with – judging by the number of successful older candidates for the Foundation and Intermediate Examinations!

On Reflection

On reflection, the very long letter this month from **Harvey Johnstone G1RRG** from Otley, West Yorkshire, should have been published as an article. However, we've published it in letter form because it was the quickest way to get Harvey's excellent advice over to readers. Thank you for your time Harvey!

Finally, is anyone prepared to make a short instructional video on working with SMDs? Please contact me if you are!

Rob Mannion G3XFD/EI5IW

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