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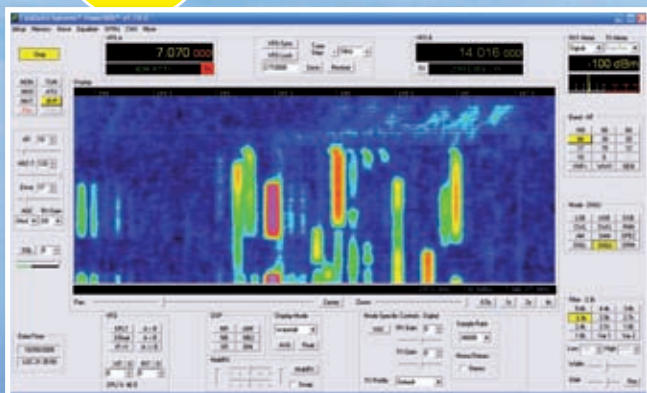
Practical WIRELESS

Britain's Best Selling Amateur Radio Magazine

How did you do?

**PW 2009 144MHz
QRP Contest
Results**

Reviewed



Flex-3000
software defined radio



Valve & Vintage
With Ben Nock G4BXD

**Buying
Second-hand**

*New series with
Chris Lorec G4HCL*

In Focus
*Kilmarnock and Loudoun
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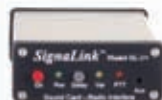


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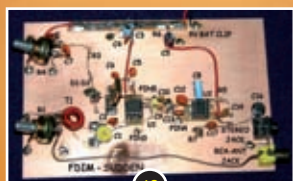
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Rob Mannion's keylines

Tropospheric effects on h.f. and alternatives to incandescent bulbs.

During late August, I was in my shack during one of the few really pleasant clear and sunny days that came our way! And it was pleasing to hear how active the 14MHz (20m) band was, with QSOs in progress all over Europe and beyond, whereas the day before, the band was quite dead as far as I was concerned.

Later on that day I had a 'phone call from a friend who busy on the air from his home in eastern England. He reported that, using QRP s.s.b. 'phone, he'd worked down to Spain on 14MHz and was hearing stations from all over Europe himself.

Interestingly, it was also very nice clear, crisp sunny over most of the UK, in fact it was just the sort of weather where I would expect 144MHz (2m) to be active, which it was! However, even though we're all familiar with the DX enhancing effects of high atmospheric pressure for the v.h.f. bands, there's not much written about (as far as I'm aware) on such effects on the h.f. bands.

I'm sure that readers will remember that I have mentioned h.f. propagation and the weather before. However, my interest was re-awakened on this occasion because I had been re-reading a book featuring the fascinating Pre-Second World War experiences of Phycists and Engineers investigating tropospheric (tropo) weather effects on h.f.

My own observations have always been casual – but I'm now planning something more organised. They'll be simply based, using on air or on listening observations, and recorded in a simple log book to record the state of the weather whenever G3XFD is on the air or on listening watch. Of course, I'll need a reliable source of reference signals and the International Beacon Project's beacons will be ideal for my observations on 14.1, 18.110 and 28.2MHz.

The 7MHz band is a real favourite of mine and along with the available beacons, I'm planning to log call signs of stations I hear, alongside my barometric, temperature and general weather observations. Incidentally, during my 50 years or so on the bands, I've come to the conclusion that 7MHz is the lowest frequency band where propagation can be

noticeably affected by day-to-day tropo' weather conditions.

I would be very interested to hear from PW readers who are also interested in the effects that day-to-day tropo' weather have on propagation. Indeed, I think we've much to learn and you never know – it could help us work the DX more often and reliably.

Illumination Problems?

Now that we are being forced – by what I consider to be badly thought out legislation – to stop using high power incandescent bulbs, I think many radio enthusiasts may be having illumination problems in workshops and shacks caused by the 'energy efficient' types.

My own shack lighting was provided by two 150W incandescent bulbs, plus a 12V d.c. desk light powered by my heavy duty lead-acid battery I also use for portable operations. This is charged by a small solar panel unit or by a mains powered battery conditioner.

I've always avoided fluorescent lighting in the shack because of the high QRN levels. But now that higher power incandescent bulbs are to disappear, I've started my search for suitable replacements amongst the inappropriately termed 'energy saving' mini-fluorescent tube 'bulbs'. The term is inappropriate because to achieve the same level of illumination, we have to buy many more of the 'bulbs'! They cost much more than the traditional incandescent types and only seem to last a year or so, despite claims that they last longer!

So far, I've tried out approximately a dozen types from different manufacturers. My tests were very simple: How effective they were illuminating my shack and how much QRN they produced on my rig on the Amateur and short wave broadcasting bands.

Eventually, I found that two Osram 'Mini Twist' 23W 'warm white' (supposedly equivalent to a 120W incandescent type) gave the best results. Mind you, I'm not so sure that they'll last the six years they claim on the packaging. We'll see!

Rob Mannion G3XFD/EI5IW

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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*.

John Worthington G3COI

Dear Rob,

I was saddened to read John's obituary, as he brought a lot of fun into our lives. Not only could he draw well and 'set the scene', but he saw the funny side of life too. I very much remember his cartoon of a man turning up to collect an AR88 with a heavy, lorry-mounted crane, which I think I saw in *Short Wave Magazine*, many years ago. Rest in Peace John. My regards.

Geoff Theasby G8BMI

Firth Park

Sheffield

South Yorkshire

John Worthington – Much Appreciated

Dear Rob

I was saddened indeed to read the Obituary for John Worthington G3COI in the September 2009 issue of *PW*. I first saw his cartoons in the *Short Wave Magazine* and they were always funny and related well to the radio hobby.

My favourite was the AR88 joke – showing the heavy crane truck – published in *Short Wave Magazine*. Thank you John for amusing us for many years and yes – I hurt my back carrying an AR88 years ago!

Owen Davies

Holyhead

North Wales

The Drifting Cartoon By GW3COI

Dear Rob,

My own memories of John Worthington GW3COI (as he was then) came from meeting him at the Llandudno Rally, which he attended occasionally up until around 10 years ago. Always with his pipe on the go and little car, John was a great c.w. operator and I once heard you and

Star Letter

Getting what you pay for - paying for what you get!

Dear Rob,

As chairman of a group which operates both 2m and 70cm repeaters I note, with sadness, that of the many people using repeaters whilst travelling around the country on leisure and business few appear to realise that this provision costs someone, somewhere money! I know of some repeaters that exist only by the goodwill and sacrifices made by those who manage and maintain them, for they attract little or no financial support from outside.

This is not a plea for money for our group (although we'd never turn any down), but is a plea to those who use repeaters to remember that whilst they use repeaters for free, there is a cost involved in operating, maintaining and upgrading these extremely valuable bits of equipment. If you have ever been stuck on the M1 and been glad of GB3CF or lost in London (or anywhere else for that matter) and used a repeater to get directions – you'll know what a boon they are.

Why not find out about the management group of your favourite repeater(s) and send them a 'tenner' to say 'Thank You' – It'll make you feel part of the success that repeater operation in this country is and will ensure that this success remains for the generations of Amateurs to come.

Or perhaps you'd like to wonder where the repeaters have disappeared to as site rentals and other costs force them off the air? Your choice!

Best wishes to everyone at *PW*.

Rev. Victor Van Den Bergh (G6DIF)

The Parsonage

St Francis' Church

Tamworth

Staffordshire

Editor's comment: *Thank you for your letter Vic and I fully support your suggestion. Please join me on the Topical Talk page for further comment.*

John in QSO on 40m. You were in Buckinghamshire on the way to a club visit and using QRP to a mobile whip from your car.

John's c.w. was very distinctive and you both seemed to enjoy the QSO – I remember that you wrote about it in *PW*.

John seemed to be mostly a c.w. man and it was rare for me to hear him on s.s.b. on 80m. He was great fun and I'll miss him but I still have a copy of *PW* with the hilarious cartoon – showing ragged survivors on a raft in a very rough sea, obviously using an emergency transmitter, with

the caption saying, "He says we're drifting!" What a marvellously funny joke that was!

Peter Jones

Oldbury

West Midlands

John Worthington G3COI & The Vectis Run

Dear Rob,

Until I read your sensitive obituary and tribute to John Worthington G3COI, I had no idea you were the author of the thriller serial *The Vectis Run*. My wife and I thoroughly enjoyed the

serial, although having met you on the *PW* stand at the Castle Donington show, we both realise it was an experiment in *PW*, not likely to be repeated. We both appreciated getting your reply about future serials in *PW* and can understand your decision not to publish any more in the magazine.

Our own enjoyment of *The Vectis Run* spy-thriller in *PW* came from the 'period' style cartoons drawn by John G3COI. The author – G3XFD – set the scene in the text and G3COI finished it to perfection with his cartoons. We are both grateful for the teamwork that produced an unusually well-informed technological thriller that was exciting and gripping at the same time – without a single car chase or fiery explosion. Thank you John and thank you Rob!

Mike & Sheila Hodges
Bicester
Oxfordshire

The Sagging Fag End!

Dear Rob,
What I enjoyed the most about John Worthington G3COI's cartoons was his seeming determination to avoid being 'politically correct' as his cartoon characters always seems to have the droopy fag end between their lips.

Although I'm not a smoker myself, it always amused me that despite modern trends – his characters kept their fags! I'll miss his work, which I first saw in *Short Wave Magazine* in the 1960s and 1970s, before we both seemed to migrate to *PW*.

Trevor Holden
Hartelbury
Worcestershire

John G3COI Kept Memories Alive

Dear Rob,
Sad though it was to read of G3COI's death – he kept my memories of my childhood alive with his atmospheric cartoons. Even though my parents emigrated to South Africa when I was only 10 years old, my father subscribed to *The Short Wave Magazine*. My late father read *SWM* from about 1947 up until his death in 1994) and I always enjoyed John's cartoons in *PW* too.

The Worthington cartoons were more a view of life as John saw them, but were fixed in a period between

1940 and 1955 I think – the same time period my memory is 'tuned' into.

Thank you John, we enjoyed your 'pictures of life'.

Rob Dunlop
Port Elizabeth
South Africa

Worthington The Central Character?

Dear Rob,
Thank you for the interesting tribute to John Worthington G3COI. John's central character – the traditional cloth-capped type with the ever present cigarette always amused me. But, did John model it on himself – I wonder? He certainly had a wry outlook on life!

Tony Brooks
Wellington
North Island
New Zealand

Cartoons Dated – Like Me!

Dear Rob,
I felt that a part of the 1940s and 1950s had passed on with the death of *PW* cartoonist John Worthington G3COI. We had much in common John and I – because we're both rather dated – his cartoons were definitely stuck somewhere in the first ten years of my life – that's why I enjoyed them so much.

Coming from Dundee originally – the city that thrived on Jam, Jute and Journalism, I consider myself to be well read – cartoon-wise as I was brought up on a diet of *The Beano*, *The Dandy*, *Topper* and *Roy of The Rovers*, etc. John's cartoons were of that era and every time they appeared in *PW* I felt closer to my birthplace and the year I was born – 1952. We'll certainly not likely to see the like of G3COI again!

We miss seeing you and the *PW* team at the Dayton Hamvention nowadays, but I always manage to chat to the **Rev. George G3RJV** when he has a few moments at Hara Arena. By the way, the building is even scruffier than it was 12 years ago when we first met there. 73 to everyone at *PW*.

Alaistair McDonald
Burnaby
Vancouver
British Columbia
Canada

John Worthington's Evocative Cartoons

Dear Rob,
It's a long time since I managed to get over to the UK – we usually met at the Wimborne Hamfest – and you may remember how much I enjoyed John G3COI's cartoons when I was chatting with **Tex Swann G1TEX** and yourself at the *PW* stand in a very hot and stuffy marquee.

On the last occasion we met, I was sharing the laughs I had with the April Spoof 'Bats in the Belfry' cartoon and I think it was the most appropriate cartoon for you to include from John's large output, to say 'thank you' to a great Radio Amateur. John's cartoons were evocative of a certain age when we'd all been put back into 'Civvy Street' with a dreadful suit that I thought was fashionable at the time – and I bet that somewhere, G3COI had one of his characters dressed in a demob suit! Our generation is gradually fading away – but we're hanging on at this end! Best 73 to Tex G1TEX and yourself.

John (Jonty) T. Bedford
Malaga
Spain

Reminder Of Warm Valves & Turf Fires

Dear Rob,
I joined the RAF at the latter end of the war and have admired John G3COI's cartoons as they reminded me of my Wireless Mechanic's course, warm valves and turf fires at my parent's home when they lived in Roscommon. Living outside the town they didn't get 'the electric' until the early 1950s and I used to take them as many h.t. batteries I could when I went home on leave – taking my copies of *PW* with me.

John G3COI's cartoons still take me back to those days, the great 'cracks' we had in front of the turf fire, listening to the wireless and enjoying our Guinness. Those were the days – there were always one or two sets waiting for me to repair when I came home. Those days have long gone but we can still enjoy G3COI's work in old *PWs*. Thanks for the memories John.

Michael Doyle
Tullamore
County Offaly
Ireland

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

John Worthington's CW

Dear Rob,

I've always thought of myself as a listener – reading John GW3COI's (he was still in North Wales then), comments on c.w. operating in *PW* helped me keep up to speed with my Morse. After I 'got some in' (National Service) in the Royal Navy, I think I must have been one of the few sailors who never went to sea! Yes, I did go on board ships but I spent most of my National Service copying machine-sent Morse from h.f receivers and typing it out for onward transmission. I was never 'into' the technical side of radio but in that short two years I had Morse rammed into me so hard I've never lost the ability to copy signals on the air.

Now into my late 70s, I'm slower than I used to be copying Morse nowadays, but GW3COI's c.w. was always excellent, he had a good fist. I really laughed at some of his comments in *PW* and wish I'd had the chance to meet him.

John might have been a good cartoonist but he was also a very active 'Morse Man' especially on 80m and I admired him very much. Thanks for your help John, you helped me to keep my own skills from fading away.

Keith 'Tug' Wilson
Stoke Prior
Leominster
Herefordshire

Loughborough Rally & John Worthington G3COI

Dear Rob,

I'm sorry I missed you at the new Loughborough rally at the University – but the gentleman (Steve I think) I spoke to said that you couldn't attend. I hope to see you at another rally in the future. Even though you weren't at the rally – you can rest easily because the staff running the *PW* stand were doing a great job.

I was pleased to see my favourite magazine at the show, which was very much a smaller show than the old venue at Castle Donington. Despite this, the rally had everything I needed and everyone was very friendly and helpful. Also, the lack of the terrible noise from the racing motor bikes and cars is a relief to say the least. I took the train from Nottingham to

Loughborough and soon got to the University and the sports hall. I hope the show was a success for *PW* and the other companies who supported the event.

One of the subjects I wanted to chat about was the loss of John Worthington G3COI. With his passing, an era has come to an end hasn't it? But, although I'm an old grey-beard with much more grey than you have Rob – even my 13 year-old grandson **Jack** enjoys the G3COI cartoons in my large collection of *PWs* – John's look at Amateur Radio life may be from a certain period – but their appeal is timeless.

John 'Jack' Linford
West Bridgford
Nottingham

Editor's comment: Thank you everyone! I've included as many tributes as space allows this month!

However, before inviting readers to join me on the Topical Talk (TT) pages for more comment, I must say that I think that Tony Brooks – from New Zealand – is spot on with his suggestion that G3COI modelled his cartoon characters on himself. The only thing that wasn't true to form was that John was a pipe smoker. He told me that the pipe would have looked too genteel – and he wanted to avoid that image! See you on the TT page!

● Look out for a new publication titled *The World of Worthington* on sale in the Book Store soon!

Tinned Radio Frequencies!

Dear Rob,

At last the very heart of our hobby – r.f. – now comes in cans! See the attached picture I took during my hunt in Tokyo for radio parts.

I have just returned from a business trip to Tokyo. While there I found a few hours to wander around the Akihabara district where there are many shops selling Amateur Radio equipment and related components. I found cans of 'RF' – so, all we need for all those low power problems, is just one squirt for 3dB improvement!

Feel free to use the picture if you think it might bring a smile to a few faces. My best wishes to everyone at *PW*.

Kevin Jackson AA3XV/G4NEJ
Brambleton
Virginia
United States of America



Editor's comment: The photo made me laugh Kevin! Does it come in the 20dB can size for use when I'm desperately trying to break into a pile-up? Thanks for your E-mail and I hope your new home – when it's completed – will have plenty of space for the AA3XV antennas!



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



news & products

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

The Leicester Show At Loughborough!

Steve Hunt, the PW Publishing Ltd. Rally Manager reports: "The 2009 Leicester Amateur Radio Show took place at Loughborough University on Saturday 12th and Sunday 13th September, after many months of speculation about dates and venue changes. The absence of the major UK importers was probably due to this indecision and it must have affected the attendance at the show. However, trade was brisk on Saturday but, sadly, attendance was poor on the Sunday and perhaps the organisers will take this into account when planning next year's show?"

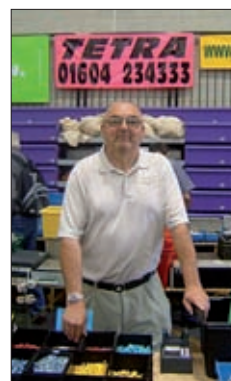
"Waters & Stanton, Moonraker, Radioworld, LAM Communications, Sandpiper, Tetra and Vann Draper, along with PW Publishing Ltd, were the main attractions at the show and, hopefully, were all busy enough to support it next time, as the Leicester Show has been a major event in the rally calendar for years and years (this was the 38th!). I would like to think that, with an early decision and stability

when planning the dates and venue, the rally can return to its former glory next year.

"With people travelling from far afield to see friends and acquaintances, this has always been a lively and friendly show and the new venue offered a clean and tidy setting, although I felt that the catering facilities were poor. It was nice to feel carpet beneath one's feet, unlike the previous locations, where we stood on cold concrete for two days!

"Our editor, **Rob Mannion G3XFD**, was unable to attend this year, due to poor health, but many people left messages for him and he was very grateful when I passed them on.

"On a personal note, as I was a keen sportsman, my ambition as a school leaver was to attend Loughborough University as a student. Sadly, this didn't happen but at least I can say that I've appeared in the sports hall now! Here's to next year, where we look forward to meeting you all again."



Planned DXpedition to Côn Cỏ Island – A New Swiss Family Robinson?

No, it's not really an attempt to start a new Swiss Family Robinson story! Instead, a news release has arrived at the *Newsdesk* with the following announcement: Lucerne, Switzerland, September 15th 2009 – Scheduling their activities for April 2010, an international group of Amateur Radio operators plan to conduct a DXpedition to a remote island off the coast of Vietnam. During their two week stay, the group will make radio contacts with as many Amateur Radio operators as possible around the globe. Running four stations 24 hours a day, they hope to reach 60,000 Amateurs in that period.

The Socialist Republic of Vietnam telecom authorities have issued an official

Amateur Radio Licence and the call sign under which all radio communications will take place is **3W6C**.

Multinational Project

The multinational project, being coordinated by Swiss Radio Amateurs, consists of approximately 20 individuals including one (brave!) lady, with members from Vietnam, Germany, USA and Japan.

The team members are starting to make the extensive preparations necessary for such a DXpedition. Côn Cỏ Island, with a land surface of just two square kilometers, is 32km off the central coast of Vietnam in the Gulf of Tonkin. The island has a population of approximately 400 people. For many years it was a restricted military

zone, but today the Vietnamese government is working to turn this idyllic location into a tourist and vacation destination.

Of special interest to keen DXers is that this island has rarely seen any radio activity. Because it belongs to the popular **Islands On the Air** program (designation: AS-185), and the fact that the Socialist Republic of Vietnam itself is high in the list of most-wanted countries for radio contacts, the DXpedition expects very high interest from the Amateur Radio community around the world.

The goal is to make contacts on as many different frequencies as possible, even in the 1.8 and 3.5MHz bands, which



Video of 1938 BBC TV DX!

Newsdesk reports on a remarkable video that's attracting many viewers on the YouTube site. If you think receiving inter-continental DX on low band v.h.f. is a modern speciality – take a look yourself!

Many 50MHz (6m) band DX chasers will find the YouTube video at <http://www.youtube.com/watch?v=4SniB0JEDGs> to be truly remarkable. No technical information

is given on the antennas used but more information is promised soon. With only one TV transmitter in the UK at the time, identifying that the BBC's

site at Alexandra Palace was the origin of the remarkable signals wasn't difficult. The quality of the received broadcast was surprisingly good and the picture can be seen to fully 'lock' several times during the three minute video.



Editorial note: I can recommend the YouTube site to PW readers because there's much of interest for Radio Amateurs (and railway enthusiasts!) G3XFD.

Angel of the North Amateur Radio Club

The Angel of the North Amateur Radio Club, operating under the callsign **MX0GGP** meets every Monday between 7 and 9pm. On Monday October 12th, **Daniel Harrop 2E1DNZ** will give a talk entitled *HF Mobile operation and how to avoid the pitfalls!* All are welcome.

Our Advanced Licence Course continues – but there's still time to enrol. Meetings take place at **Whitehall Road Methodist Church Hall, Bensham, Gateshead NE8 4LH**. Visitors will find the club at the corner of Whitehall Road and Coatsworth Road. The entrance to the radio club room is through the door at the side of building next to the car park, which is on Whitehall Road. Public Transport Details: Go-Ahead routes 53 and 54. Further details from **Hon. Sec. Nancy Bone G7UUR** via E-mail nancybone2001@yahoo.co.uk By post to ANARC Secretary, **Nancy Bone G7UUR**, 217 Bensham Road, Gateshead NE8 1US. Tel: (0191) 477 0036 (evenings): 07990 760920 (Daytime) Website www.anarc.net

Bangor's Bargain Surplus Sale!

Bangor and District Amateur Radio Society meet on the 1st Thursday of every month in *The Boathouse*, Groomsport, Bangor, Northern Ireland at 8pm.

Mike Stevenson G14XSF reports, "At 8pm on Thursday November 5th 2009, we're holding our annual surplus sale. Please note our new venue, there's a map on our website <http://www.bdars.com> for anyone who needs help finding the boathouse. As always, visitors and new members are most welcome.

Contact **Mike Stevenson G14XSF PRO** on (028 4277) 2383, or club website or: **69 Portaferry Road, Cloughey Newtownards, County Down BT22 1H**



makes this DXpedition very special. But this goal also means that the group must transfer considerable amounts of equipment – including radios, antennas, power generators, computers, and various ancillary supplies – with them to the island.

In order to conduct such an extensive operation will require considerable financial resources. And while the team members are all making personal financial

sacrifices to make this DXpedition possible, they are also dependent upon donations from many sources, whether individuals, ham-radio clubs or commercial sponsors. Further details on the website www.3w6c.qrv.ch or from: **Paul Schreier AA1MI/HB9DST** Tel: 00 41 79 662 63 87 (Contacts preferred via E-mail: comm@3w6c.qrv.ch)

Send all your news to:

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

Improve Your Digital Photos At Thornton Cleveley's Club!

Frustrated at the results of your digital photography? If so – especially if you live in the the north west of England – the answer could be to join the **Thornton Cleveley Amateur Radio Society** on the evening of October 26th, at 8pm when **Peter Hornlower** is to give a talk on this fascinating subject.

Other interesting evenings planned include: Natter Night November 2nd, SSVT by **Kevin Wall G0LRK** November 9th there's a talk on The Ionosphere.

Further details from **John Foster 2E0EZY** E-mail: m3waz@hotmail.co.uk Web site: <http://www.tcars.org.uk/>

Sent to Coventry? – Make Sure You Visit CARS!

If you're being 'sent to Coventry' and enjoy 144MHz direction finding (DFing) here's a date for your diary because the **Coventry Amateur Radio Society (CARS)**

is running a DF event on January 1st 2010 – just the job to get rid of that New Year's hangover! Further details from the Club Secretary **John Beech G8SEQ**.

Other interesting dates for the club meetings later this year include a talk on APRS by **Iain Young G7III** on December 4th. All meetings are held at 8.30pm in **St. Bartholomew's Church Hall, Brinklow, Coventry CV3 2DT**. For further details on this very active club contact the Hon. Secretary **John Beech G8SEQ**. Tel: 079 5877363.

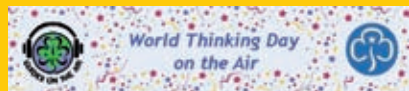


Junk For Sale At Reading!

Readings & District Amateur Radio Club have a grand junk sale on Thursday 12th November and the rules can be found at www.radarc.org

Further details from **Peter Milton G8FRC**. Tel: 01189 695697 E-mail: petermail@peterg8frcmilton.plus.com

World Thinking Day On The Air 2010



Can you offer a Helping Hand to the **Girl Guides** in 2010 – their centenary year? Scottish-based Guider **Seonag Robertson 2M0IMP** is seeking Radio Amateurs to help the Guides get on the air. Seonag writes, "Ofcom have agreed that **Girdguiding UK** stations may use the prefix GG100 during celebrations of 100 years of Guiding. Could you help your local Guides run a Special Event Station on the third weekend of February 2010 (**February 20th and 21st**), or other Guiding event during the centenary year? With your help it's going to be a huge activity session!"

For further information see the website www.guides-on-the-air.co.uk/ **Seonag 2M0IMP**
E-mail: s.robertson@dyceacademy.aberdeen.sch.uk

Burton On Trent Club Members Rolling Out The Barrel!



Burton-on-Trent in east Staffordshire may be internationally famous for its beer – but now they have a 'real head' of enthusiasm in Amateur Radio activities. **Geoff Newstead G8EKG** writes, "Hi PW, I've recently been elected as the Honorary Secretary of the **Burton on Trent Amateur Radio Club** – our Chairman is **Steve Warren M0KPO** – and have taken it upon myself to contact you with a view to publication of some interesting news about the club.

In fact, we believe that the Burton ARC is one of the oldest radio clubs in Britain and used to be highly active in contests and special event stations. The decline of membership can be partly attributed to the lack of a permanent headquarters. This has now been rectified with a move back to the QTH used in the club's early years. Here we plan to undertake training for all licence levels and have a permanent h.f. and v.h.f. shack.

Our website <http://www.burtonarc.co.uk/> clearly shows that our club is steeped in history. One of the founder members of the club was **Mr F. V. A. Smith**, who had the callsign **XSR**, (X = experimental station). Mr Smith was licensed on July 3rd 1914.

We'd be happy to supply any more information. Steve M0KPO is more than happy to supply images from our archives and a wealth of stories and interesting facts." Geoff G8EKG.

E-mailed enquiries via steve.j.warren@btinternet.com



Editor's comment: We're planning to publish an In Focus article featuring the Burton on Trent Club soon and the PW team wish the club all good fortune. G3XFD.



Lewis Thomas G4YTN supervising the builders at the Bath Buildathon.



Keen student Simon, busy with some of his own tools during the Bath Buildathon.

New Video & Bath Buildathon From Steve Hartley G0FUW

Steve Hartley **G0FUW** is well known for turning the ancient west of England City of Bath in Somerset, into the modern Amateur Radio 'Buildathon Capital'. Steve has now produced a new DVD programme, which should prove helpful to anyone who is planning their own Buildathon or would like to attend one themselves*. The DVD has a really professionally-produced look to it and this is thanks to two Radio Amateurs who are also retired broadcasting Engineers and Steve comments that, "The quality of the actual programme is really down to them and they gave their time freely for the benefit of our hobby, showing the true spirit of Amateur Radio!"

**Note: The next Buildathon is being planned for November 2009. Please contact Steve for more details.*

Copies of the DVD are available for £2 (a £1 donation towards the costs of postage would be helpful) and £1 from Steve from his home address at **5 Sydenham Buildings, Bath, Somerset BA2 3BS**.
E-mail: G0FUW@tiscali.co.uk

Editor's comment: The programme on the DVD is excellent and it's eminently 'viewable'. Unfortunately, we can only provide a few 'stills' from the DVD (shown left) and I hope they'll give an idea of what's in store for anyone who obtains one from Steve. He and his friends have done a great job! G3XFD.

FREE ALINCO DJ-G7E COMPETITION!

You've read **Colin Redwood G6MXL's** review in the October issue of *PW* and now – by entering our special competition – you could win the Alinco DJ-G7E tri-band transceiver kindly donated by **Mike Devereux G3SED** of **Nevada Radio** in Portsmouth.

Our free-to-enter competition is very simple. All you have to do is to answer three questions. The answers to two of the questions are in the review itself and the other may tax your powers of observation – but it's in *PW*! Find the answer to all three questions, fill out the form (photocopies acceptable) and send it to *PW* before the closing date. Please attach the corner flash with your entry as proof of purchase if you send in a photocopy of the page.

In the review Colin G6MXL said, "At a price of £359 the Alinco DJ-G7E isn't a cheap hand-held but it has a combination of features that makes it unique in the market. As far as I'm aware, no other manufacturer currently offer a 1.3GHz hand-held on the UK market and few others provide full duplex for satellite operation on 144 and 430MHz. If either of these features is important to you, then I have no hesitation in recommending the Alinco DJ-G7E."

Question 1: On which Amateur band did Colin G6MXL's first QSO take Place?

Question 2: What type of antenna connector is used on the Alinco DJ-G7E?

Question 3: Where else in *PW* can the 'deliberate' mistake describing the DJ-G7E be found?

**THE
DJ-G7E IS
WORTH
£359.95!**



Question 1 answer:

.....

Name & Callsign (if applicable):

.....

Full address with postcode:

.....

.....

.....

Question 2 answer:

.....

Question 3 answer:

.....

E-mail address:

Telephone number:

Send your entry to:

Send your entry to: **The Alinco DJ-G7E Competition, Practical Wireless, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW.**

Closing date: **Thursday 12th November.** The winner will be notified by E-mail, post or by telephone. The first entry, **with all three questions answered correctly**, to be drawn out of the Editor's (outside!) hat after the closing date. **Editor's decision is final and no correspondence will be entered into.**

Photocopies of this form are acceptable, but you must send in the corner flash as proof of purchase please.

Note: The information provided above will not be passed on to third parties and will only be used to contact you if you win.

**Alinco DJ-G7E
Competition November
2009**

rallies

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

Send all your rally info to

PW Publishing Ltd.,
Arrowsmith Court,
Station Approach,
Broadstone,
Dorset BH18 8PW

E-mail: newsdesk@pwpublishing.ltd.uk

October

October 10th

The Chesterfield Radio Rally

The third Chesterfield Radio Rally will be held at Hasland Village Hall, Eastwood Park, Hasland, Chesterfield S41 0AY (this is less than 5 minutes from Junctions 29 and 29a of the M1). There will be talk-in on 145.525 & 433.525MHz (CTCSS 71.9Hz), parking and refreshments.

Tel: 0844 4142056 or 0870 7669104

www.chesterfieldrally.com

October 11th

The Great Lumley Rally

Great Lumley Amateur Radio and Electronics Society Rally will be held in the Great Lumley Community Centre, Front Street, Chester-le-Street DH3 4JD. Doors will open at 10.30am and admission will be £2.00. There will be trade stands, a Bring & Buy, catering and facilities for the disabled.

David Barclay M0BPM

Tel: 0191 3888113

E-mail: m0bpm@btinternet.com

October 18th

The Galashiels Rally

The Galashiels and District Amateur Radio Society Radio and Computer Rally will be held in the Volunteer Hall, St John's Street, Galashiels TD1 3JX. Doors will open at 11.00am, admission will be £2.00 and there will be trade stands, catering and a Bring & Buy.

Jim GM7LUN

Tel: 01896 850245

E-mail: gm7lun@qsl.net

October 18th

The Blackwood Rally

The Blackwood and District Amateur Radio Society Rally will take place in the Coleg Gwent Crosskeys Campus, Risca Road, Crosskeys, Gwent NP11 7ZA. Doors will open at 10.30am (10.00am for the disabled), there will be car parking and admission will be £2.00. There will also be trade stands, a Bring & Buy, special interest groups, a raffle and catering from Tony's café 50 yards away (10.00 to 4.00)

Dave GW4HBK

Tel: 01495 228515

E-mail: ddlewhbk@btinternet.com

www.gw6gw.co.uk

October 25th

The Northern Mobile Rally

The Northern Mobile Rally will be held at the Richmond School, Darlington Road, Richmond, N. Yorkshire DL10 7BQ. Doors will open at 10.30am (10.00am for disabled) and there will be parking, trade stands and catering.

E-mail: rsars@hotmail.co.uk

www.rsars.co.nr

October 31st/November 1st

The North Wales Rally

The North Wales Rally will take place in the John Bright School, Llandudno.

Liz Cabban GW0ETU

Tel: 01690 710257

E-mail: lizcabben@vodafonee-mail.co.uk

Ron Roberts GW6ZDH

Tel: 01492 592884.

November

November 1st

The Great Northern Hamfest

The Great Northern Hamfest will take place in the Metrodome Leisure Complex, Barnsley S71 1AN. Doors will open at 11.00am and there will be trade stands, special interest groups, a Bring & Buy and facilities for the disabled.

Ernie G4LUE

Tel: 01226 716339

November 1st

The Holsworthy Rally

The Holsworthy Amateur Radio Club Rally will be held in the Holsworthy Community College, Holsworthy, Devon EX22 6JD. Doors will open at 10.00am and admission will be £2.00. There will be trade stands, a Bring & Buy and catering.

Don G0RQL

Tel: 01409 261223..

November 1st

The Foyle & District Rally

The Foyle & District Amateur Radio Club Rally will take place in the Best Western White Horse Hotel, Derry BT47 3PA (Tel: 028 7186 0606) from 12 noon.

November 14th

The Rochdale & District Rally

The Rochdale & District Radio Society Rally will be held in St Vincent's Church Hall, Caldershaw Road, Rochdale OL12 7QL. Doors will open

at 10.30am, admission will be £2.50 (with concessions for under 12s and seniors) and there will be a Bring & Buy and catering. A percentage of the proceeds will go to the Floyd Neuro-Rehabilitation Unit in Rochdale.

Dave G0PUD

Tel: 07710 243107

E-mail: dave.shaw@zen.co.uk

www.radars.me.uk

November 15th

The CATS Radio & Electronics Bazaar

The CATS Radio & Electronics Bazaar will be held in the 1st Coulsdon Scout HQ at the rear of the Council Car Park, Lion Green Road, Coulsdon, Surrey. Doors will open from 10.00am to 1.00pm, admission will be £1.00 and there will be free car parking, catering, a Bring & Buy and facilities for the disabled.

Andy G8JAC

E-mail: g8jac@btinternet.com

November 22nd

The Plymouth Rally

The Plymouth Radio Club Rally will take place in the Elm Community Centre, Leypark Walk, Estover, Plymouth PL6 8UE. Doors will open at 10.30am (10.15am for the disabled) and there will be car parking, talk-in, a Bring & Buy, trade stands, catering and a raffle.

Sheila Hart 2E0YSH

Tel: 07795177048

November 22nd

The Mayo Radio Rally

The Mayo Radio Rally will be held in the Welcome Inn, Castlebar, Co. Mayo, in the Irish Republic. The doors will open at 11.30am.

Padraic Baynes EI9JA

E-mail: pbaynes1@eircom.net

www.ei7mre.org

November 29th

The Bishop Auckland Rally

The Bishop Auckland Radio Amateurs Club Rally will take place in the Spennymoor Leisure Centre, Co. Durham DL16 6DB. Doors will open at 10.30am (10.15am for disabled), admission will be £1.50 (under 14 free) and there will be talk-in on S22 and V44, car parking, trade stands, catering with a licensed bar, a Bring & Buy, facilities for the disabled and attractions for the family.

Mark G0GFG. Tel: 01388 745353

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Special prices on Yaesu HF for September – call now!

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



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

When the FT-450AT was recently introduced, customers queried how could a rig offering proper IF DSP, Auto ATU, 100 Watts on HF & 6m, a roofing filter plus a whole host of other class leading features be any good when it costs less than £650?

To answer, in a recent review in Radcom, Peter Hart writes: "For a budget priced radio covering HF and 6m, the FT-450 is an excellent all-rounder for general use. With a high level of features for SSB, CW and data modes, easy to use and a good overall performance, it will suit the home station operator or someone looking for a lightweight radio which is easily transportable".

Options

MyDEL MP-8250 23Amp PSU	£69.95
Stand-FT450 Ball Stand	£19.95
ATU-450 Optional internal ATU	£159.95
MMB-90 Mobile Bracket	£18.95
MHG-1 Carry Handle	£9.95
MH-36EJ DTMF Mic	£69.95
MD-100 Desk Mic	£149.95
MD-200A8X Super Deluxe Desk Mic	£199.95
YH-77STA Headphones	£54.95
MLS-200 High Power weatherproof speaker	£27.95
ATAS-120A Fully Auto Mobile 7.50MHz Antenna	£239.95

Yaesu FT-2000 HF Base Transceiver

FT-2000: **£1869.95**

FT-2000D: **£2375.95**

Available from stock and on permanent demo in our showroom



The Yaesu FT-2000 with PEP "Performance Enhancement Program" Upgrade.

The Yaesu FT-2000 has been a bestselling HF Transceiver since its introduction almost three years ago. The ability of downloadable firmware up-grades by the Yaesu Factory make this 100 or 200 Watt HF & 6M rig one of the most up to date pieces of equipment available to the Radio Amateur.

With the introduction of their latest release the "PEP" or Performance Enhancement Program" the FT2K is without question the very best value base HF on the market today.

For more information on what the PEP upgrade delivers see: www.hamradio.co.uk/pdf/Yaesu_PEP_Enhanced_Version.pdf

The FT-2000 & FT-2000D (200W version) are available from ML&S.

- 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

Got a Yaesu FT-2000 or FT-950?

Add a DMU-2000 Data Management Unit

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

DMU Price: **£CALL**

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.....**£119.95**

CW Filters for Sub-Receiver

YF-122C (500Hz) CW Filter.....**£115.95**

YF-122CN (300Hz) CWN Filter.....**£126.95**

FH-2 Remote Control Keypad.....**£42.95**

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 VL-1000 1kW HF Linear Amplifier, PSU & Auto ATU Always available from stock.....**£3599.95**

NEW Yaesu FT-VX-8. ML&S **£349.95** Latest 6/2/70 Handie with Bluetooth, APRS and optional GPS.

NEW Yaesu VX-3E. ML&S **£144.95** Micro Handie 2/70 with scanner. Complete with Li-ion battery, charger & antenna.

Yaesu FT-60R. ML&S **£142.95** Latest twin band handie complete and ready to go.

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

Yaesu VX-7R. ML&S **£234.95** The UK's best selling Triple Band Handie.

Yaesu FT-7800E. NOW ONLY **£199.95**

Bar make the tea it'll give you 2m/70cm @50W/40W. FREE YSK-7800 Remote Kit!

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 FT-8800. ML&S **£289.95** Similar to the FT-7800 but can receive on 2 & 70 simultaneously.

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

FT-1802. ML&S **£109.95** 2m FM Mobile. 5-50W output.

Yaesu FT-897D

High Power version of the FT-897. Use as a transportable, (20W) or as a base/mobile (100W)

Latest batch straight from the factory! Call for lowest price and special "Bundle" offers

Yaesu FT-857D

The Ultimate HF Mobile Installation!

Plus ATAS-120D 40m-70cm Auto Antenna

Bundle Price: **£CALL**

(Rig only: **£543.95**)

Yaesu FT-817ND

The world's only all-band portable transceiver

Only **£439.95** with FREE CSC-83 Carry Case worth **£19.95**

All ML&S FT-817ND's include; 2 Years warranty, metal hydride batteries, charger, mic, etc.

£624.94



£543.95



£439.95



FT-950 HF Base Transceiver



Only **£1099** Available from stock
Yaesu's "Midship Radio"

Many of you grabbed the new Yaesu FT-950 HF & 6M from us at the end of 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.

All FT-950s supplied by ML&S are latest PEP factory versions!

Real Time Virtual Radar

NEW MODEL NOW INCLUDES AIRBAND and FM Receiver!

SBS-1eR Portable Low-cost Mode-S/ADS-B receiver.

RRP: **£499.95** SPECIAL INTRO PRICE **£469.95**



The SBS-1eR Pocket Radar now includes an Airband and FM receiver and is a portable cost effective Mode-S / ADS-B Receiving Instrument designed for commercial, training and aviation enthusiasts. Supplied complete with antenna and BaseStation Virtual Radar software. The SBS-1eR Pocket Radar allows you to track ADS-B aircraft on a PC- simulated radar screen and identifies and displays Mode-S equipped aircraft.



Perseus VLF-LF-HF Receiver

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

only **£699.95**

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

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ML&S carry the largest stock holding of Icom equipment in the UK!

ICOM COUNT ON ML&S!

Icom HF products

IC-718	Basic HF Radio, 12V, 100W output.....	£449.95
IC-703	No longer in production.....	£539.95
IC-706mk11G	100W HF/6m + 2/70 Multimode Mobile.....	£739.95
IC-7200	Mr T's choice for tough HF/6M Operation.....	£779.95
IC-7000	Full DSP, TFT Screen, 100W HF/6m + 2/70.....	£939.95



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

IC-7600	100W, Twin RX, Huge Display, No psu.....	£3369.95
IC-7700	Superb 200W HF/6M Base, PSU/ATU.....	£Call!!!
IC-7800	Icom's Flagship radio has gone up again.....	£Call!!!
IC-PW1Euro	1kW Fully automatic HF/6m Linear Amp.....	£Call!!!

Icom V/U Products

IC-E92ED	As above c/w D-Star fitted & splash-proof.....	£369.95
IC-E208E	Brilliantly easy to use 2/70 remote-head.....	£269.95
IC-E2820	Proper dual band, dual display, remote etc.....	£395.95
IC-E2820+D	Supplied with UT-123 D-Star board.....	£539.95
IC-910H	Multimode 2/70 Base Station.....	£1249.95
IC-910X	As above but with optional 23cm UX-910.....	£1449.95

Icom Receivers

IC-R9500	Flagship Base Receiver, 50kHz-3335MHz.....	£Call!!!
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PC Controlled Receivers from ICOM

Icom IC-PCR1500 & IC-PCR2500

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

IC-PCR1500	10kHz-3300MHz All Mode.....	£389.95
IC-R1500	As above but with remote head.....	£449.95
IC-PCR2500	Twin Receiver version of PCR1500.....	£509.95
IC-R2500	As above but with remote head.....	£559.95

KENWOOD LISTEN TO THE FUTURE WITH ML&S!

Kenwood HF Products

TS-480SAT	Remote head HF/6m 100W inc ATU Transceiver.....	£749.95
TS-480HX	200Watt version of above, no auto-ATU.....	£849.95
TS-2000E	100Watt all mode HF/2/6M with auto-ATU etc.....	£1479.95
TS-2000X	As above but fitted with 10Watts on 23cm (all mode).....	£CALL

Kenwood V/U Products

TH-F7E	The only 2/70 FM Handie with SSB/CW WB Receiver.....	£229.95
TM-V71E	First Class 2/70 FM Mobile with remote head.....	£289.95
TM-D710E	The only 2/70 FM Mobile/Base with APRS/TNC etc.....	£429.95
TM-D710E+AvMap Bundle	Personal Navigator for GPS located APRS.....	£Call!!!

Price: TBA
ICOM Available (hopefully) end 2009!

NEW IC-9100 All-Rounder

HF through to 23cms Base Transceiver



V/UHF Satellite + HF/50MHz bands +
D-STAR DV mode

- HF/50MHz 144/430(440)MHz & 200MHz coverage
- SSB, CW, RTTY, AM, FM & DV modes
- 100W on HF/50/144MHz, 75W on 430(440)MHz, 10W on 1200MHz
- 32-bit floating point DSP & 24-bit AD/DA converter
- Double superheterodyne with image rejection mixer
- Optional 3kHz/6kHz 1st IF (roofing) filters (for HF/50MHz bands)
- Satellite mode operation
- Optional D-STAR DV mode operation

Click on our website to see a video from Tokyo Hamfair August 2009!

KENWOOD TS-480SAT/HX

ML&S Price:
£749.95 (SAT)
£849.95 (HX)



The very popular TS-480 is available in two versions, 100W with Auto-ATU (SAT) and the 200W version without ATU (HX). For those that want the extra power we recommend the MyDEL MP-9600 60Amp PSU and LDH AT-200Pro Auto tuner. **What a package!**

NEW PRODUCTS FROM ML&S

MyDEL VENTUS G730 GPS-LOGGER

This USB memory stick sized unit is a fascinating pocket device with multiple commercial and personal uses for individual movement tracking. It's very light, extremely easy to use and logs your route automatically. It also adds your GPS location to digital pictures. It presents the route you have taken in 3D via Google Earth™ on your PC and it can export in different formats.



An example:

At the start of your walk, car or cycle ride turn on the G730 and when you finish your journey, turn it off. Once home plug the G730 into your PC, open the software, click on two icons and the route and pictures you have taken are viewed on Google earth/maps.

The G730 records your speed, altitude, distance etc., even showing how long you have stopped for during your journey. You can even use your digital images taken on route for future reference. How good is that!

Accuracy is to within 5 metres and you get up to 18 hours continuous use after a 2 hour charge via your USB port on your PC. Use the MyDEL VENTUS GPS-logger for cycling, rambling, jogging, skiing, trekking, sailing etc.

MyDEL VENTUS WX-831



Introducing the next level of professional weather stations

This new much improved wireless Weather Station is built to a very high standard and even includes O-Ring seals on battery compartments that are mounted externally. The quality of external hardware is built to last for years and really moves the game on when it comes to "Professional Weather Stations"

RRP £169.95.
Introductory offer of only £99.95.

Options: Additional wireless temperature monitors: £24.95.
PSU to run the WX-831 from 240V: £19.95

ML&S are the sole UK distributor for the Ventus G730 and W-831

Used equipment sitting at home gathering dust? MAXIMUM PRICES PAID For genuine good condition equipment

Call us now and get an instant quote to buy & collect from your home. Or send your list to: sales@MLandS.co.uk

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.

Palstar see Web for the LOWEST prices!

PALSTAR AT-500 600 Watt PEP Antenna Tuner

Covering 160 to 6 Meters, the AT-500 features a differential tuning capacitor with 2 stators and 1 rotor, a precision ceramic body roller inductor, and a 4:1 ferrite current balun for balanced line feeds.



The AT-500 utilises only 2 controls to operate for tuning, providing maximum ease of use in a manual tuner. A small-sized roller inductor operates all the way up to 6 Meters, while a relay-switched add-on inductor allows 160 Meter operation. The AT-500 also features Palstar's active Peak and Peak Hold dual cross-needle metering, chem-film treated aluminum metalwork and durable powder coated finish on the front panel and top cover. You'll have a tuner that will grace your shack for years to come.

SPECIAL PRICE - THIS MONTH ONLY: £329.95

The World's BEST ANTENNA TUNERS from ML&S

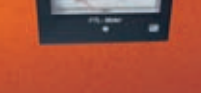
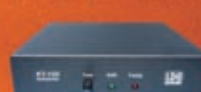
FACT not FICTION: Did you know that ML&S sell MORE of the excellent LDG Auto Tuners than any other dealer outside the U.S.A.?

LDG Auto Tuner Range

AT-100pro	Desktop tuner covering all frequencies from 1.8-54 MHz...	£189.95
AT-200pro	Designed for new generation of rigs	£209.95
AT-1000Pro	1kw 160m-6m (1.8-54MHz) High speed Auto ATU, tuning range 6-1000Ohms.....	£499.95
AT-897	Bolt-on Alternative Auto Tuner for the FT-897. Wider tuning range and cheaper too!	£179.95
IT-100	New version of the AT-7000	£149.95
YT-100	NEW AUTO ATU for FT-897/857 or FT-100 with additional Cat Port Control	£169.95
Z-817	Ultimate autotuner for QRP radios, including the Yaesu FT-817D	£119.95
Z-100Plus	Ultimate autotuner for Yaesu FT-817D	£139.95
Z-11Pro	Portable compact & tunes 100mW to 125W	£154.95
RCA-14	4-way DC Breakout Box	£49.95
KT-100	Dedicated tuner for Kenwood radios	£169.95
RBA-1:1	Probably the best 1:1balun out there	£34.95
RBA 4:1	Probably the best 4:1 balun out there	£34.95
DTS-6 + 6R	Remote Antenna Switchers. 1.5kW 1-54MHz.	£43.95

NEW FTL- Meter

Jumbo size meter for your FT-857/FT-897. LDG's new version of the its popular Yaesu meter is the FTL-Meter. It's a highly readable 4.5 inch meter face with calibrated scales for signal strength or disc on receive; power out, SWR, Mod, ALC or supply voltage on transmit. Each function is selected from the radio's meter menus. RRP: 79.95 **INTRO PRICE: £67.95**



MyDEL CG SB-2000 USB Radio Interface

This small self contained beautifully styled box weighing only 400 grams really is a one stop solution to your data and radio control. It employs a CAT/CIV interface as standard and supports CAT with RS232 protocol.

The MyDEL CG SB-2000 Interface connects to your PC via USB and Sound Card and connects to your radio via Custom leads.

Once connected and configured you have Computer Control via USB and decoding via your soundcard using HamRadio Deluxe or other packages.

Intro price of only £99.95 High quality ready-made leads for most rigs available at only £18.95.



MyDEL CG-3000

With 200W and 200 memory channels.

- Tunable frequency: 1.8 - 30 Mhz with long wire antenna from 8 meters
- Input impedance: 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)

NEW! Remote control for the CG-3000 and CG-5000. £39.95



CG-3000 shown with optional remote switch.

CG-5000MkII

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

Specifications:

- Tuneable frequency: 1.8 - 30Mhz with long wire antenna from 8 meters
- Input impedance: 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: £549.95

MyDEL Power Supplies

New MyDEL PS-30SW11

Latest high performance switch mode PSU. Die-cast Alloy chassis, full over-voltage protection and short circuit design. **RRP £119.95.**

Introductory offer only £69.95

SPS-8250	25A continuous, fully metered power supply	£79.95
MP-9626	120A, 13.8V DC power supply	£299.95
MP-8230	13.8V DC, 25A power supply	£69.95
MP-925	Linear 25-30A, 13.8V DC power supply	£99.95
MP-9600	60A switch mode power supply	£179.95
MP-6A	13.8V DC, 6A power supply	£29.95



Mini VNA PC Controlled Antenna Analyser

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



ML&S: £259.95

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

The Flex Radio System's

Flex-3000 Software Defined Radio

A fully featured transceiver controlled from your PC!

Phil Ciotti G3XBZ is new to software defined radio and he's tried it out to see just how it performs!

During the history of radio communications, Radio Amateurs have been prominent in developing new methods and modes. In fact, I'm sure that our readers can think of many areas where new techniques have taken place and then later found them to be in everyday use.

Single sideband (s.s.b.) transmission is one mode that's used daily on our Amateur frequencies – despite resistance, at the time, to its introduction! With the advent of the home computer, all kinds of data transmissions are now possible for us to enjoy. One of the newest technical developments is called the software defined radio or SDR for short and Flex Radio Systems have now released their latest SDR rig – the Flex-3000.

The Major Difference

The SDR's major difference from the traditional analogue transceiver, is that most of circuitry and signal processing is carried out inside the personal computer (PC). The SDR is controlled via the PC, so there are no physical knobs or switches to adjust. All the adjustments that you would normally make are made via the mouse.

The monitor screen displays a virtual front panel of your radio. To alter any setting, you just have to move the mouse pointer over the desired button or slider, click and adjust.

If you were to remove the cover of the Flex-3000, apart from the power amplifier (p.a.) and output filters, there's little to suggest that, when combined

with the powerful software – this is a high performance transceiver!

Plug & Play

The Flex-3000 is described as a 'plug & play' transceiver, covering all bands from 1.8 to 50MHz (160 to 6m), with up to 100W of output. All the usual modes are catered for and a general coverage receive capability from 10kHz to 60MHz is also incorporated.

The hardware part of the system is housed in a dark blue case, measuring approximately 310mm wide x 310mm deep (excluding connectors) x 55mm high (including feet). It's recommended that the computer system used should have a minimum speed of 1GHz with 1Gb of random access memory (RAM), running



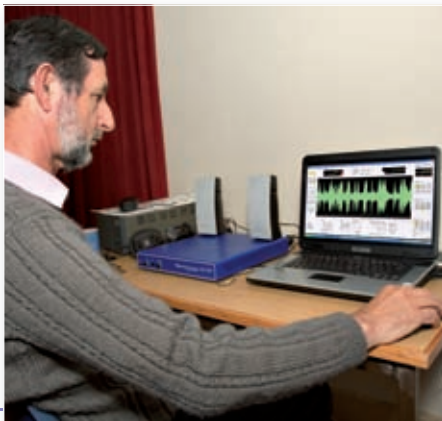


Fig. 1: Phil Ciotti G3XBZ, found that using a budget portable Windows PC was more than adequate to drive the Flex-3000 radio.

Windows XP or Vista software, with an IEEE 1394, Firewire connection.

When the Flex-3000 is purchased, the package comprises of the transceiver, Firewire cable, a d.c. lead and a CDROM containing all the software, including the full operation manual. However, a quick start guide in A4 paper format, is used for the initial loading of the software.

Other items needed, but not supplied, are a microphone with an RJ45 connector, a pair of powered computer type loudspeakers or headphones and a 13.8V d.c. power supply, capable of supplying 25A.

Laptop Computer

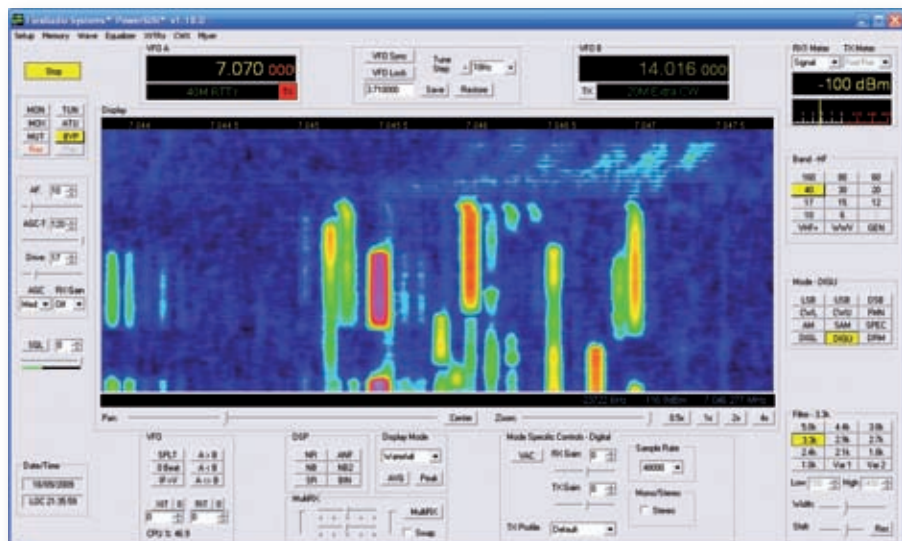
I chose to use my laptop computer for the review **Fig. 1**, which has the smaller Firewire connector, rather than the standard size supplied with the Flex radio. However, After a brief chat with **Tex Swann G1TEX** at the PW offices, he kindly produced the correct version for my requirements. Thanks Tex! Armed with the correct cable, I was able to start.

There are four steps that need to be completed, before the Flex-3000 can be used.

Step 1: This involved making all the wiring connections to the computer, speakers, microphone, d.c. power supply and antenna or dummy load.

Pictures are used as a guide to complete this step. Initially, I connected a dummy load to the antenna connector. Note that the Flex-3000 **was not** switched on during this process.

Step 2: Next, the CDROM had to be inserted into the computer and the Flex-3000 device driver was loaded.



The waterfall display, showing very strong commercial signals in the 7MHz band.



Watching the changing speech patterns of a voice contact.



The spectrogram of the contact shown above.

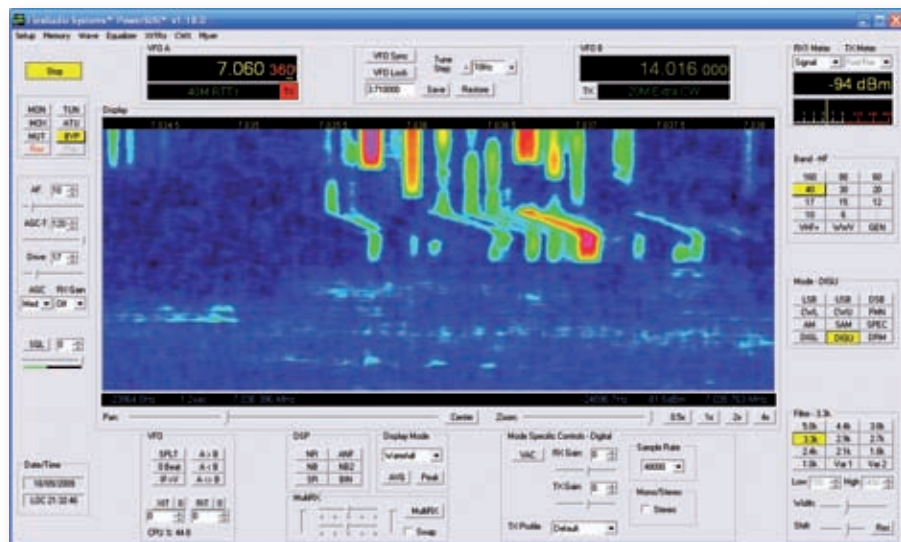


Fig. 2: The layout of the screen 'controls' are described in the text.

Again, screen shots are supplied as a guide and the transceiver was powered up part way through this step.

Step 3: The installation of the *Power SDR* software was the next stage to be completed. At the end of this stage the virtual 'front panel' of the radio was displayed on the computer screen for the first time.

Step 4: This, the final step, configured the device drivers and *Power SDR* to the parameters supplied in the instructions.

With the software installation complete, I then had a working transceiver ready to use. Incidentally, I found the quick start guide to be clear, well written and easy to follow.

Main Station Antenna

My main station antenna here at G3XBZ is the ZS6BKW version of the G5RV, at a height of approximately 8m and this was used during the review. However, before any operating could begin, I had to click on the **Start** button in the top left hand corner of the display screen. This button then changed to a yellow colour and noise was heard from the headphones.

My eyes were immediately drawn to the centre of the screen, where the panadaptor showed signals across a portion of the band selected. A green vertical stripe was also displayed showing the frequency chosen and this changed its width according to the mode selected.

Using the alphabet, starting clockwise at centre top of the screen **Fig. 2**, I observed the controls of the Flex-3000 to be:-

A: Selectable tuning steps and the variable frequency oscillator (v.f.o.) sync-lock controls.

B: VFO B frequency with information regarding band plan segments.

C: Receiver and transmitter metering functions, using a drop-down selectable menu.

D: Frequency and band selector, covering all the available allocations plus general coverage.

E: Mode Switch. All modes including data.

F: Filter selector. The bandwidth changes with the mode selected, but can be adjusted to suit conditions. It also has two variable filters for individual use.

G: Settings for transmitter. These include microphone gain, a three or 10-band equaliser, voice operated transmit-receiver control (VOX), noise gate and compander.

H: Display Mode. This can be used to visually monitor a small segment of a band, frequencies of incoming and transmitted audio, RTTY, data waterfall or switched off, leaving just a black area. All these functions are accessed by a drop down menu.

I: Digital signal processing (DSP) Noise blankers one and two, spur reduction, Auto Notch Filter and DSP.

J: Multi receive. This can be configured to listen to two signals at the same time; one in the left ear and the second in the right ear.

K: The VFO. The usual A + B settings. Select A or B, Split. This area also covers Receiver Independent and Transmitter Independent tuning RIT + XIT).

L: Date and Time.

M: Squelch Control.

N: Receiver Controls. These include automatic gain control (a.g.c.) -T (r.f. gain) and a.f. gain, a.g.c. time constants, receive pre-amplifier,

attenuator. Included in this area is the transmitter drive control.

O: Auto antenna tuning unit (a.a.t.u.)/ Bypass. Tune, Monitor, transmit audio, mute, record transmit audio/ Playback.

P: Start/Stop

Q: The VFO A frequency with information regarding band plan segments.

Less Used Functions

Along the top left of the screen is a small section of lesser used functions which can be set to the operators liking. Although all this might sound complicated, I found the 'front panel' displayed to be very comprehensive, but nevertheless, simple to use with a wide range of information available.

Initial Tests

As the initial tests were conducted in the early evening, 3.5MHz (80m) was a good place to start listening. I wasn't disappointed – as there were plenty of signals on the band!

I tried two methods of tuning the transceiver. The first method used the mouse left-hand button, which was held down and dragged across the panadaptor display, until the desired frequency was reached. The second method used the mouse wheel to change the frequency in the selected v.f.o. box.

All I had to do was to align the mouse pointer under the digit to be moved and rotate the wheel away from me to increase the frequency and vice-versa. By selecting the correct digit, I found that rapid changes of frequency could be achieved.

With a suitable s.s.b. signal tuned in, the normal a.g.c.-T (effectively an r.f. gain control) and a.f. controls were adjusted to suit the conditions at the time. The resultant audio from the headphones was very clear. But it's worth mentioning that I soon became accustomed to using the mouse for controlling the Flex-3000 and quickly forgot about rotary knobs! Quite an admission for an old-timer like me! The panadaptor display is also very useful for finding that elusive clear frequency.

All bands from 1.8 to 50MHz were tried at varying times of the day. Of particular interest was the 7MHz (40m) band, which in the past at G3XBZ has severely tested many transceivers! Several late night sessions confirmed the absence of any problems with

strong broadcast station transmissions close to the weak Amateur signals. Incidentally, this situation can only improve as the broadcasters slowly move out of our 'new' section of the band.

When I tuned the receiver outside of the Amateur band edges the Flex-3000 automatically changed the frequency selector to general coverage. So, after using the receiver for some time and becoming accustomed to its performance, I then turned my attention to the transmitter.

The Transmitter

The transmitter is capable of producing 100W on all bands but can be lowered to 1W by means of the drive control. For the tests, I connected an external power meter and dummy load to the antenna socket of the transceiver.

My initial tests were conducted at low power levels, which were slowly increased to the rated output power. Full output was obtained on all bands and for this process I used the 'virtual' screen **Tune** button and the drive control.

The built-in auto a.t.u. (a.a.t.u.) was next to be tried. This will match into a maximum of 3:1 s.w.r. The a.a.t.u. is interesting in its operation because when clicking onto its function the tuner indicator on the screen turns red in colour and then checks to see if it's required (for tuning into the load). If it's not required, the system switches back to receive and the **By-pass** indicator is illuminated yellow. When a match is completed satisfactorily the a.a.t.u. indicator turns green but if no match is found it stays at red.

With my particular antenna there were some bands on which a match could not be found. So I used an external a.t.u. for these.

For s.s.b. use, a Heil HM-5 microphone loaned along with the rig for operating. I referred to the operating manual for the basic settings for s.s.b. A three or ten-band equaliser can be employed for tailoring the transmitted audio. As I have been told I have a soft, rather quiet voice this was a help in

Product: Flex Radio's Flex-3000 Software Defined Radio 100W h.f. and 50MHz transceiver

Company: UK importer Waters & Stanton PLC

Pros: Sturdy mechanical construction, Very good performance, Good operating manuals.

Cons: Noisy fans.

Price: £1395 plus £10 UK courier delivery

My thanks to **Waters & Stanton PLC** for the loan of the Flex-3000, and Heil HM-5 microphone, for the review. Further details from **W&S, Spa House, 22 Main Road, Hockley, Essex SS5 4QS.**

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Fig. 3: Phil G3XKBZ providing a demonstration of the Flex-3000 at a Poole Radio Society meeting.

boosting my low audio output!

Numerous contacts were made. Nearly all stations gave reports of good, clear and readable signals and at my end I found that the receiver is excellent – quite a compliment when we consider how noisy the bands are nowadays.

Scratched The Surface

In this review I'm fully aware that I have only just 'scratched the surface' of what the Flex-3000 can offer, both in the way of facilities and performance. However, my main objective – as a first timer with SDR – was to describe the process of getting the Flex-3000 out of the box and on the air.

By following the steps given, in the quick start guide, I found the installation of the 'Power SDR' software to be very straightforward. And I didn't experience

any 'glitches' during the time I had the transceiver.

I did find, at first, using the Flex-3000 with a mouse a little different. However, I adapted to this method of operating very quickly.

The receiver was very sensitive and it has many modes available. It also has the added bonus, that there are no extra filters to buy!

My only concern regarded the cooling fans. The first fan starts as soon as the Flex-3000 is switched on, and the second one comes into operation during transmit periods. Both fans are quite noisy when running.

If you already own a PC, the transceiver is a very good way of getting top performance, with upgrades being available (via the internet) from the Flex Radio website. The full operating manual can also be viewed at the same site.

I took the Flex-3000 rig along to **Poole Radio Society**, and gave 'demonstrations' to members, **Fig. 3**, during the evening. As well as allowing pictures to be taken during use, it was also the centre of attention by the other members present.

Overall, I was very impressed with Flex-3000 and I changed my negative thoughts on the SDR approach to Amateur Radio. In fact, I think that this SDR is certainly a worthy competitor to the usual range of transceivers available.

From Jeff Stanton G6XYU of Waters & Stanton

Thanks for letting me comment on Phil Ciotti G3XKBZ's review. I was pleased to read that although he may have had negative perceptions of "software defined radio" these were changed by the test and in fact he was "very impressed by the Flex-3000" "Noisy fans" have not been reported by early purchasers or noticed in our showroom. I'm not sure if he is referring to the fans themselves or to the sound or air being blown? Of course the whole unit can be "stowed away" as all controls are displayed on the PC screen, should noise be a problem. Best regards, **Jeff G6XYU.**

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WESTFLEX 103 mil spec 9mm coax cable	£129.95
RH100 Military spec 9mm coax cable	£99.95
FLEXWEAVE Original pvc coated antenna wire	£49.95
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20ft Heavy Duty Swaged Pole Set	
These heavy duty aluminium (1.8mm wall) have a lovely push fit finish to give a very strong mast set	
1.25" set of four 5ft sections	£29.95
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1m RG213 Mil spec PL259 to PL259 lead	£4.95
10m RG213 Mil spec PL259 to PL259 lead	£14.95
30m RG213 Mil spec PL259 to PL259 lead	£34.95
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10m H100 Mil spec PL259 to PL259 lead	£19.95
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(All other leads and lengths available, ie. BNC to N-type, etc. Please phone for details)

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Tripod-20L free standing tripod for use with 2" diameter poles	£59.95
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9" Stand off bracket (complete with U Bolts)	£9.00
12" Stand off bracket (complete with U Bolts)	£12.00
18" Stand off bracket (complete with U Bolts)	£18.00
12" T & K Bracket (complete with U Bolts)	£17.95
18" T & K Bracket (complete with U Bolts)	£19.95
24" T & K Bracket (complete with U Bolts)	£24.95
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4-Way Pole Spider for Guy Rope/wire	£4.95
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Mast Sleeve/Joiner (for 1.25" pole)	£7.95
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Mast Sleeve/Joiner (for 2" pole)	£16.95
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Earth Rod including clamp (copper plated)	£14.95
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Dog bone insulator	£1.00
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TMA-1 Aluminium mast ★ 4 sections 170cm each ★ 45mm to 30mm ★ Approx 20ft erect 6ft collapsed	£99.95
TMA-2 Aluminium mast ★ 8 sections 170cm each ★ 65mm to 30mm ★ Approx 40ft erect 6ft collapsed	£189.95
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Hand-helds

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Mobiles

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ICOM IC-2725E Dual band 2/70cm with detachable head, 50 Watts output	£319.95
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The 2009 PW 144MHz QRP Contest Results

Editor's comment: It's my pleasure and duty to acknowledge the continuing efforts and the methodical and effective work that **Colin Redwood G6MXL** does on behalf of everyone who takes part in *PW*'s annual 'fun' 144MHz contest. Without Colin's determined year-round attention as Adjudicator, along with other *PW* commitments, the contest couldn't run effectively. Thank you Colin! **G3XFD**.

Entrants to the 26th *Practical Wireless* 144MHz QRP contest on Sunday June 14th 2009 made a total of 4067 valid contacts with stations in 46 different squares. Although both figures are down slightly in comparison with 2008, the number of entries in 2009 remained absolutely the same at 92.

This year entrants did not have the benefits of a major French 144MHz contest to supplement numbers of QSOs and provide additional squares. Nevertheless, many stations improved on their scores over previous years. It's also very pleasing to welcome some new entrants and welcome back many others.

Participants in the contest found a mixture of weather. Those in the southern parts of the British Isles generally had bright sunny weather, however those in Scotland found misty drizzle on top of the mountains.

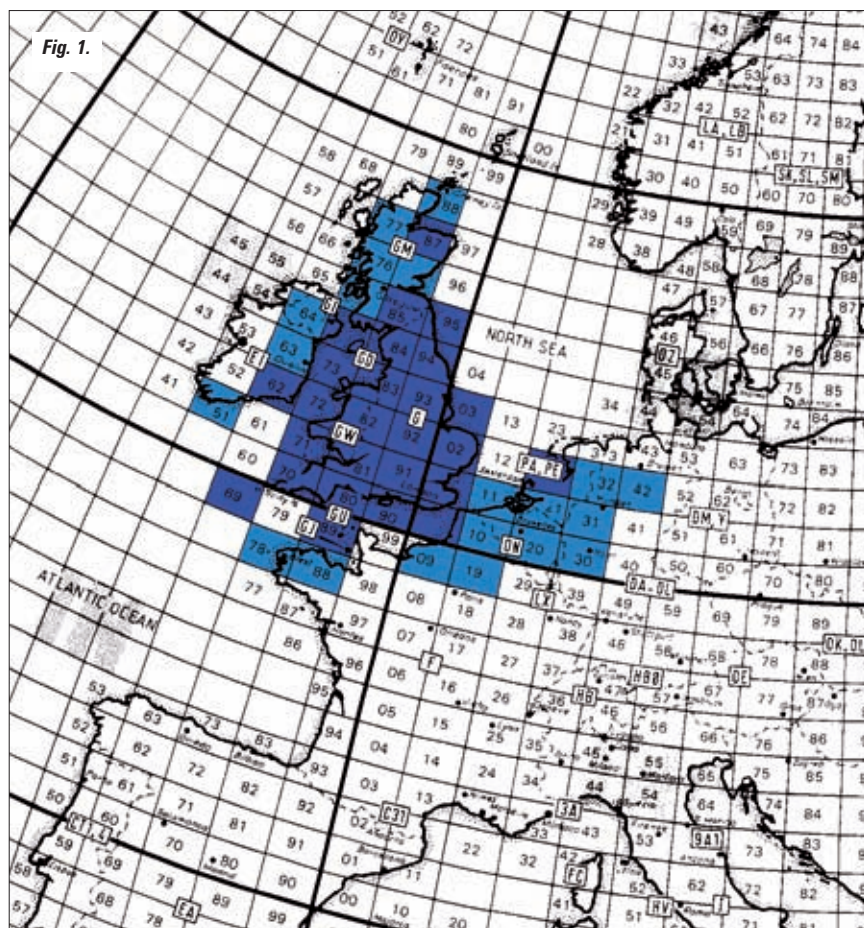
Radio conditions were reasonable although, unfortunately, most stations were too far north to take advantage of a Sporadic E opening to south-eastern Europe. In fact, F/OT3T was the only station to mention that they heard an SV (Greek) station on 144.300MHz, but by the time they had turned their beam, the propagation was gone and they had lost him.

The 2009 Winners

The overall winner, winning team and leading English station is **The Warrington Contest Group G3CKR/P**, comprising just two operators, **Erik Gedvilas G8XVJ** and **Michael Ryder G0CDA**. They

Table 1

Description	Name/Team	Callsign
Overall Winner	Warrington Contest Group	G3CKR/P
Runner Up	Dave Hewitt	GW8ZRE/P
Leading Fixed Station	Bruce Wallwork	G7PAL
Leading Single Operator	Dave Hewitt	GW8ZRE/P
Leading Multi-Operator	Warrington Contest Group	G3CKR/P
Leading English Station	Warrington Contest Group	G3CKR/P
Leading Welsh Station	Dave Hewitt	GW8ZRE/P
Leading Scottish Station	Galashiels and District ARS	GM4YEO/P
Leading Station in Eire and N. Ireland	Declan Lennon	EI9HQ/P
Leading Overseas	UBA TRA-OSB Contest Team	F/OT3T



Contest Adjudicator Colin Redwood G6MXL presents the results of the popular annual *PW* 'fun' 144MHz contest.

operated from Thorncliffe near Leek in Staffordshire in IO93AD. No doubt the antenna system of 2 x 18-element Cushcraft yagis at 18m (60ft) + 1 x 18-element yagi at 9m (30 feet) made the most of the signal from their Kenwood TS-850S with a SSB LT2S Transverter (as in the photo from **G3CKG/P**). The team used LDF5.50 coaxial cable feeder, which kept feeder losses really low.

In second place overall, leading single operator and leading Welsh station yet again is **Dave Hewitt GW8ZRE/P**. Dave operated from Cynr-y-Brian IO83JA.

The leading fixed station is **Bruce Wallwork G7PAL**, operating from Burton on Trent in IO92ET. The leading Scottish station is the **Galashiels & District ARS GM4YEQ/P**, operating from IO85MM. The leading EI/GI station is **Declan Lennon EI9HQ/P**, operating from IO62RH.

The leading overseas station is **UBA TRA-OSB Contest Team F/OT3T**, who operated from JO00UV.

Full details of the results can be found in the tables in this article. As usual, certificates will be sent to all the leading stations and the leaders in each square.

Check Logs

I received three check logs this year from **David Stocker G4JSR**, in IO82XL, **Peter Lewis G6NSU/P** who operated from a couple of locations in IO80 square, and **Gordon Smith GW6TEO** who operated from IO71LP.

First Timers

As usual there were many first timers operating in their first contest. Typical of these was **Rob Steel G1TPO/P** who said "This was my first attempt at any kind of radio contest....All in all a most enjoyable (if frustrating) experience – thanks – and don't change the rules!"

Paul M6WAT, events secretary of the **Otley Amateur Radio Society**, commented "A first stab from us, after many years of inactivity!"

Last year there were no entries from the Isle of Man. However, this year there were two entries. **Chris Wood GD6TWF**, says that it was his first time on the air for a number of years, his first contest in 25 years and his first ever single-operator entry.

Age is no barrier to the PW Contest. **Mike GW6NLP**, has been licensed since 1982, yet this was his first contest, aged 66. Mike comments that he, "thoroughly enjoyed the experience", and thanks

Table 2		Pos	Score	Call	Name	Single	QSOs	Squares	Locator
1	8092	G3CKR/P		Warrington Contest Group			238	34	IO93AD
2	5096	GW8ZRE/P		Dave Hewitt	S		182	28	IO83JA
3	4800	G4RLF/P		SADGITS			150	32	IO80WX
4	2900	G3ZME/P		Chris & Dave Martin (TDARS)			116	25	IO82NN
5	2898	GW6NLP/P		Mike Bryant	S		126	23	IO82KW
6	2646	G0BWC/P		Bolton Wireless Club			126	21	IO83RO
7	2618	G0XAZ/P		Bill and Malcolm			119	22	IO91GI
8	2472	G1WOR/P		Worthing & District ARC			103	24	IO90SV
9	2424	F/OT3T		UBA TRA- OSB Contest Team			101	24	JO00UV
10	2178	MI0AYR/P		Paul Knocker, William Sweeney and Andrew Mulholland			99	22	IO74CN
11	2079	G4LXS/P		Cousinjack Contest Group			77	27	IO70PP
12	1900	EI9HQ/P		Declan Lennon			76	25	IO62RH
13	1804	G0OVA/P		Tony Crake	S		82	22	IO91QI
14	1694	G2XV/P		Cambridge & District ARC			77	22	IO92XD
15	1691	G0WRS/P		Warrington ARC			89	19	IO83PC
16	1488	G7HFS/P		Ian Harling	S		62	24	JO00DS
17	1449	G5RS/P		Guildford & District RS			69	21	JO00EW
18	1420	G2AS/P		Sheffield ARC			71	20	IO93FL
19	1330	G8PNN/P		G8PNN/P			70	19	IO95CI
20	1224	G8HXE/P		Keith Haywood	S		72	17	IO83RP
21	1003	G8JAY/P		Tony Jay	S		59	17	IO81OW
22	1001	G3SBL/P		Peter and Paul (Stafford & DARS)			77	13	IO82WT
23	960	MX0ECR/P		East Cheshire Radio Group			64	15	IO93AD
24	936	G2CP/P		Scarborough ARS			52	18	IO94PJ
25	884	G4VRC/P		Bob Doran	S		52	17	IO90OW
26	855	G4VRS/P		Aylesbury Vale RS			57	15	IO91PR
27	800	G4YBS/P		Morecambe Bay ARS			50	16	IO84NA
28	770	G4TJE/P		Keith Lewis	S		55	14	JO01BH
29	705	G4HQX/P		White Noise Listening Society			47	15	IO81WT
30	700	M0REG/P		Worthing Radio Events Group			50	14	IO90SV
31	660	G4FAA/P		Lawrie Atkinson	S		60	11	IO91XG
32	650	G4PRS/P		Poole Radio Society			50	13	IO80WP
33	646	GD1LVY/P		Jane & Andy			38	17	IO74PD
34	629	G4NVM/P		John Duddridge	S		37	17	JO01FA
35	594	G0FCA/P		Iain Groom	S		54	11	IO83UQ
36	585	M0EUK/P		Graeme Stoker, Keith Morrison and Jonathan Taylor			39	15	IO95AG
37	574	G4JYN/P		Waterside New Forest Radio Club			41	14	IO91HA
38	561	G3VGG/P		Bromsgrove & DARC			51	11	IO82XI
39	518	G0FUW/P		Steve Hartley	S		37	14	IO81PH
40	450	MW0GCT/P		Ynys Mon - Anglesey LFBG			30	15	IO73WH
41	444	G3VRE/P		G3VRE			37	12	IO91AI
42	432	G7PAL		Bruce Wallwork	S		36	12	IO92ET
43	420	G3XNO		Otley Amateur Radio Society			30	14	IO93DW
44	407	G6HFW		John Graham	S		37	11	IO83SM
45	396	2E0BFJ/P		Gary Swain	S		33	12	IO80NV
46	385	M0RNA/P		Steve J. Turner	S		35	11	IO90LU
47	385	G7TBJ/P		Jeremy Kewn	S		35	11	IO70FD
48	360	G7VBR/P		MSARS			30	12	JO00BT
49	352	MJ0RZD		Rob Luscombe	S		32	11	IN89XF
50	351	G1RCV/P		Cray Valley RS			27	13	JO01AH
51	348	G4RYV		David Rumbold	S		29	12	IO91OI
52	348	G0NWT/P		North Norfolk AR Group			29	12	JO02OW
53	348	M0HMS/P		Eugene Purvis	S		29	12	IO94MJ
54	312	GU3TUX		Chris Rees	S		26	12	IN89VR
55	300	G7SOQ/P		Eastern Angles			25	12	IO92VD
56	286	G0TKF/P		Wade Stuart	S		26	11	IO93BM
57	275	G0AJJ		Linda Leavold	S		25	11	JO02QT
58	264	M0WDC/P		West Devon Radio Club			22	12	IO80BO
59	264	M5AFO/P		Ben Rutledge	S		22	12	IO70SU
60	260	GM4YEQ/P		Galashiels and District ARS			20	13	IO85MM
61	248	G0VZV/P		David A'Bear	S		31	8	IO90JO
62	243	M0VRR/P		N and V Radio Days			27	9	IO92AN
63	198	G1TPO/P		Rob Steel	S		18	11	IO84XT
64	189	2E0RCS/P		Scott Marshall	S		21	9	IO83SQ
65	180	2E0NCG		Mark Dumbleton	S		18	10	JO03DI
66	180	M3AFF		Alan Barnes	S		20	9	IO70VT
67	175	M5AEO/P		Jonathan Kempster	S		25	7	IO91XM
68	168	MM0SMD/P		Jim Nicol	S		21	8	IO87JJ
69	154	M0SWZ/P		Ian W. Swindells	S		22	7	IO83XJ
70	154	M0ZAV/P		Ricky Amos			14	11	IO92UL
71	153	MW0PRP/P		Ryan Pugh	S		17	9	IO81FP
72	153	GW4YCT/P		Carmarthen ARS			17	9	IO72WA
73	152	G4KKR/P		Richard Page	S		19	8	IO84TD
74	104	PI4ALK/P		Contestgroup ALKMAAR			8	13	JO22HO
75	96	G4WBC/P		West Bromwich Central Radio Club			16	6	IO92AM
76	78	G7KPF		Andy Gayne	S		13	6	IO82UI
77	77	G0LJD/P		Brian Howard	S		11	7	JO01GH
78	72	G0EYO/P		Chris Pettitt	S		12	6	IO92BJ
79	70	MM3SRF/P		Robin Farrer	S		10	7	IO85NT
80	70	M0BQE/P		Chris Margetts	S		10	7	IO82XH
81	66	MW3DLA		Roy Britton			11	6	IO72QA
82	36	G4FKI		David Thorpe	S		9	4	IO92SA
83	30	GD6TWF/P		Chris Wood	S		6	5	IO74PC
84	24	M6MWB		Mark Bryant	S		8	3	IO83UK
85	20	G4YFT/P		Barry Page	S		10	2	IO81LH
86	20	M3XNM/P		Ian Stevenson	S		4	5	IO84VR
87	16	G7IXP		Philip Hammersley	S		4	4	IO92AO
88	12	M1IOS/P		John Goody	S		6	2	IN69UV
89	9	G1FMU/P		K. Harris	S		3	3	IO80AJ
90	8	MW0DSZ/P		D. Hugh Church	S		2	4	IO82HL
91	6	G3WDS		Denis Spooner	S		3	2	IO95GA
92	3	G7TAT		Jeff Moye	S		3	1	JO01KU

Table 3

Pos	Score	Call	Name	QSOs	Squares	Locator
1	8092	G3CKR/P	Warrington Contest Group	238	34	IO93AD
3	4800	G4RLF/P	SADGITS	150	32	IO80WX
4	2900	G3ZME/P	Chris & Dave Martin (TDARS)	116	25	IO82NN
6	2646	G0BWC/P	Bolton Wireless Club	126	21	IO83RO
7	2618	G0XAZ/P	Bill and Malcolm	119	22	IO91GI
8	2472	G1WOR/P	Worthing & District ARC	103	24	IO90SV
9	2424	F/OT3T	UBA TRA-OSB Contest Team	101	24	JO00UV
10	2178	M10AYR/P	Paul Knocker, William Sweeney and Andrew Mulholland	99	22	IO74CN
11	2079	G4LXS/P	Cousinjack Contest Group	77	27	IO70PP
12	1900	EI9HQ/P	Declan Lennon	76	25	IO62RH
14	1694	G2XV/P	Cambridge & District ARC	77	22	IO92XD
15	1691	G0WRS/P	Warrington ARC	89	19	IO83PC
17	1449	G5RS/P	Guildford & District RS	69	21	JO00EW
18	1420	G2AS/P	Sheffield ARC	71	20	IO93FL
19	1330	G8PNN/P	G8PNN/P	70	19	IO95CI
22	1001	G3SBL/P	Peter and Paul (Stafford & DARS)	77	13	IO82WT
23	960	MX0ECR/P	East Cheshire Radio Group	64	15	IO93AD
24	936	G2CP/P	Scarborough ARS	52	18	IO94PJ
26	855	G4VRS/P	Aylesbury Vale RS	57	15	IO91PR
27	800	G4YBS/P	Morecambe Bay ARS	50	16	IO84NA
29	705	G4HQX/P	White Noise Listening Society	47	15	IO81WT
30	700	M0REG/P	Worthing Radio Events Group	50	14	IO90SV
32	650	G4PRS/P	Poole Radio Society	50	13	IO80WP
33	646	GD1LVY/P	Jane & Andy	38	17	IO74PD
36	585	M0EUK/P	Graeme Stoker, Keith Morrison and Jonathan Taylor	39	15	IO95AG
37	574	G4JYN/P	Waterside New Forest Radio Club	41	14	IO91HA
38	561	G3VGG/P	Bromsgrove & DARC	51	11	IO82XI
40	450	MW0GCT/P	Ynys Mon - Anglesey LFBG	30	15	IO73WH
41	444	G3VRE/P	G3VRE	37	12	IO91AI
43	420	G3XNO	Otley Amateur Radio Society	30	14	IO93DW
48	360	G7VBR/P	MSARS	30	12	JO00BT
50	351	G1RCV/P	Cray Valley RS	27	13	JO01AH
52	348	G0NWT/P	North Norfolk AR Group	29	12	JO02OW
55	300	G7SOQ/P	Eastern Angles	25	12	IO92VD
58	264	M0WDC/P	West Devon Radio Club	22	12	IO80BO
60	260	GM4YEQ/P	Galashiels and District ARS	20	13	IO85MM
62	243	M0VRR/P	N and V Radio Days	27	9	IO92AN
70	154	M0ZAV/P	Ricky Amos	14	11	IO92UL
72	153	GW4YCT/P	Carmarthen ARS	17	9	IO72WA
74	104	PI4ALK/P	Contestgroup ALKMAAR	8	13	JO22HO
75	96	G4WBC/P	West Bromwich Central Radio club	16	6	IO92AM
81	66	MW3DLA	Roy Britton	11	6	IO72QA

everyone who worked him.

Malcolm Constantine G0MIC, the Chairman of the **Guildford & District Radio Society** says, "As always an enjoyable contest that we can involve the novice testers in."

Regular entrant **Jonathan Kempster M5AEO/P**, commented "The only contest I enter; very enjoyable, WX perfect"

Martyn Wright G4RLF, another regular *PW* 144MHz QRP contest entrant, comments "Thanks for another excellent *PW* event. The weather was fine and not too windy. We will try the 70MHz contest next year as well."

Bob Doran G4VRX commented that it was, "hot and sunny, although no GMs were worked from the South Downs, but it was good to work EI and MI. Good fun!"

Welcome Back!

Several first timers from 2008 were welcomed back again in 2009. The contest also manages to attract entrants who have not participated for many years.

Barry Page G4YFT wrote that, "I was going to my caravan on Thursday June 11th for a few days on my own, and my XYL was following on Monday 15th. I had just bought *PW* to take with me and noticed that the *PW* QRP contest was taking place. Incidentally, I took part in the very first *PW* QRP contest on June 19th 1983 and came 60th under my old class B callsign, G6HZB!"

"I quickly sorted out an old home-brewed 4-section mast, a 5-element 'ZL' antenna, my trusty old FT-290R, which I had not used for 10-15 years, power supply and odds and ends required to get me on the air, and packed it all into the car and off I set to Somerset. The XYL thought I had 'lost it' packing all this old rusty 'junk' into our car to go on – what she thought was a walking break for a few days – until she came down !

"The WX was perfect, all home comforts in my caravan, and playing radio all day without worrying about my XYL being ignored. I only worked 14 stations, (well I was at sea level, and my antenna was only four metres above that) and seven locator squares, but that didn't matter, it bought back very fond memories from when I was first licensed, and I still get a thrill working like-minded people from all around the world, Amateur Radio – it's fantastic. Thanks *PW* for putting this contest on

Table 4

Pos	Score	Call	Name	QSOs	Squares	Locator
2	5096	GW8ZRE/P	Dave Hewitt	182	28	IO83JA
5	2898	GW6NLP/P	Mike Bryant	126	23	IO82KW
13	1804	G0OVA/P	Tony Crake	82	22	IO91QI
16	1488	G7HFS/P	Ian Harling	62	24	JO00DS
20	1224	G8HXE/P	Keith Haywood	72	17	IO83RP
21	1003	G8JAY/P	Tony Jay	59	17	IO81OW
25	884	G4VRC/P	Bob Doran	52	17	IO90QW
28	770	G4TJE/P	Keith Lewis	55	14	JO01BH
31	660	G4FAA/P	Lawrie Atkinson	60	11	IO91XG
34	629	G4NVM/P	John Duddridge	37	17	JO01FA
35	594	G0FCA/P	Iain Groom	54	11	IO83UQ
39	518	G0FUW/P	Steve Hartley	37	14	IO81PH
42	432	G7PAL	Bruce Wallwork	36	12	IO92ET
44	407	G6HFW	John Graham	37	11	IO83SM
45	396	2E0BFJ/P	Gary Swain	33	12	IO80NV
46	385	M0RNA/P	Steve J. Turner	35	11	IO90LU
47	385	G7TBJ/P	Jeremy Kewn	35	11	IO70FD
49	352	MJ0RZD	Rob Luscombe	32	11	IN89XF
53	348	M0HMS/P	Eugene Purvis	29	12	IO94MJ
51	348	G4RYV	David Rumbold	29	12	IO91OI
54	312	GU3TUX	Chris Rees	26	12	IN89VR
56	286	G0TKF/P	Wade Stuart	26	11	IO93BM
57	275	G0AJJ	Linda Leavold	25	11	JO02QT
59	264	M5AFO/P	Ben Rutledge	22	12	IO70SU
61	248	G0VZV/P	David A'Bear	31	8	IO90JO
63	198	G1TPO/P	Rob Steel	18	11	IO84XT
64	189	2E0RCS/P	Scott Marshall	21	9	IO83SQ
66	180	M3AFF	Alan Barnes	20	9	IO70VT
65	180	2E0NCG	Mark Dumbleton	18	10	JO03DI
67	175	M5AEO/P	Jonathan Kempster	25	7	IO91XM
68	168	M00SMD/P	Jim Nicol	21	8	IO87JJ
69	154	M0SWZ/P	Ian W. Swindells	22	7	IO83XJ
71	153	MW0PRP/P	Ryan Pugh	17	9	IO81FP
73	152	G4KKR/P	Richard Page	19	8	IO84TD
76	78	G7KPF	Andy Gayne	13	6	IO82UI
77	77	G0LJD/P	Brian Howard	11	7	JO01GH
78	72	G0EYO/P	Chris Pettitt	12	6	IO92BJ
80	70	M0BQE/P	Chris Margetts	10	7	IO82XH
79	70	MM3SRF/P	Robin Farrer	10	7	IO85NT
82	36	G4FKI	David Thorpe	9	4	IO92SA
83	30	GD6TWF/P	Chris Wood	6	5	IO74PC
84	24	M6MWB	Mark Bryant	8	3	IO83UK
85	20	G4YFT/P	Barry Page	10	2	IO81LH
86	20	M3XNM/P	Ian Stevenson	4	5	IO84VR
87	16	G7IXP	Philip Hammersley	4	4	IO92AO
88	12	M1IOS/P	John Goody	6	2	IN69UV
89	9	G1FMU/P	K. Harris	3	3	IO80AJ
90	8	MW0DSZ/P	D. Hugh Church	2	4	IO82HL
91	6	G3WDS	Denis Spooner	3	2	IO95GA
92	3	G7TAT	Jeff Moye	3	1	JO01KU

again, and I will certainly try to do it again next year."

Outlying Squares

As usual requests came for stations to point their beams to the outlying squares. This year a request from a station in Norfolk joined the list. Again, none of the top 10 stations managed to work **John Goody M1IOS/P** in IN69 on St Mary's in the Isle of Scilly. However, stations that did turn their beams to the west were rewarded with contacts with EI, GI and GD stations.

Amazing Efforts

I never cease to be amazed at the efforts some entrants put in to participate in the contest! For example, **Jim Nicol MM0SMD/P**, spent over an hour and a half getting to the summit of Ben Rinnes in IO87JJ. As you can see, in the photograph showing MM0SMD/P, Jim was well prepared for the misty drizzle he encountered on the summit.

Jim was rewarded with 21 contacts in eight squares and he was the only station to make contacts with IO88 square and substantially improved his score in 2009. He also gave a valuable multiplier to the winning teams in both 2008 and 2009.

Jim says wrote, "I could only manage a couple of hours of the contest and left around 1300GMT but was delighted to work **M0EUK/P** and **G3CKR/P** before then. It was good fun, see you next time!"

Thanks for all your efforts Jim. I just hope more stations will remember to point their beams in your direction in future years!

Weather Report!

The UBA TRA-OSB Contest Team, F/OT3T, commented "After a very wet set up of antenna and start (rain!), our team enjoyed a very sunny afternoon on our hilltop location near Cap Griz-Nez from where we had a picturesque view of the channel and the Dover cliffs."

Logistical & Technical Problems

Apart from one instance of finding another station already on a preferred hill-top, and an element being left

Table 5
Square

Square	Name	Call	No. entries
IN69	John Goody	M1IOS/P	1
IN89	Rob Luscombe	MJ0RZD	2
IO62	Declan Lennon	EI9HQ/P	1
IO70	Cousinjack Contest Group	G4LXS/P	4
IO71	Gordon Smith	GW6TEO	1
IO72	Carmarthen ARS	GW4YCT/P	2
IO73	Ynys Mon - Anglesey LFBG	MW0GCT/P	1
IO74	Paul Knocker, William Sweeney and Andrew Mulholland	MIOAYR/P	3
IO80	SADGITS	G4RLF/P	6
IO81	Tony Jay	G8JAY/P	5
IO82	Chris & Dave Martin (TDARS)	G3ZME/P	8
IO83	Dave Hewitt	GW8ZRE/P	9
IO84	Morecambe Bay ARS	G4YBS/P	4
IO85	Galashiels and District ARS	GM4YEQ/P	2
IO87	Jim Nicol	MM0SMD/P	1
IO90	Worthing & District ARC	G1WOR/P	5
IO91	Bill and Malcolm	G0XAZ/P	8
IO92	Cambridge & District ARC	G2XV/P	9
IO93	Warrington Contest Group	G3CKR/P	5
IO94	Scarborough ARS	G2CP/P	2
IO95	G8PNN/P	G8PNN/P	3
JO00	UBA TRA-OSB Contest Team	F/OT3T	4
JO01	Keith Lewis	G4TJE/P	5
JO02	North Norfolk Amateur Radio Group	G0NWT/P	2
JO03	Mark Dumbleton	2EONCG	1
JO22	Contestgroup ALKMAAR	PI4ALK/P	1

at home, 2009 seems to have been remarkable for the lack of logistical and technical problems reported by entrants!

Many E-Mailed Logs

This year over 80% of the logs were sent in by E-mail. The contest spreadsheet – available for the first time

in 2009 – was used by many participants. It was a major help in making the adjudication so much easier, bringing forward the publication of the results by a month, (especially with the first PW 70MHz contest) and this was despite the contest taking place a week later than last year.

Several stations had difficulties sending logs by E-mail this year,

with E-mails 'bouncing', in some cases, for no apparent reason. A number of different solutions were employed, including using an alternative E-mail address for a few logs.

I contacted a number of stations that had supplied a contact E-mail address as part of their on-line cover sheet information submitted on the contest web site, to request missing logs. By the time the entries were due to close, I had received logs from every station that had entered their details on the contest web site.

I would like to thank entrants for their perseverance this year and encourage entrants to include their E-mail address on their cover sheets.

Cover Sheets

There were far fewer problems with cover sheets this year in comparison with 2008. However, I noted that some entrants, while describing how they reduced the power output from their transmitter to 3W, forgot to describe how they measured the power so that they can be certain that the power is indeed no more than 3W. Please note that failure to include this important information may result in penalties in future years.

I would also remind entrants that **the 3W power limit is to be measured at the point that the signal leaves the final 144MHz transmitter or transverter stage**. Relying on feeder loss between the transmitter and the antenna is **not an acceptable way** of meeting the 3W at the transmitter rule.

Problem Logs

Next, there are the problem logs, and where an entry has a systematic error affecting most or all contacts, such as incorrect formatting of data, I usually try to correct this. Examples this year included logs which consistently had spaces between the call prefix and suffix (e.g. G6 MXL), and a dot or stroke between the readability and signal strength (e.g. 5.9 or 5/9).

Where I cannot correct systematic errors, such as the station that submitted a log without any locators of stations worked, then I contact the station concerned and ask for a replacement log. Provided that this is submitted before adjudication starts in earnest, then no points are lost. Another example of this type of error was a station that submitted a log where all contacts were shown as taking place



before the start of the contest – where I suspected an incorrectly set computer clock.

One station had a different locator on the paper log sheet to the locator on the web-entered cover sheet, while another team had different callsigns on the top of two of their five log sheets.

Where errors affect an individual contact, then the extent of the loss of points varies. Incorrect callsigns (including missing /P) or incorrect locators result in the contact not getting any credit at all. The latter can also impact the multipliers if this is the only contact in the square.

Missing Stroke P

Missing or inconsistent /P on the end of callsigns is without doubt the most enduring problem with logs. It cropped up almost the moment I started cross-checking the 2009 logs.

I had hoped the various prompts in the rules, on the contest website, and the forms and spreadsheets would help this year. Nevertheless, one station had /P on his cover sheet and had no /P on his log sheets.

Quite often, I noticed that it's those portable stations that don't regularly include the /P as part of their callsign when calling "CQ" – are the ones that forget to log other stations /P suffix. One station unfortunately lost many points due to missing /P out, in one way or the other, or both!

Transcription Errors

Several stations lost points and multipliers as a result of mis-keyed locators. One station claimed to have worked nine English stations in JO90, JO91 and JO92 squares (instead of IO90, IO91 and IO92 respectively). In addition the same station substituted zeros for letter 'O' in the first two letters of the locator, and made numerous other keying errors.

Other stations slipped up here with an occasional contact, though some were even claiming to have worked English stations half-way across the Atlantic Ocean in IO01 and IO02 squares!

There were numerous examples of apparent errors in transcribing from the original log to the finally submitted log (in whichever format). Some would appear to be a result of misreading, letters such as U and V, D and O (very common), A and H, I and J, N and M, T and C, W and N, V and W, M and V.

Mis-typing may have resulted in JO01FA and JO01FS (the A and S keys are adjacent keys on the computer keyboard) being mis-keyed along with other locators ending in T and Y, as R and T. I think some stations mis-heard 'X-ray' and 'Echo'. There were also examples of a few letters being swapped, e.g. IO83RP became IO83PR.

Lunch Break

A single operator station had a near perfect log until lunchtime – and then swapped received and sent serial numbers around after what appears to be a 20 minute break! In this case only the station that swapped has had points deducted. Another station appears to have reversed many (but certainly not all) of the sent and received reports (but not the serial numbers).

No Errors

Four stations submitted logs which cross checking showed no errors. They were the logs for **G4FKI**, **M0RNA/P**, **M5AEO/P** and **MM3SRF/P**. Congratulations to all four for their careful logging – it just goes to show that with care it is possible to submit an accurate log. Thank you all!

Solar Power

The **Ynys Mon** group used solar power for their entry, making over 40 claimed QSOs.

Poor Signals

Despite the low power limit of just 3W, I received complaints of at least one station producing poor (wide, spreading) signals. However, it is perhaps worth remembering that a station that produces a clean signal under ideal mains conditions, might not be so clean with batteries running flat or

a generator producing something less than 220V.

Please remember that it's much easier to resolve issues amicably during the contest than afterwards!

Scoring & Multipliers

In the June 2009 issue of *PW*, I asked entrants for their views on the rules for the *PW* 144MHz QRP contest. In that request I made it clear that I would only make a change if there was a clear majority for change from all geographic areas.

Despite asking for views, 84 of the 92 entrants to the 2009 contest made no specific comment about the rules. Of the eight that commented, three (G, G, GD) suggested changing to points per km x number of squares, one (G) asked for no change, two (GW and G) suggested a single Yagi and/or no more than 20 elements, and one (EI) suggested reducing the duration by one or two hours. One (G) suggested adding DXCC countries as a multiplier in addition to squares, and one (G) wanted the power increased to 5W.

The lack of comments from most entrants leaves a very clear impression that there's no real desire for any change at all. So I'm not expecting to make any major changes to the rules for next year's contest, although I may be clarifying a few aspects of the current rules.

Date For Diary

The 2010 *PW* 144MHz QRP Contest will take place on **Sunday June 13th**. As usual this is arranged to run alongside the **RSGB's 144MHz Back-Packer Contest** for the benefit of entrants to both contests.

Thank You All & G4HLX!

Finally I must take this opportunity once again to thank all the entrants in 2009 and particularly **Neill Taylor G4HLX**, for devising what is without doubt one of the most widely supported single-band contests in the v.h.f. calendar. ●

*The Warrington Contest Group
G3CKR/P station. Photo G3CKG.*



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Tonna 20817 2m 17el	£135.95
Tonna 20909 70cm 9el	£89.95
Tonna 20919 70cm 19el	£89.95
Tonna 20921 70cm 21el	£109.95
Tonna 20935 23cm 35el	£89.95
Tonna 20955 23cm 55el	£109.95
Tonna 20745 13cm 25el	£94.95

West Mountain Radio

RIGblaster Pro	£284.95
RIGblaster Plus Serial	£149.95
RIGblaster Plus USB	£149.95
Nomic 8P	£64.95
Nomic RJ	£64.95
M4-CBL RG45/4Pin lead	£18.95
RIGRunner 10way 12v distribution board	£119.95



DIAMOND

HF10FX 10m Mobile	£49.95
HF15FX 15m Mobile	£49.95
HF20FX 20m Mobile	£49.95
HF40FX 40m Mobile	£49.95
HF80FX 80m Mobile	£52.95
CR8900 10/6/2/70	£97.95
CP6 Base 6m-80m	£339.95
X50 Base 2/70	£72.95
X200N Base 2/70	£114.95
X300 Base 2/70	£99.95
X700H Base 2/70	£225.95

AMERITRON

AL-811XCE 10-160m 600W	£899.95
AL-811HXCE 10-160m 800W	£999.95
ALS800X Solid State 10-160m 600W	£1549.95
AL-1500XCE 10-160m 1.5KW	£3499.95
AL-1200XCE 10-160m 1.5KW	£3449.95
AL-82XCE 10-160m 1.5KW	£2699.95

RADIO

CW-160 160-10m (252ft)	£164.95
CW-160 160-10m (133ft)	£159.95
CW-80 80-10m (133ft)	£129.95
CW-80 80-10m (66ft)	£149.95
CW-40 40-10m (66ft)	£119.95
CW-40 40-10m (34ft)	£139.95
G5RV+ 80-10m	£79.95
G5RV Fullsize	£34.95
G5RV Halfsize	£24.95

SGC

SGC-230 200Watts	£479.95
SGC-230 HF	£479.95
SGC-500 HF	£1499.95
SGC-235 HF-500W	£1249.95
SGC-237 HF-6m	£319.95
SGC-237 PCB	£399.95
SGC-237 PCB	£289.95
SGC-239 HF	£219.95
MAC-200	£299.95

Rotators



G-2800SDX Rotator	£999.95
G-450C Rotator	£299.95
G-550C Rotator	£262.95
G-650C Rotator	£338.95
G-1000DXC Rotator	£399.00
G-5500C Rotator	£471.95
AR-35X Hy-Gain rotator	£109.95
G-250 - Rotator	£108.95

Feeders & Wire

RG-213 Military Spec High grade 50 Ohm coaxial Cable	£89.95 per 100m Drum
RG58U	£0.70 per Metre
RG8 Super	£0.90 per Metre
RG213	£1.30 per Metre
W103 Westflex	£1.95 per Metre
RG-8 75 Metre Drum	£80.95

Flexweave 50m Flex	£29.95
Flexweave-PVC-50 50m	£39.95
Enamelled Copper Wire 50m	£17.95
Hard Drawn Copper Wire 50m	£24.95

Rotator Cable: - Color coded Cable	
3 core	£0.80 per Metre
7 core	£1.20 per Metre
8 core	£2.00 per Metre

DC Connecting Cable	
5A DC Cable	£0.50 per Metre
10A DC Cable	£0.75 per Metre
20A DC Cable	£1.00 per Metre
25A DC Cable	£1.10 per Metre



Self-contained, solid state	
23CM150 23cms 150W	£199.95
2M-HK 2m 500W	£199.95
64-HK 6m&4m dualband 500W	£199.95
70CM-HK 70cms 500W	£199.95

CUSHCRAFT

X-7 - 20/15/10 7EL Yagi	£979.95
A3S - 20/15/10 3EL Yagi	£599.95
A4S - 20/15/10 Yagi	£739.95
A3WS - 12/17 3EL Yagi	£499.95
ASL-2010 13-32MHz Log	£899.95
MA5B - Mini Beam	£479.95
D-3 - 20/15/10 Dipole	£299.95
R-6000 - 6Band Vertical	£399.95
R-8 - 40-6m Vertical	£559.95
MA5V - 10/20m Vertical	£279.95

Second Hand List

Amplifiers
Yaesu FL-2025 25W Linear Amplifier £99.00
Tokyo HY-Power HL-37V5X RF Power Amplifier with FET £69.00
Alinco ELH-730G 30W output linear amplifier £59.00
Yaesu FL-2050 amp £99.00
Nietzsche NB-30W - RF Amplifier £59.00
TOKYO HY-POWER AMPLIFIER HL-37V £69.00
Phi Hong 13.8 volt 3 amp Psu £15.00
RV-45 45W 2m Linear Amplifier £99.00

Analyzers + SWR meters
Comet CD-270D Meter £49.00
Diamond SX-200 Meter £49.00
Daiva CN-101-L 1.8-150MHz SWR Meter 1.5w-1.5kw £55.00
Daiva CN 101L Meter 1.8-150MHz £60.00
audioline SWR power meter £15.00
AV-20 AVAIR VSWR POWER Meter £25.00
revex W-510 SWR Power meter £49.00
TW-1 talking watt meter £79.00

Antenna Tuners
MFJ-969 ATU £159.00
MFJ-949E £129.95
Yaesu FC-30 Antenna Tuner Unit £189.00
Yaesu FC-700 antenna tuner £89.00
MFJ-902H Manual Travel Tuner 3.5-30MHz 150W £89.00

Antennae
MFJ-1817T Yaesu FT-817 Telescopic Antenna 17M £26.04
ELDORADO-BK High Sierra Motorised Vertical Antenna £469.00
Set top TV antenna £3.00
CB
Ranger RCI 2950DX 10 - 12m £179.00

DAB Radio
Roberts RD-21 'Gemini 21' DAB & FM radio, black £79.00
Gemini 49 Digital Radio £40.00
Gemini 46 Digital Radio £39.00

Data Comms
Kamtronics KAM Multimode TNC £140.00
ERA Mk2 Microreader £89.00
DC/Cig adapterchargers
Yaesu NC-29 - base charger £29.00
PG-31 Filtered Cigarette Lighter Lead for TH-K214 £12.00
BC-135 Desktop Rapid Charger for IC-R3 £40.00
NC-386 Ni-Cd Battery Charger £20.00
EDC-97 Quick charger £25.00

Frequency Counter/finder
CUB Optoelectronics MINI Counter £119.95
Handheld Transceivers
Alinco DJ-V5 Handheld £99.00
Kenwood TH-K2ET 2m with keypad £99.00
Yaesu FT-41R Handheld Transceiver £120.00
Icom IC-T7E Dual Band Handy £139.00
Kenwood TH-D7E Dual Band £240.00
Yaesu VX-7R black Tri-Band Handy £189.00
TH-K4ET Kenwood FM 5W 70cm Handy - with keypad £99.00
Alinco DJ-V17E £105.00
IC-W21ET FM transceiver £99.00

HF Transceivers
Kenwood TS-830S HF Trx Base £349.00
Yaesu FT-920AF HF / 6M Base £899.00
Alinco DX-70TH HF & 6m transceiver £399.00
Kenwood TS-850S IAT £699.00
Yaesu FT-1000MP Mark - V Field £1,199.00
Icom IC-7400 HF, 6m & 2m £899.00
Kenwood TS-570DG/E £549.00
Icom IC-706MKII Mobile Transceiver £399.00
Icom IC-775DSP HF Base £1,499.00
Yaesu FT-1000 "CLASSIC" HF Transceiver £1,399.00
Yaesu FT-747 HF TRANSCEIVER £279.00
Yaesu FT-2000 IN STOCK 100W with internal power supp £1,499.00
Kenwood TS-570DG/E £549.00
Alinco DX-77E HF Transceiver £399.00
Yaesu FT-857D Multi-band Mobile £449.00
TS-440SAT built in at £399.00
Midland Alan 98 Plus CB Transceiver £49.00
IC-3200E £99.00
Yaesu FT-690R II £275.00

Mics and Speakers
Kenwood SP-230 Speaker £50.00
Icom SP-21 loudspeaker £54.00
Yaesu MD-1 Desktop Microphone £75.00
Icom SP-3 Loudspeaker £49.00
SM-20 Deluxe Base Station Desk Mic £89.00
SMC-34 Speaker/Microphone with Volume Control £20.83
HM-133 Remote Control Microphone for IC-E208 £53.00

SMC-33 Speaker/Microphone with 3 Function Buttons £15.00
YD-148 Yaesu microphone £30.00
BH1 NES10-2 DSP Speaker £79.00
Extension speaker £9.99
Icom SP-21 loudspeaker £54.00
Heil 'studio classic mic' £99.00
KPO speaker mic £5.00
Alinco EMS-14 £49.00

Other
IF-232C RS-232 Interface for TS-50 £69.00
AKD 6001 6m FM Trx £115.00
MFJ-784 DSP Filter £149.00
Daiva CNA-1001 £149.00
M/Mods 144/100 £149.00
Kenwood SP-940 speaker £99.00
Snooper S5-R Safety Alert System £119.95
MML432-30L £89.00
Alinco DJ-X3 £89.00
FRT-7700 £69.00
Comet CF-BPF6 £25.00
EDC-16B adapter £9.99

Yaesu MMB-31 Mobile Mounting Bracket £15.00
MMB-60 Quick Release Bracket for FT-8900, FT-8900, F £10.00
Yaesu FV-901DM VFO £175.00
CX-201 Diecast Coax Switch £10.00
Yaesu FV-101DM Digital Memory VFO £199.00
Icom ut-102 Voice Synthesizer Unit £25.00
YAESU FV-707DM DIGITAL VFO £99.00
Microset SR-200 2m 200w £339.00
MFJ-781 DSP filter £89.00
AOR ARD9000 Digital Voice Interface £129.00
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YF-112C 2nd IF CW 500Hz Crystal Filter for FT840 £25.00

Kenwood TH-47E 430-440 MHz £79.00
MFJ-1817 2m/70cm Telescopic Rubber Duck 36cm long £22.00
KSC-14 Fast Charger for TH-22E £70.00
MMB-60 Quick Release Bracket for FT-8900, FT-8900, F £16.48
MB-62 Mobile Mounting Bracket (Main) for IC-706, IC-14.74
EM-8200 External Memory Card for AR-8200-8200-S2 £40.00
Daiva CS-201 antenna switch £10.00
MFJ-901B £85.00
Kenwood YK-88SN SSB Filter £40.00
Kenwood YG-455CN-1 - CW Crystal filter £100.00
Kenwood / Trio BPF-2A HF filter £25.00
GM-5 Heil Goldline Hand mic. £99.00
ICOM LC-168 Soft Case for IC-E92D £10.00
FL-257 455kHz Filter SSB wide 3.3kHz £99.00
VS-3 Voice Synthesizer for TS-2000 & TS-570 £30.00

MF-500 Collins Mech 500Hz CW Filter for AR-5000-7030 £52.17
FL-101 9MHz Filter CW narrow 250Hz £60.00
Kenwood YK-88CN CW Filter £50.00
Kenwood LF-30A low pass filter £35.00
Comet CF30MR: Low Pass Filter HF 1kw £30.00
Kenwood DG-5 external digital display £69.00
Rigblaster Plus £89.00
SC-45 Soft Case for TH-G71E £10.00
CASE FOR KENWOOD TH-47 £10.00
ICOM LC-148 FOR IC-T81 £10.00
LC-146 Leatherette Case for IC-R2 £8.00
SC-8200 Soft Case for AR-8200MKI £10.00
ALINCO ESC-28 £10.00
010-10117-02 Garmin GPS New Carry Case £5.00
FT-290/790MKI Carry Case £15.00
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Revex D24 duplexer 1.6-150 MHz £22.00
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universal scanner/handheld desk stand £10.00
Icom K-255 keypad for HF-255 £25.00
Optoelectronics mini scout £159.00
time wave DSP-9 £99.00
MFJ-462B CW/RTTY/ASCII/AMTOR Decoder £139.00

IC-MB5 mounting bracket £25.00
KT-790 Carry case £15.00
MX-62M Diamond HF & 6m/2m/70cm Duplexer £39.00
HMC-3 Vox Headset £20.00
Host Master II £20.00
IC-R5 cloning cable £15.00
Eton S-350 Field Radio £65.00
ERA RS232 £45.00
CSC-88 Soft Case for VX-7R £10.00

PMR446
Challenge PMR160 - 2 x 446MHz handheld transceivers £25.00
Power supplies
PS-33T Kenwood 13.8V 20.5A PSU £159.00
Microset PT 135 PSU £120.00
Kenwood PS-430 Power Supply £119.00
B.N.O.S 12amp power supply £59.00
Manson EP-925 Power Supply £75.00
Kenwood PS-52 DC Power Supply £159.00
W-10SM Watson 10A 13.8V Switch £35.00
PT-1012 Microset 12A 13.5V PSU £108.65
Shamans PS-30 £69.00
Kenwood PS-10 Power supply speaker £35.00
Icom PS-60 £149.00
Self PS-134 DC power supply £20.00
HQ power PS-130 £69.00
Farnell G-12 £59.00
Watson W-10AM £45.00

Receivers
Icom IC-R72 Receiver £399.00
Yaesu FRG-8800 RX inc Converter £299.00
Icom IC-R75 £449.00
Yaesu FRG-7 HF Receiver £99.00
Magellan GPS 315 Receiver £129.00
Icom IC-R5 Receiver £129.00
AOR AR-2002 Receiver £199.00
Icom IC-R8500 Receiver £1,099.00
AOR AR-3000A Wideband Receiver £450.00
Yaesu FRG-7700 HF Receiver £249.00
AOR AR-3000 Wide Band Receiver £350.00
Alinco DXJ30 Scanning receiver £140.00
Icom IC-R1500 Receiver £349.00
Ten tec RX-320 PC COMMUNICATIONS RECEIVER £275.00
VR-120 Yaesu receiver £89.00
Roberts R-809 £45.00

Scanners
Bearcat UBC-278 CLT Scanner £99.00
Bearcat UBC-9000 Scanner £179.00
Icom IC-R3 Hand held Scanner £250.00
Realistic Pro-2006 Scanner £129.00
GRE PSR-214 FM Base Scanner £86.91
Bearcat UBC-780XLT Scanner £149.00
AOR AR-8000 £189.00
AOR AR-8200MK3 Scanner £299.00
Yaesu VR-5000 Scanning Receiver £389.00
IC-R20 Icom Scanner Wideband £259.95
UNIDEN UBC-3000 Hand Scanner £129.00
UBC-785XLT Base 25-1300MHz £189.00
Uniden UBC-180XLT scanning receiver £99.00
IC-R3 Icom Scanner £250.00
UBC-72XLT Scanner £79.00
UBC-800XLT mobile scanner £229.00

VHF/UHF Transceivers
Icom IC-490E 70cms Mobile £250.00
Kenwood TR-9000 2m Multi mode £220.00
Kenwood TS-271E £165.00
FT-290RMKII 2m Multi mode £150.00
Yaesu FT-2600M Mobile VHF / FM £99.00
Yaesu FT-790 £159.00
Yaesu FT-736R 2m/70cm Base Multimode £599.00
Yaesu FT-8900 Quad Band Mobile £239.00
Kenwood TM-G707E Dual Band Mobile £189.00
Kenwood TS-2000 HF, 6m, 2m & 70cm £999.00
Yaesu FT-290RMKII 2m Multi-mode £250.00
Yaesu FT-690R II 6m transceiver £275.00
Yaesu FT-736R 6m, 2m & 70cm Base £799.00
Yaesu FT-480R 2m Transceiver £220.00
Yaesu FTV-901R 2m / 6m Transverter £275.00
Kenwood TS-790E Dual-Band Base / Mobile Transceiver £999.00
Yaesu FT-817ND HF 6m VHF UHF 5W Transceiver £359.00
Yaesu FT-8500 dual band mobile £179.00
IC-E208 2m / 70cm FM Mobile £199.00
Kenwood TR-251E 144-146 MHz £120.00
Icom IC-229H 144-146 MHz £119.00
ICOM IC-2200H 144-146 MHz £175.00
Yaesu FT-1802E FM 2m Band £99.95
The TINY-2 MK-II - With Open Squelch Board £109.00
AKD 2001 Amateur VHF FM transceiver £69.00
ICOM IC-290H - 2M MULTIMODE TRANSCEIVER £249.00
ICOM IC-2SET - Amateur VHF £79.00
DR-635E Alinco 2m/70cm FM Dual Band Mobile T £230.00
Radioshack HTX-252 2-meter FM transceiver £89.00
Alinco DR-620 remote cables
ADI-146 7m/25w/50w 2-meter mobile £89.00

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Amateur Radio

in focus

Kilmarnock and Loudoun Amateur Radio Club

Len Pagett **GM00NX** introduces his club
– based in an historic and attractive area
of Scotland that welcomes Amateur Radio
visitors!



The **Kilmarnock & Loudoun Amateur Radio Club** was founded in August 1980, when a need developed for a local Amateur Radio club in the Kilmarnock and Loudoun area of Ayrshire, in South West Scotland on the Clyde Coast. The original founders **John Hemphill GM3CTG**, **David Baird GM3OYH** and **Tom Grieg GM3NZN** are sadly all Silent Keys now, but their legacy lives on in the club.

Although the club has a fairly small membership of about 30 members, it's quite active and regularly takes part in a number of contests including the SSB Field day, the **Radio Society of Great Britain (RSGB)** Club Championship, WPX, CQWW and IOTA and holds the callsigns **GM0ADX**, and **GM7A**.

Along with contest activities, club members are also involved with a number of Special Event stations and being in Ayrshire, our great National Bard the poet **Robert Burns** has, of course, been commemorated by **GB1RB** (Robert Burns) and the callsign was activated to celebrate the Bard's birthday in 2007 and 2008. Additionally, for several years **GB2RB** has been active from the National Burns Monument as part of the **Mauchline Holy Fare**.

The Holy Fare is a tremendous family day out, with a mixture of historic displays and events, traditional Scottish music and handicraft stalls. The Special Event station is based within the National Burns Monument itself and attracts many visitors, giving us the chance to demonstrate Amateur Radio to the general public and renew 'old acquaintances'. Details of the Holy Fare, which takes place

each May, can be found at www.mauchlinevillage.co.uk

This year, 2009, marked the 250th anniversary of the birth of Robert Burns and the Scottish Government set up 'Homecoming Scotland', an events programme, "celebrating Scotland's great contributions to the world." This sounded an ideal event for the club to support and it was proposed operate throughout the year as **GB250HCS** (Home Coming Scotland).

We then contacted Ofcom in London, regarding the callsign and although they were supportive of

the project they indicated that GB callsigns with a three figure number were now reserved for events of national importance and although this sounded as if it fitted the bill, they required a letter of support from the Scottish Government as the event organisers.

Sadly, the expected support was not forthcoming and the Scottish Government refused to support the proposed Special Event station, saying that Amateur Radio was "unregulated broadcasting."

However, with the support of our local Member of the Scottish Parliament (MSP) and **Rod Wilkinson** at Ofcom, the error was corrected. We also eventually received a letter of support and an apology for the misunderstanding from The Scottish Government – but sadly it was too late for its intended launch date of **GB250HCS**.

We knew that nothing moves fast in government – so after the initial knock-back from the Scottish Government, **Arthur Clark MM0DHQ** and **Graham Cochrane MM0GHM** formed plan B. The **Robert Burns World Federation** was approached to see if they would support the event. They said they would be glad to do and with Rod Wilkinson assistance at Ofcom assistance, **GB250RB** was born just in time on January 25th 2009, to celebrate the 250th anniversary of the Bard's birth.

The **GB250RB** operation is a major commitment for the club, as we intend to be active throughout 2009 from many locations throughout the south west of Scotland associated with Robert Burns. Members of the **Ayr Amateur Radio Group** and



The club house is located within a council depot, is very secure and has plenty of space for antennas!



The inside of the building before the club got to work on it!



The Club members who sailed out to Ailsa Craiog got to know just how far out it is in the Firth of Clyde!

the **Wigtownshire Amateur Radio Club** were approached and they will activate the station at events in their areas. It's expected that the station will be on the air at least once a month, from key events throughout the year. Fortunately, we're ably supported **Jaycee Electronics, Icom UK, Auld Lang Signs and Tetra Communications**. Further information of GB250RB's activities can be found at www.GB250RB.co.uk

Ailsa Craig Adventure!

However, although special event stations can be great fun – they're not without their hazards! The Ayr Amateur Radio Group wanted to activate **GS0AYR/P** from the Ailsa Craig, off the South Ayrshire coast and the K&LARC was invited along to operate the 14MHz (20m) station.

Ailsa Craig (or 'Paddy's Milestone') is an uninhabited almost conical lump of granite in the Firth of Clyde, famous for supplying most of the world's curling stones and access is difficult at the best of times. On the way out, the journey in the open 10m (30ft) boat was almost idyllic, but as the *PW* Editor **Rob G3XFD** can testify from his IBA days, the weather in and around Ailsa Craig can change in a matter of hours – and it duly did!

Four hours after landing on the island, an unexpected Force 7 gale paid the team a visit and the skipper decided he'd better come and rescue us from the island. The journey back was a nightmare with the team literally hanging on the sides of the open boat, which alternated from dipping their hands into the Clyde to catapulting them 3m (10ft) into the air. There are no photographs of the return journey, everyone was too scared to let go of the sides of the boat sides long enough to take one. In fact, **Dave Livingston MM3DHL**, still goes a funny shade of green when



Look at the difference in the clubhouse after the renovation was done before Rob GM3XFD visited to give a PW club talk.

anybody ever mentions that particular DXpedition!

However, it's not all hardship either, as Scotland is blessed with more than its fair share of Castles and Towers. Additionally, as our Chairman **Arthur Clark MM0DHQ** is one of the founder members of **CASHOTA (Castles and Stately Homes on the Air)**, members can often be found activating one of the many of local castles in the south west of Scotland as part the of CASHOTA Award programme.

Since 1995, the **Islands On The Air (IOTA)** has always been a popular event with club members, with our now annual pilgrimage to Rathlin Island in Northern Ireland to operate as **GI0ADX/P**. In 2008 we went 'IOTA mad' when we activated both Rathlin Island (**GI3YS/P**) in Northern Island and Karerra Island in Scotland (**GM7A/P**) during the same weekend – not bad for a small club!

Incidentally, the approaches of the two teams are totally different. The **GM7A/P** team operates from a tent in a field, where as **GI3YS/P** they operate from the relative luxury of a house rented for the weekend, conveniently located near to the pub! Well, anybody can be uncomfortable and it takes talent to be comfortable in a weekend-long contest. Both teams will be again active during the 2009 IOTA contest.

After IOTA, SSB Field Day is the club's biggest event and in recent years has become quite 'high tech'. The club was one of the early users of computer logging and our original logging system was based on a BBC B Micro with custom software written by the late **Gordon Murray GM6TBR**. Later, an Atari ST based program written by myself, **GM0ONX** (then **GM6JIC**), which featured an automatic band changing facility, the interface for this was designed by **Barry Begg GM3YEH** – quite an innovation for its time.

Hard drives were a rare luxury in those days, so every QSO was

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dumped to a printer in case of a power failure. The log was only being saved to the floppy drive every 10 QSOs due to the time taken to save the information to disk!

But it was not always high tech – as our original duplicate check facility consisted of a length of wooden board with all the suffixes of the stations listed in alphabetical order. It was simple and effective system to 'dupe check' and we sometimes still yearn for it when all of the computer and respective interfaces decide they don't want to talk to each other an hour before the contest starts. This is despite working flawlessly at home! (Well it wouldn't be field day if it all worked first time would it?).

Meeting Places

Like many clubs, we've had had many meeting places both in pubs and community centres over the years, but in 2005 we managed to obtain our own clubhouse. The premises were an old abandoned store owned by **East Ayrshire Council** and was in a major state of dilapidation with no toilets, heating or lighting. Despite this, it had great potential and the rent charged by the Council reflected its dilapidated state and they gave us virtual free reign to do what we wanted with it on the basis we couldn't make it look any worse!

As luck would have it, we got the keys just before SSB Field Day and being a radio club we decided the first priority was to get an antenna up at the new clubhouse. A 1.8MHz Carolina Windom and Kenwood TS-850 was donated by **Bill McDicken GM4XMD** and with a little help from the local street lighting department, the antenna was quickly erected and **GM0ADX** was on the air.

Nobody wanted to give up SSB Field Day, but we also wanted to decorate the new clubhouse as soon as possible, so in the best traditions of Amateur Radio a compromise was found. We wouldn't enter the contest officially, but instead we would operate a checklog station from

the club house with the rest of the members painting and decorating the rest of the clubhouse. So, 24 hours and several gallons of paint later the painting of the club house was almost complete but it would take much longer for the paint to be removed from the member's hair and clothes!

Over the following weeks the clubhouse was kitted out with carpets and worktops in the shack and was at last habitable and one of the early decisions was to invite Rob G(M)3XFD up to see us. Rob kindly accepted the offer and a joint meeting with our sister club the Ayr Amateur Radio Group was arranged. As anyone who has attended one of Rob's talks can testify, a thoroughly entertaining night was enjoyed by everyone who attended!

The following year we were able to return the favour, when we hosted GB75PW's only visit to Scotland during PW's 75th anniversary year. The club is for fortunate in that our landlord doesn't mind us erecting antennas – provided that it doesn't interfere with the normal day-to-day operations of the depot. So, we erected a 3-element yagi attached to a mobile mast and various inverted Ls and dipoles, putting two stations on at the same time. Rob GM3XFD was doing the 'meeting and greeting' of PW readers on the lower h.f. bands, whilst the rest of the team was doing the 'racking and stacking' of the DX on 14MHz. All and all it was a very successful and enjoyable two days.*

**You forgot to add 'but exhausting too' Len! Editor.*

Supporting Exams

Like many clubs, we fully support the Amateur Radio Exam scheme and regularly run both Foundation and Intermediate Courses. We also provide mentoring for the Full Licence Exam and all the examinations can be sat at the club premises. If the candidate is a member of the club no charge is made for these courses, the only expense being the exam fees and materials for the project for the intermediate exam.

But it's not all radio at the club! Every year we organise the 'Bright Sparks Trophy' night just before Christmas. The event is a fun social night when clubs from all over west and central Scotland join us for a quiz night. It's based on a pub quiz format with a mixture of Amateur Radio



Good weather on Rathlin Island, Northern Island where the club operates.



Team GB250RB – ready for action!

and general knowledge – including some devious questions set by **Allan McKay GM3OZB** on obscure general knowledge of Scotland. Because all the 'clever' members are involved in organising the event – and are thus barred from entry – we unfortunately never win the event. (Well that's our excuse and we're sticking to it!).

The Club meets at **34A Main Road, Crookedholm** at 7:30pm on the second and forth Tuesday of every month except December and July and visitors are more than welcome. We usually have a talk or presentation at

most meetings and you'll even get a 'self-service' cup of tea or coffee. If you're late you'll find the security gate closed but a quick "CQ" on the car horn will attract our attention. Details of the clubs activities can be found at **WWW.KLARC.org** We hope to catch you on the air or at the club! ●

Further information from: **Grahame Cochrane MM0GHM** (Club Secretary) via **mm3gdc@btinternet.com** (E-mail address is correct). Tel: **07802 954739**.

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Count on us!

Editorial announcement: As Chris provides a preview to his new series of articles on researching what you need, buying and using second-hand equipment, both he and the Editorial team would be delighted to receive feedback on the equipment featured. We would also encourage readers to contact us to request that particular rigs and accessories to be featured. Indeed, this new series will rely on your requests and comments, along with Chris G4HCL's extensive experience to be the success we intend it to be. So, let's be hearing from you readers! **Editor.**

As some readers may know, I'm certainly not ignorant of new equipment, having being fortunate in being able to review literally hundreds of the very latest new transceivers, receivers, antennas and radio accessories over the past two decades or so for Amateur Radio magazines. So there was certainly some temptation for me to buy new as soon as it became available!

Ironically, I usually paid rather a lot more for it second-hand later. But again, the 'collectors market' is another story for another time, as are other specific second-hand buying subjects like: knowing how to spot a good deal, how to barter, where to find the best equipment, what to avoid, buying at rallies, and lots more. But hopefully this introductory article will be a useful 'starter'!

Many hobbyists use their PC alongside their radio



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



equipment, and being able to link your computer with the radio for frequency control, uploading/downloading channels, scanning, automatic logging and so on is extremely useful.

There's a plethora of freeware, public domain and shareware hobby radio software available and even if you don't have download capabilities – take a look at *PW's* sister magazine *Radio User* where you'll find a massive collection featured each month.

What About Adverts?

The next obvious question you're likely to ask me – will probably be, "What about the adverts Chris?" In answering, I can say that this method is often when you could either pick up a real bargain, or be landed with something that's not up to your expectations!

Usually, you've usually only just got a small description to initially go on in the advert, so you will, of course, need to contact the advertiser for more details. If you do proceed to this stage – make sure you ask the right questions, such as the equipment's age, whether it's in perfect working order, and whether you'll be able to try it out at their house to ensure it does work. Additionally, you should ask what physical condition it's in, either 'as new' or worn, battered and scratched, to save you disappointment.

If you both have E-mail facilities you could even ask the seller to E-mail you a digital photo. Multimedia photos via cellphones are of rather low quality though, and these could cover up physical blemishes such as light scratches on the equipment.

You'll see ads in specialist magazines such as *PW* and *Radio User*, but don't neglect your local daily paper, as you may be surprised what might turn up! Often these offer free ads for sales under a given selling price, unless of course you're a subscriber to *PW* when ads are free, including the option of adding a photo. As it doesn't cost the seller anything to advertise you may find something you like, often with the benefit of it being on sale near to your home.

My own local daily evening newspaper, covering the Southampton area, occasionally has radio items in it and there's the benefit of adverts appearing within a day or so of the seller contacting the paper. So you'll be able to get in there a lot earlier! Again with the seller being local you can pop along there one evening and take a look at the radio equipment.

If the seller is a Radio Amateur or listener you'll probably also be able to try it out 'on air' as well as having a good chat together! Even in national magazine ads, if you can get along to the seller's house to inspect and collect the equipment in my opinion – it's time and petrol well spent as well as saving carriage costs and potential damage in transit.

Amateur Radio Dealers

Of course, many people in the hobby buy new equipment from Amateur Radio dealers and many of these offer trade-

in facilities for the buyer's earlier equipment when they are trading up to a new radio. Again, the customer may not (and often won't), get the best price for their traded-in equipment (like car dealers) but it's popular because of the convenience aspect.

This is where the canny second-hand purchaser can possibly get a good deal! A low trade-in price often results in a low re-sale price, as long as there's enough to cover the trader's overheads and let them have a small profit.

As an example, I bought an 'all-singing all-dancing' 144MHz multi-mode base station transceiver from a dealer and traded in a handheld. I was then surprised to get a rather good price for my trade-in because I'd accepted to buy the new base station at the full advertised price with no discount or 'haggling'.

Just like second-hand car dealers in the past, you either pay full price or get a good trade-in. Or you haggle, or try to! This may have been a viable possibility some years ago but in today's economic climate this usually isn't an option today. This is due to the hard fact that many dealers are simply trying to out-compete others, especially with competition from Internet sales where overheads are relatively very low in comparison to that of supporting a showroom and sales and demonstration staff.

I know of at least one UK radio dealership, that had half a dozen or more retail Amateur Radio shops spread around the UK, all with demonstration facilities. They simply closed their Amateur Radio division because of the competing 'pile them high and sell them cheap' box merchants with lower prices – but where you just get a sealed box either in the post or over the counter.

Dealers often advertise their second-hand stock in their adverts and it's really useful to be able to go along and see their selection of second-hand radios 'in the flesh'. Some dealers even have demonstration facilities where you can try the equipment out for yourself on an external antenna system. This can take place – maybe – along with a cup of coffee or three and they often don't mind if you're there for a few hours, as long as you're not holding them up going home at the end of the business day. Remember that dealers don't usually stay in business by selling shoddy equipment! With our hobby of over-the-air communication where word quickly gets around, many dealers would never want to risk their reputation in selling you something that's overpriced or faulty.

Rallies & Boot Sales

If you're fortunate in being able to get out to radio rallies and one or more of the increasing number of Amateur Radio-themed boot sales, these are a great place to pick up equipment and maybe get yourself a bargain. At rallies, you'll find well-known dealers offering second-hand equipment, which is of course useful because you're dealing with a known firm and you'll usually get some form of guarantee.

Also at the many rallies around the UK, there's often a





'bring and buy' (B&B) stand run by the rally organisers where visitor's equipment can be displayed and sold on their behalf at an advertised price. Typically there's around 10% commission which is then paid to the rally organisers at most B&Bs.

Like most car-boot sales, it's the early bird that catches the worm, so if you're looking to buy second-hand get there as early as you can, and if you're at a rally keep checking the bring-and-buy stand regularly for equipment, as not all prospective sellers may have got there as soon as the doors opened in the morning.

How About Bargaining?

How about bargaining when you buy? Most private-ad sellers, boot-sale vendors, and even some rally traders, can be persuaded to accept a slightly lower than the asking price – but do be nice about it! You won't score many points by pointing out what the equipment is lacking in or the condition of the equipment as the seller is, of course, very aware of any of these which should be reflected in the asking price in the first place.

After watching a prospective buyer at a radio rally trying his hardest to get a dramatic cut in the price of a second-hand radio from a dealer (after the dealer had already been prepared to accept around 10% less) the dealer just got fed up and increased the price by 10% above the original asking price instead and wouldn't budge. The exasperated buyer, who really did want the item, eventually had to swallow his pride and pay the extra!

On-line Auction Sites

I've lost count of the times I've heard, "I bought it from eBay." Wrong! You don't buy anything at all from eBay or similar auction sites like cquot, ebid and totalbids, instead you buy from an individual or a company who uses this facility to advertise their goods for sale. So please remember you may often be dealing with an individual person – and not an established and respected dealer.

Sites such as those I've mentioned do have benefits though. As well as giving a wide exposure to the seller, the potential buyer can often find out a bit of past history about the seller, such as whether past purchasers have been satisfied with their dealings with them. This is usually done through on-line feedback and you

can see a potted history of whether other purchasers have been satisfied with the seller in the past.

The seller's track record information will include whether the equipment was described correctly and accurately, if it was despatched promptly and received in good condition and so on. Invariably there will be a photo, or photos, of the equipment for you to look at on-line.

There are disadvantages though, and you may rarely get a bargain if it's a sought-after piece of equipment. This is because others will be bidding on it in competition with you and if someone particularly wants that very same type and model of equipment, you may well be paying 'over the odds' for it – if you keep bidding until the last minute. My advice here is don't get carried away, keep a maximum price in mind that you're willing to pay and stick to it as you should at a traditional auction.

Be On Guard!

Finally, if a piece of equipment seems remarkably cheap, then do beware and be on your guard. Despite my warning, some dealers and occasionally private sellers may offer old or physically damaged equipment for sale at a knock-down price.

I fondly remember going to an Amateur Radio dealer's open day where I saw a 144MHz s.s.b. transceiver, which I'd been specifically looking for but could never find advertised. It had a slightly damaged front panel and was labelled 'heap of junk, make me an offer' and upon enquiring I was told, "Please, just take it, I don't want anything for it"! What a bargain!

Another bargain, again at a different dealer's open day, was a 144MHz synthesised f.m. portable transceiver with a damaged battery cover, which I bought for £20! all that was needed was some insulating tape to keep the batteries in place.

However, if it's a private seller, a relatively new model of equipment and a very cheap price – then I suggest that you should insist on also getting or at least seeing the original receipt for the radio. This shows that the seller bought it legitimately and, as it's a receipt and not a credit or hire purchase agreement, that it is indeed the owner's property being sold and the equipment doesn't technically belong to a finance company.



Happy Hunting!

I hope this introductory article has been useful and I'm planning that the new series will provide much useful information. Each month I'll be concentrating on a given type of equipment, such as h.f. base transceivers, receivers, v.h.f./u.h.f. mobiles, portables and so on.

So, get out there and start looking for what's on sale. I hope with the help of the new *PW* series – you'll find some bargains! ●

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Tony Nailer's

doing it by design

Tony Nailer G4CFY's design of the Poundbury 3.5/14MHz receiver approaches the conclusion of the development process.

Welcome to *Doing It By Design (DIBD)*, a series allowing you to peer over my shoulder, as I undertake design and development. The *Poundbury* Receiver project has been extremely useful as a development model, by which I could experiment with the intricacies of high frequency (h.f.) receivers. It's given me the opportunity to develop intermediate frequency (i.f.) ladder filters based on the work of **J. A. Hardcastle**.

I have also found a solution to the problem of interaction and phantom oscillation in switched crystal oscillators. I've developed a transistor shunt method of automatic gain control (a.g.c.) with up to 60dB control range per stage. And an audio derived S-meter drive circuitry and control for shunt a.g.c. and dual-gate m.o.s.f.e.t. control.

In addition I have improved my stock of capacitors for tuned circuits and radio frequency (r.f.) filtering by the purchase of quantities of capacitors in the 120 to 820pF range and discarding the high-k unsuitable versions.

Previous Problems

The problems with the previous board, detailed in *DIBD* in the September issue of *PW*, was its i.f. instability, lack of recovered audio, and poor a.g.c. action. This was probably due to the change to the dual-gate m.o.s.f.e.t. mixer at the front end, giving the whole unit too much gain.

I was concerned that the product detector, a two-diode bridge had low level audio output and quite a high level of high frequency signals.

To address these problems, a breadboard circuit was created which included the two i.f. stages, a field-effect transistor (f.e.t.) product detector with driver transformer drain load, and the operational amplifier (op amp) stages for a.g.c. generation. The stand-alone carrier oscillator board featured in *DIBD* in the May issue of *PW* was used with the breadboard.

The i.f. stages in this model were run with fixed gate-2 bias, and a.g.c. control was achieved using a single shunt

transistor between the two stages, as had been used in the front-end and in the design in *DIBD* in September *PW*. The a.g.c. audio amplifier, detector, and voltage amplifier were also as previously used.

Circuit Testing

The lash-up worked extremely well, as lash-ups often do. The i.f. gain was quite adequate, stability was good, recovered audio was up to 200mV with large i.f. signal input. The a.g.c. control range was about 60dB, which is a large portion of the required 80dB range.

However, things that weren't so good though, were that the a.g.c. control voltage with no signal was about 100mV, and didn't start to have an effect until it had risen to about 400mV. Full a.g.c. action didn't start until the voltage exceeded about 650mV. This meant that on an S-meter scale the movement would be linear for the first three S points before becoming logarithmic. This caused the S-meter scale to be wide-spaced for low signal levels and very cramped for high signal levels.

Furthermore, the residual 100mV a.g.c. voltage caused the S-meter to have a significant reading even with no input signal. This would all get much worse when the front end mixer was included with its additional gain.

To solve the problem of the delayed a.g.c. action, a source follower f.e.t. stage with adjusted source resistor was interfaced between the op-amp and the shunt a.g.c. stage. The adjustable source resistor allowed the standing level of the a.g.c. line to be set just below onset of a.g.c. action with no signal. This I thought was a very elegant solution to that problem.

To solve the problem of residual meter reading, a BAT42 diode was put in series with the meter circuitry. Now the a.g.c. line needed to rise to about 200mV before the meter started to read. All the problems had been satisfactorily solved, so a new circuit was drawn up.

New circuit board

The layout of the previous printed circuit board (p.c.b.) was really good in relation

to external hardware connections. It also had the carrier oscillator well away from the r.f. and i.f. stages. Overall the circuit changes were relatively minor, but necessitated a complete re-numbering and complete rework of all except the front-end and ladder filter sections.

A new p.c.b. was created and was populated largely with components stripped from previous boards. I always consider components, such as transistors, integrated circuits, capacitors and especially TOKO coils as being worth recycling.

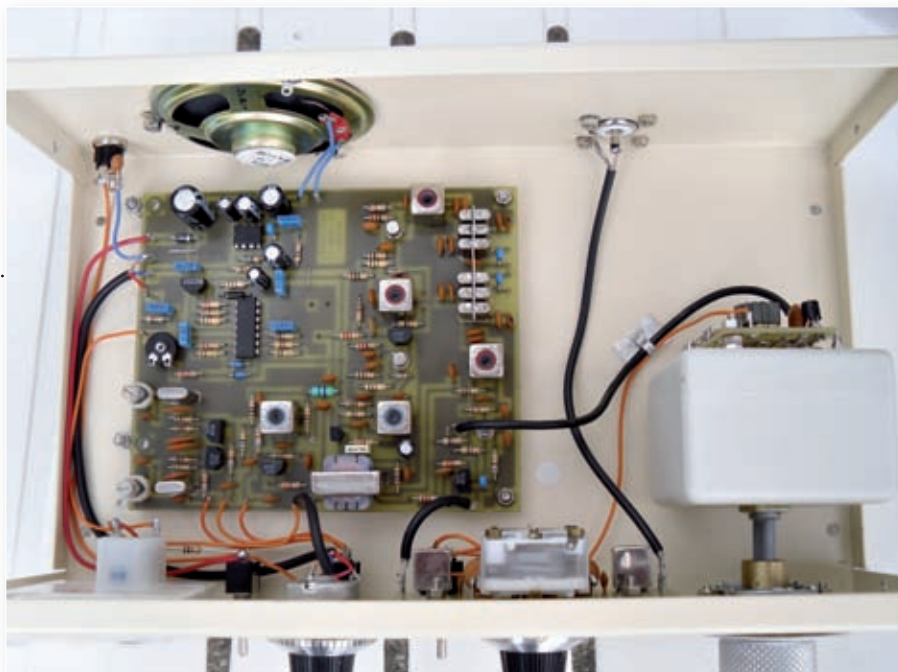
The new board was the same width as the previous one but 7mm shorter in length. Component density and earthing was better than before. Rather than drill even more holes in the bottom of the receiver box I soldered two solder tags to one end of the new board, which allowed me to use the original fixing screws. Most of the existing wiring didn't require changing, I only needed to rerun a piece of screened twin for the volume control, and re-do the wiring to the speaker.

New board results

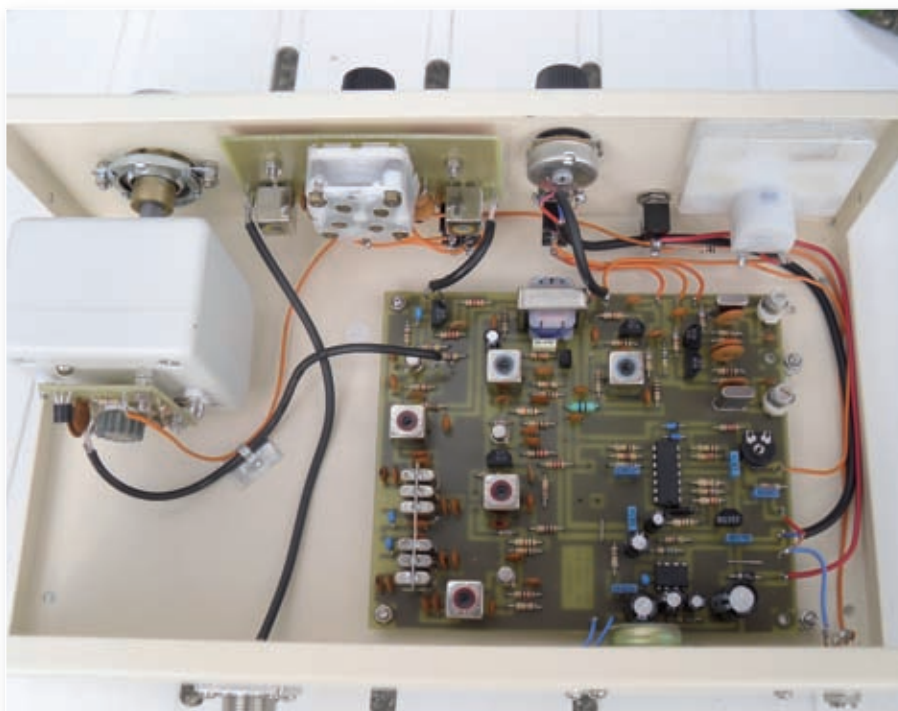
At switch-on there was background noise, with no audio instability and no funny burbling noises. I applied an oscilloscope to the carrier oscillator test point and peaked up the coil of the buffer stage. A sinewave of 8V p-p was measured, which was far too much! A frequency counter was used to set the carrier crystal frequencies at 9.0015MHz for lower sideband (l.s.b.) and 8.9985MHz for upper sideband (u.s.b.).

A signal of 14.2MHz at a level of 10 μ V was injected into the antenna socket. The receiver was tuned to it and it was easily heard. All the i.f. coils were peaked up and r.f. instability occurred. De-tuning the last i.f. coil or the carrier buffer coil stopped the instability.

I guessed that maybe the carrier oscillator signal was being picked up in the early stages or that the f.e.t. product detector was being overloaded. The de-coupling capacitor on the emitter of the buffer stage was removed,



Two inside views of the Poundbury.



and the carrier signal at the test point now measured 2V p-p. The circuit was now much more stable, and more importantly, it was without any noticeable drop in recovered audio.

Nevertheless, adjusting both the i.f. and buffer coils still produced some instability when peaked. The coils that I'd used were all TOKO 3892 with a 14 turns centre-tapped primary, and with a two turn secondary winding. I changed the i.f. output and buffer coils for TOKO type 1509, still with a 14 turn centre-tapped primary but with only one turn in the secondary.

Once again stability improved and still with no loss of recovered audio.

Although with the i.f. coils peaked, some funny noises occurred. The coupling to the second i.f. stage had been taken from the drain of the first stage. This I changed so that the coupling capacitor now connected to the two-turn secondary of the drain coil at the first i.f. stage. Perfect stability.

The signal meter's pre-set range was quite good, but the gradual reduction of the overall receiver gain necessitated a change in the value of the adjustment trimpot, from 2.2 to 4.7k Ω .

Operation Of AGC

Now I experimented with the a.g.c. control range. The a.g.c. standing

Tony Nailer

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voltage could not be adjusted as required, and did not work as it had in the breadboard model.

The adjustable source resistor was unable to set the voltage to the level required of around 400mV. It was either well over a volt, or zero volts. The f.e.t. became quite hot, and made me re-check that I'd identified the pin-outs correctly and that the device was the right way round. I even changed it for another device with no effect.

Eventually I was forced to abandon this method of setting the a.g.c. start point, and I removed it and the a.g.c. pre-set trimpot from the board. Incidentally, I still don't know why it didn't work as it did in the breadboard model. Most infuriating!

Having removed the f.e.t. there seemed no way of raising the standing voltage of the a.g.c. line without causing the S-meter to have a high reading with no signal input?

When the receiver was tested with a throw-out antenna wire, signals up to about 25 μ V were fine and good quality and the S-meter responded well. Signals above that level caused a strange popping noise on peaks.

I found that adjusting the values of resistors feeding the shunt transistors reduced the popping. Eventually, the circuit seemed smoother with control almost entirely on the i.f. shunt transistor, leaving the front-end stage with hardly a.g.c. action at all.

On-air tests on both bands revealed that performance was good on the 14MHz band with both, weak and strong signals, the meter adjustment range allowed easy setting of S9. Recovered audio was at a good level and there were no funny popping noises on peaks of speech.

On the 3.5MHz band the background noise level was a lot higher than on 14MHz. The total signal and noise reaching the product detector, within the full i.f. passband, was enough to run the a.g.c. out of control range.

Instead of reducing the gain of the main board, which would also affect 14MHz reception, I decided to dampen then Q of the input circuit of the pre-

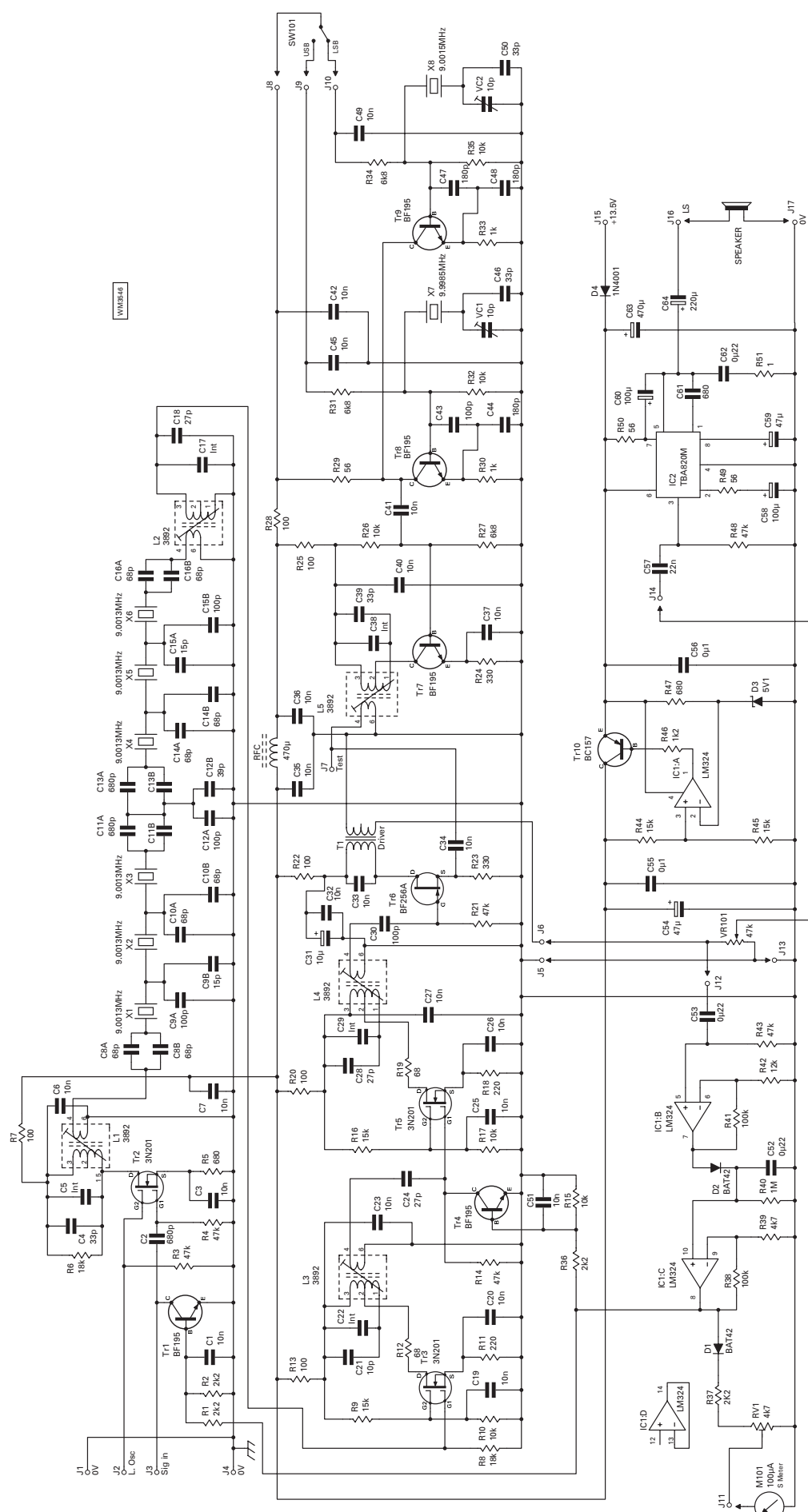


Fig. 1: This is the working circuit of the Poundbury 3.5/14MHz s.s.b. receiver. However, Tony G4CFY mentions that he can see that other improvements are possible. He also suggests that when the project works well — you should consider shooting the designer!

selector when switched to 3.5MHz. This was done with the addition of a 4.7k Ω resistor from pin J4 to ground. The circuit of the pre-selector was shown in the September issue *PW*.

Project Conclusion

There always comes a point in the development of a product when the marketing and sales department think it is a good time to shoot the designer. Otherwise it could take an infinitely long time to get the item to production. This project has just about arrived at that point.

All the circuitry necessary for a good final product has been designed and developed and considered in fine detail. The new board has all the sections nicely laid out with good component density but with some available spaces, and a spare op-amp. There's more than adequate gain and recovered audio. The S-meter has quite enough drive, though the movement and scaling need to be improved with better a.g.c. action.

The *Portland* v.f.o. running on 5-5.5MHz is exceptionally stable. At switch-on, tuned to an s.s.b. signal there is **no** discernable drift. The front-end pre-selector accommodates the whole of the 14MHz band with good stop-band attenuation. On the 3.5MHz band the pre-selector tuning works well.

A full circuit of the main circuit diagrams is shown in **Fig. 1**. A parts list and p.c.b. track pattern and overlay can also be supplied for those who wish to make up the project for themselves $\ddagger$. No drawings are included for the box drilling because individual readers will likely do their own thing, or buy a ready prepared and labelled box and hardware.

$\ddagger$ For copies of the parts list, or the p.c.b. send an E-mail to tex@pwpublishing.ltd.uk with Poundbury PCB/Parts List in the subject text. Alternatively, send a first class (large) stamp and a self addressed sticky label to the editorial offices, using the 'Poundbury parts/PCB offer' words. Editor

Receiver Description

This receiver uses the classic arrangement of a 5-5.5MHz v.f.o. local oscillator and a receiver with a 9MHz i.f. Signals in the range 3.5-4MHz can be mixed with the v.f.o. to produce the 9MHz i.f. signal. Likewise signals in the range 14-14.5MHz can also be mixed with the v.f.o. to produce a 9MHz i.f. signal.

Kits & Bits

5-5.5MHz <i>Portland</i> v.f.o.	
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The pre-selector includes a bandpass coupled pair of tuned circuits with a resonant frequency centred on 14.175MHz, and with a bandwidth wide enough to include the whole of that band. Stop-band attenuation is at least 30dB at 4MHz above and below the band.

On the 3.5MHz band a polyvaricon capacitor together with several series and parallel capacitors are switched onto the bandpass coupled circuits. These components enable the pre-selector to tune across that band and provide out-of-band attenuation of about 40dB just 1MHz above and below the band.

The *Portland* v.f.o. running on 5-5.5MHz is a modified Colpitts source follower oscillator.

The circuit is shown in *DIBD* in the July 2009 issue *PW*, and has remained unchanged since then. It's built with the resonant components and f.e.t. on a board inside a plastic box.

The buffer and voltage regulator for the *Portland* oscillator are on another small board on the outside of the box. The secret of success of this unit is the very low heat dissipation of components inside the box and the poor heat conductivity of the plastic.

Main Board

The main circuit board includes a shunt attenuator transistor at the input, which now is barely operative and probably redundant. This is followed by a dual-gate m.o.s.f.e.t. mixer, biased down quite a bit by a large value source resistor, to improve signal to noise ratio.

The drain circuit is resonant and at 9MHz and damped with an 18k Ω

resistor to present an output impedance on the secondary of about 150 Ω . This matches into a ladder filter network of six crystals, achieving a 2.4kHz bandwidth at -3dB points. Skirt selectivity is -70dB at -4kHz and +3kHz from the centre frequency. The output end of the filter is connected to a similar resonant circuit with the same resistive loading.

There are two i.f. stages Tr3 and Tr5, presently with fixed gate-2 bias, each with tuned drain circuits. Another shunt device Tr4 provides the a.g.c. range of about 60dB. Output from the second i.f. stage is to an f.e.t. product detector with an audio driver transformer as its drain load.

Individual Colpitts crystal oscillators Tr8 and 9 are supply-line switched and fed to a buffer transistor Tr7. The buffer drives the source of the product detector via a link winding on its output coil L5.

Recovered audio from the product detector feeds a nominal 1W audio amplifier via the volume control potentiometer. One op-amp, IC1b, of a quad op-amp package is used to amplify the recovered audio, which is then rectified by D2 and stored in C52. Resistor R40 ensures the charge is not held too long.

An integrated circuit, IC1c, amplifies the voltage to drive the bases of the shunt a.g.c. transistors. It also drives the S-meter via a series diode to ensure the meter sits at 'zero' with no signal. Another part of the i.c., IC1d, is presently unused. The fourth package of the i.c., IC1a, together with Tr10 forms a stabilised supply, which can maintain a constant 10.2V output with a supply rail as low as 10.5V.

Final Polishing

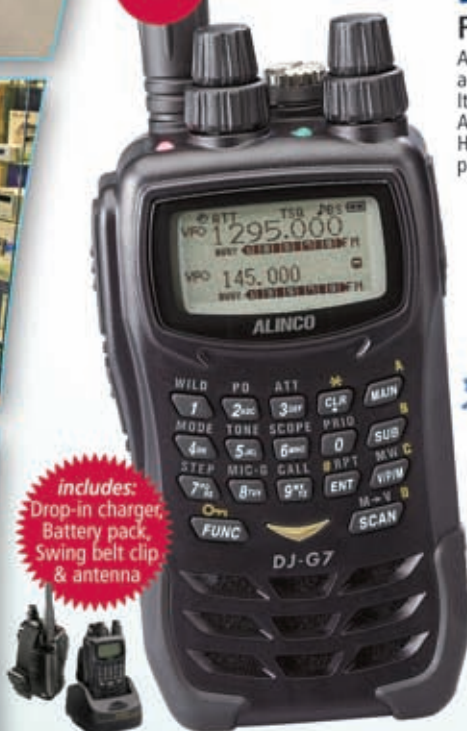
There is always room for final polishing and it's very likely that I will delete the input shunt a.g.c. attenuator, and put the spare op-amp back into service to drive the control gates of the i.f. m.o.s.f.e.t.s, as shown in the circuit in *DIBD* on page 35 of the July issue *PW*. This will provide 25dB of a.g.c. control starting from the smallest signals, followed by the delayed 60dB range of shunt control with Tr4. The S-meter will then have a logarithmic control over its whole range.

Any *Poundbury* Receiver sold as a kit of parts or as a ready built unit will include the most updated version, together with appropriate circuit diagrams and component layouts.



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The Rev. George Dobbs'

carrying on the practical way

This month the Rev. George Dobbs G3RJV looks at a 'Manhattan Style Receiver' after the quotation, of course!

"If you want a thing done well, do it yourself." **Napoleon Bonaparte**

A fine piece of advice from Napoleon! One of the aims of this column over the years has been to encourage people to try do-it-yourself Amateur Radio. There is deep satisfaction to be had in using radio equipment made with your own hands.

Hopefully, over the years my offerings in *PW* have encouraged some people to try it for themselves. However, in recent years the 'Buildathon', a very practical way to encourage people to attempt radio construction for the first time, has gained popularity.

At a Buildathon event beginners build an Amateur Radio project under the supervision of more experienced radio constructors. The project is often a commercial produced kit because these come complete with all the required parts and a construction manual.

I first met the Buildathon idea at the 'Four Days in May' QRP event at the annual Hamvention in Dayton, Ohio. In the UK the idea was taken up in the city of Bath by **Steve Hartley G0FUW**, in the now renowned Bath Buildathons.

Steve has now produced an excellent DVD describing how to run a Buildathon and his efforts have been described in recent issues of *PW*, as have the events run by **David Searle ZL3DWS** in New Zealand.

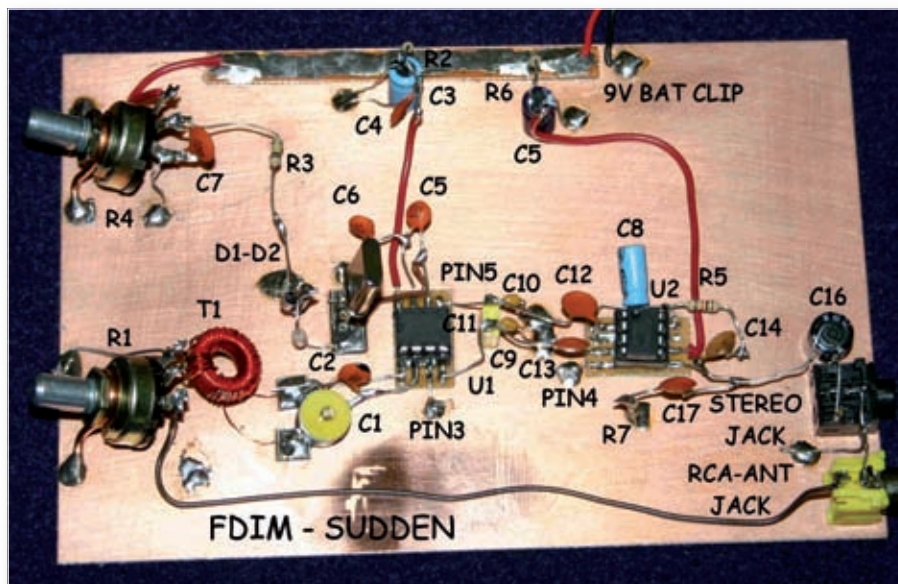
Sudden Receiver

Regular readers may recall that in my column for April of this year I revisited the *Sudden* receiver; a direct conversion (DC) receiver design I offered to *PW* readers exactly 20 years ago. So, I celebrated the 20th birthday of the *Sudden* by reviving the circuit and suggesting some updates.

About the time I was working on anniversary *Sudden* project for *PW*, I was approached by **Ken Evans W4DU**, of the **QRP Amateur Radio**



Concentration shows during the one-to-one tuition Buildathon.



The project layout follows that of the circuit diagram for simplicity.

Club International (ARCI) in the USA, inviting me to make suggestions for a Buildathon project for the Dayton Hamvention in 2009.

Ken wanted to move away from the usual idea of using a kit for the Buildathon and have a project not built on a printed circuit board (p.c.b.). He hoped this would encourage a more creative approach to radio construction for the beginner.

I suggested we could use the

variable crystal oscillator (VXO) version of the *Sudden* that I was working on for *PW* readers. The suggested method of construction was 'Manhattan Construction' using pads glued on to a piece of blank p.c.b.

A Manhattan version of the *Sudden* was developed and tested and became the Buildathon project for the 'Four Days in May' QRP event. We planned that 30 would-be radio

be cut with a sheet metal nibbling tool. Perhaps the easier way to make square pads is to cut strips of blank p.c.b. material; each strip being about 4 or 5mm wide. A pair of tin snips can then be used to cut off individual pads.

Integrated circuit (i.c.) chips require a carrier that replicates the footprint of the i.c. pins. There are commercial i.c. carriers – but they are easy to make. Cut a piece of blank printed circuit material a little larger than the footprint of the i.c. pins. Then, using a small hack saw with the teeth parallel to the board, score the board to make insulated tracks across the surface. The tracks should be spaced so that they occur between the i.c. pin placements. Next, a single scored gap is made along the length of the carrier to separate the pins on either side of the carrier.

The pins of the chip can be soldered directly to the resultant pads although it's more usual to solder in a plug-in i.c. holder. The pads and carriers are attached to the p.c.b. base plate using one of the rapid setting cyanoacrylate adhesives. The base board will then act as a ground-plane to which all the grounded leads are attached.

Remember that the ground-plane copper will absorb quite a lot of heat and the constructor may need a higher wattage soldering iron for these connections. It's also a good idea to tin all the individual pads with a hotter soldering iron.

Sketching Manhattan Helps!

When building a circuit Manhattan style from scratch it can be useful to make a sketch of a possible layout and add some, or all, of the pads in advance. This can save problems when trying to fit the pads in the available space. Some parts of the circuit may not require the use of pads

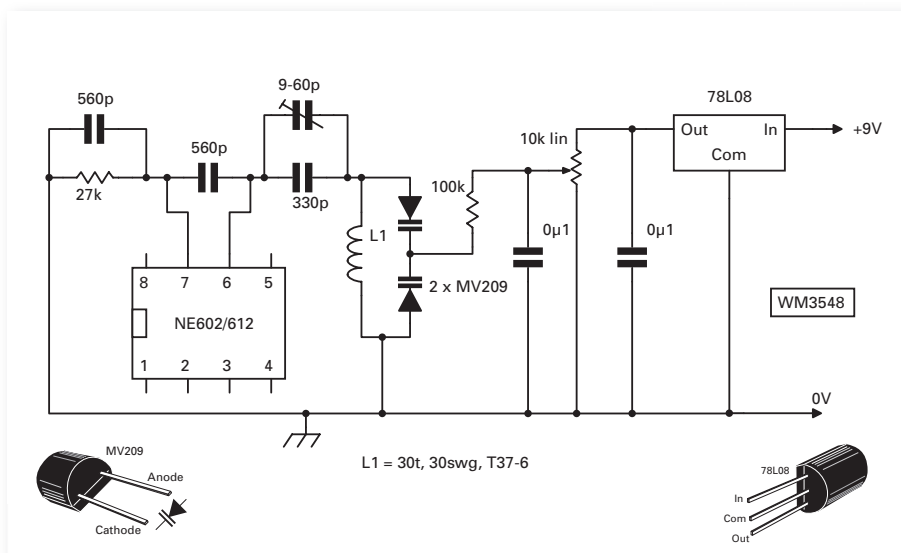


Fig. 2: Using true varicap diodes, two MV209s, rather than just two 'ordinary' rectifier devices.

if the circuit wiring can be done point to point.

The photograph of the LM386 audio amplifier section of the receiver shows that no pads were required around this chip. The receivers in the Buildathon exercise also had a power supply 'bus bar'. This is a longer strip of copper board running above the two chips that form the heart of the receiver. The bus bar is connected to the positive of the 9V battery supply to allow easy access to the supply across the whole board.

When mounting the control potentiometers, I simply soldered the grounded connection on each potentiometer directly to the board to hold it in place. An alternative approach is to bend a piece of stiff copper wire into a 'U' shape of a size suitable to take the threaded shaft, enabling the potentiometer to be held in place with the nut on the shaft.

Surprisingly Effective

The completed Buildathon project receivers were surprisingly effective. The r.f. oscillator provided for testing the receivers failed to work, so they were tested and the input tuning control was peaked using signals on the band. The problem about

this method was we didn't have an antenna! Our makeshift antenna was a clip lead attached to a spiral soldering iron holder and this proved to be good enough to receive signals on the 7MHz (40m) band.

Although it was a very successful outcome, several builders added later improvements to the receiver. One improvement (almost asking to be done) was to convert the VXO controlled receiver to a variable frequency oscillator (v.f.o.) receiver to allow tuning of the whole band. Several ideas were tried and the circuit in Fig. 2 provided good results. It tunes from about 7 to 7.06MHz and is stable enough for good resolution of single side band (s.s.b) signals.

In Fig. 2, the VXO circuit is replaced by a varactor tuned oscillator and the inductor, L1, together with a pair of MV209 varactor diodes form the tuned circuit. Inductor L1 is made up from 30 turns of 30s.w.g. wire wound on a T37-6 core.

A 10kΩ linear potentiometer controls the voltage supplied to the varactor diodes to vary the capacitance in the tuned circuit. A stable voltage is important to ensure frequency stability and a three pin, 8V, regulator chip (78L08) is added to the

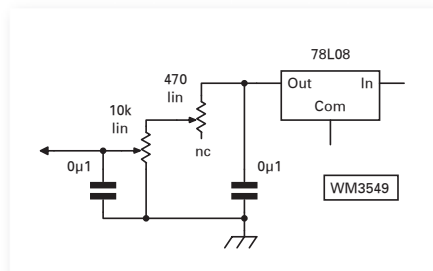


Fig. 3: One method of fine tuning, giving a reasonably smooth variation of tuning voltage.

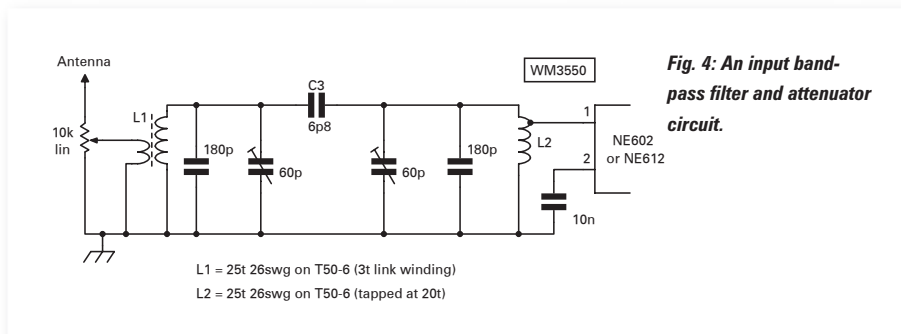


Fig. 4: An input band-pass filter and attenuator circuit.

supply line. This does mean that a 'full voltage' 9V battery is required to enable the regulator to work.

Note: Because the potentiometer is the tuning control it really does need a 'clean' track and some 'scratchy' examples of old potentiometers pulled out of the junk box could give erratic frequency control.

In practice, L1 and the varactor diodes alone are unlikely to give the exact receiver tuning range required and some adjustment will be needed to hit the band. After several experiments, it was found the best way to adjust the frequency was to vary the series capacitance between the tuned circuit and pin 6 of the NE602 (or NE612). In this example a 6 to 60pF trimmer (Murata 5mm ceramic trimmer in brown) is placed in parallel with the 300pF capacitor.

The trimmer should be able to set the oscillator to tune 7MHz at the low end of the tuning range. My v.f.o. covered over 60kHz in one rotation of the potentiometer so the tuning rate was very fast; too fast for easy tuning of required signals. One obvious way to ease this problem would be to add a reduction drive to the shaft of the tuning potentiometer. An in-line vernier reduction drive might be a solution but unless you have one in the junk box this would be an expensive option.

Also the reduction rate of such drives is typically 8:1 or even 6:1; helpful but hardly enough on a crowded 7MHz band. A simple solution is shown in **Fig. 3**. A low value variable resistance is placed in series with the tuning potentiometer to allow band-spread tuning. I found that a 470Ω linear potentiometer gave easy tuning for c.w. and s.s.b. stations.

The single tuned circuit input filter in the original receiver is a rather lightweight solution to combating broadcast station break-through on or near the 7MHz band. Although the input attenuator helps, a bandpass filter would be better. There are many available circuits; the double tuned circuit filter shown in **Fig. 4** is one possible solution. The two tuned circuits around L1 and 2 are loosely top coupled by a low value (6.8pF) capacitor.

The inductors L1 and 2 are both made up from 25 turns of 26s.w.g. wire wound on a T50-6 core although they are coupled in and out of the filter in different ways, and L1 has a 3 turn link winding wound over the grounded end of the main winding. This allows for a low impedance antenna input and L2 has an output tapping at the 20th turn from ground to allow for the higher impedance of the NE602/612 input. When winding L2 count on 20 turns.

Each pass through the core is one turn. At the 20th turn pull out a loop of wire and secure it on the outside of the core with a tight twist. Then add the remaining five turns. The tapping loop is cut at the end to form two wires which are scraped clean of the enamel coating and tinned with solder.

Signals Peaked

The signals on the band can be peaked using the two trimmers. Adjusting each trimmer several times helps to optimise the filter. Note that the bandpass filter offers a single-ended input to the NE602/612 at pin 1, pin 2 being grounded via a 10nF capacitor.

So, there's a few ideas on Manhattan construction for COTPW readers – and a very useful little receiver for the 7MHz band. The Manhattan technique is a very convenient method of construction that will allow readers to try their own modifications. It's easy to alter the wiring and to add pads for further work on the receiver – so try one for yourself!

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- **Decode** This month, Mike Richards reviews the latest version of JVComm32 decoding software
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- **SBS Files** Mode-S monitoring with Kevin Paterson
- **DXTV** TV and satellite reception by Keith Hamer and Garry Smith
- **Off the Record** Oscar the Engineer asks if we need more Pirates on medium wave?
- **Maritime Matters** Robert Connolly reports on the Arctic Sea mystery and Tall Ships in Belfast
- **LM&S Broadcast Matters** by Chrissy Brand
- **Special Offer** Save £20 on an Etón G6
- **Radio Related Websites** Websites with a radio connection by Chrissy Brand
- **Software Spot** The latest hobby radio software with QSP73
- **Comms from Europe** This month, Simon Parker has news of two new radios and then he takes an in-depth look at his latest purchase, a tti TCB 1100



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TRUE 'LINEAR' PSU

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Includes built-in extension speaker

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(5 selectable outputs).

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HF digital SWR analyser - 1.8-170MHz.

(Optional case £29.99)

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Fully automatic (1.8-30MHz). 300W SSB.

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Easy to use ATU.



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WOW £175.99

● 1.8-30MHz 300W ATU ● Large cross needle meter
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IF DSP/HF marvel



LATEST 2009 FIRMWARE
Optional extension speaker £129.99

£1849.00

FT-950

HF + 6m IF DSP



OUR PRICE

£1069.00

FT-897D

Includes DSP



HF + 6m + 2m + 70cm.

WOW £616.99

FT-857D DSP

HF + 6m + 2m + 70cm.



SALE PRICE

£529.99

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HF + 6m + 2m + 70cms.



Incl's battery/charger + antennas.
Optional case £22.

SALE PRICE

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(Optional 6-pin modular adapter £19.99)

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MD-100



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SALE PRICE

£129.99

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SALE PRICE

£259.99

TS-2000E



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

SALE PRICE

£1399.00

TS-2000X (as above + 23cms) £1549.99
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VHF/UHF TRANS

D-308B DELUXE DESK MIC



(with up/down). Many amateurs (over 4000) have been pleased with it's performance. Includes 8-pin round Yaesu mic lead. Icom/Kenwood & other leads available. Phone (£19.99 each).

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YAESU FT-8900r
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Includes DTMF mic + wideband receive

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YAESU FTM-10R/E
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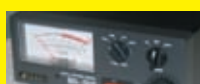
Wide Rx

SALE PRICE

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Blue tooth adapter £79.99

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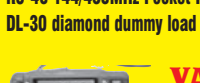
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DL-30 diamond dummy load (100W max) £26.99 P&P £4



YAESU FT-7800E

2m/70cm + wide Rx. (50W/35W)

includes DT, MF, mic

£179.99

In-car kit £20.00.

Extra DC lead £17.00



YAESU FT-2800M

2m FM (65W). Includes DTFM mic

Built like a tank!

£115.99

Extra DC lead £17.00



ALINCO DJ-596

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

Includes free remote mic **£149.99**

Optional case £16.99

Cigar lead £19.99

Optional headset (Boom mic) £24.99



YAESU VX-7R NEW YAESU VX-3E

6m/2m/70cm + wide RX. An amazing 6W water proof hand-held.

Available in black or silver

£239.99



2m/70cm Tx Rx- 500kHz-1GHz.

Includes: battery/charger.

£139.99



YAESU VX-8E

6m/2m/70cm.

New model. SALE PRICE

£349.99

GIZMO'S

YAESU VR-5000



100kHz-2.6GHz all mode receiver. Incl's power unit. Professional features including 'real time' spectrum scope for

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VR-5000 ONLY

Special offer: VR-5000 + DSP £559.99 **£489.99**

W-8681



PROFESSIONAL WEATHER STATION

● No cable connection needed
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(inches or mm) self emptying ● Indoor/Outdoor Humidity ● Barometer Pressure with trends ● Forecaster & Weather Alarm ● USB connection to PC

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The ultimate true "IF-DSP" receiver. 0.1-30MHz. USB/LSB/CW/RTTY/AM/FM.

Enjoy clear digital

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A superb (diamond quality) 6 band trap verticle antenna with trap radials - "rotary" trap system allows "flat wall" mounting. 80m/40m/20m/15m/10m/6m. 200W SSB, HT 4.6m (15ft tall).

SEND SAE FOR DATA SHEET

OUR PRICE **£289.99**



Q-TEK INTRUDER II (CHROME FINISH)

11 band (selectable via sumper lead - supplied) HF antenna 80-10m + 6m + 2m + 70cm. PL-259 fitting, commercial quality. Length 1.8m long. Includes jumper lead & resonator whip.

WOW **£34.99** or 2 for £60.00

CUSHCRAFT BARGAINS Delivery £15.00

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R-8E	Vertical (40 - 6m) "special".....	SPECIAL £499.99

Q-TEK PENETRATOR

"We've sold 100s all over Europe"

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

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

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CW-160	(160-10m) 80m long.....	£139.99 P&P £10.00
CW-80	(80-10m) 40m long.....	£129.99 P&P £10.00
CW-80S	(80-10m) 20m long.....	£134.99 P&P £10.00
CW-40	(40-10m) 20m long.....	£109.99 P&P £10.00

Standard & Deluxe G5RV

P&P on either full/half size £7.50

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

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Baluns 1:1 or 4:1 or 6:1.....£34.99 each P&P £4
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(P&P £6.00)

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4 way CX-401 'N' (0-500MHz) 'N'.....	£89.95

REPLACEMENT POWER LEADS

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

YAESU REPLACEMENT MICS

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

COAX BARGAINS

True military spec real UK coax

RG-58 Military spec x 100m.

£49.99 or 2 for **£90.00**

Coax stripping tool (for RG-58).....£4.99

RG-213 Military spec x 100m (10mm dia).

£129.99/100m or 2 for **£229.99**



Q-TEK TRI-MAGMOUNT

Very heavy duty. Available:- S0-259 or 3/8 - specify. **£44.99**



10m PNEUMATIC MAST

We have a small quantity of "military spec" pump-up masts (part of a Government order). All brand new in a crate and supplied with cover (close HT ~ 6 foot). Anodised green finish.

40m guy kit pack.....	£49.99
Ground fixing spikes (3-off).....	£35.00
2 foot all ground fixing kit.....	£99.99

(Requires ~ 1m square cemented area).

(Can be hand/or pump erected) **£1199.99** Del £40.00.



NEW NOISE FILTER!

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

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

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

HEAVY DUTY SWAGED MAST SET

New extra heavy duty 2" mast set. 4 sections x 5 1/2 foot slot together.

£64.99 each. **TWO FOR £125.00** DEL £15.00

NEW SWAGED MAST SETS

20 foot mast.	20 foot mast.
1 1/2" - 4 x 5 foot sections. (Swaged)	1 1/4" - 4 x 5 foot sections. (Swaged)
£39.99	£36.99

H/DUTY CAR BOOT MAST SET

18 foot (1 1/2" dia).
18 foot - 6 x 3 foot (1 1/2") slot together ally sections.

£42.99 each. **TWO FOR £73.99** DEL £13.00

NEW CAR BOOT MAST SET

Superb 18 foot (6 x 3 foot sections) that slot together. Dia: 1 1/4" ideal to take anywhere.

£39.99

2 for **£69.99** del **£13.00**

HANGING PULLEY

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

£24.99



MAST HEAD PULLEY

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

£12.99 + P&P £4.50

30m pack (4.4mm) nylon guy rope £12.50
132m roll 4.4m nylon guy (480Kg b/f).....£40.00 Del £7.50



NEW EASY FIT WALL PULLEY

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

£12.99 + P&P £4.50

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

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



BARGAIN WINCH

500kg brake winch. BARGAIN PRICE

£79.99

Del £10.00

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

LOW LOSS PATCH LEADS

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



QS-300

A fully adjustable deluxe desktop stand for hand-helds. Includes BNC to S0-239 lead. **£19.99** P&P £4



QS-200

A superb, no mess, quick fit in-car holder (fits airvent) for hand-helds. **£6.99** P&P £3

MT-3302

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

MT-6601

Adjustable roof rack/window bar mount **£19.99**



YAESU G-450C

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

WOW **£295.00**

G-650C.....	WOW £329.99
G-1000DXC.....	WOW £395.00
G-2800DXC The goliath of rotators.....	£749.99
GC-065 thrust bearing.....	£50.00
GC-038 lower mast clamps.....	£29.00
G-250 lightweight rotator.....	£95.00



AR788

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

OUR PRICE **£79.99**

AE-201 thrust bearing.....£24.99

RH-9000 BNC

40cm flexible whip for the ultimate in gain. **£29.99** P&P £4.00
Tx- 2m + 70cm (Rx- 25MHz-2.9GHz).

RH-9090 SMA

40cm flexible whip that is ideal as replacement. Tx- 2m + 70cm. Rx- 25MHz-2.9GHz. **£34.99** P&P £4.00

DIAMOND YAGIS

No tuning required

2m/5 element	No tuning required S0-239 feed.....	£39.99
2m/10 element	No tuning required S0-239 feed.....	£72.99
70cms/10 element	No tuning required S0-239 feed.....	£44.99
70cms/15 element	No tuning required S0-239 feed.....	£59.99

Q-TEK COLINEARS (VHF/UHF)

Del £12.50

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

MOBILE ANTENNAS

Del £10.00

DB-7900 2m/70cm (5.5/7.2dB) 1.6m (PL-259).....	£39.99
DB-770M 2m/70cm (3.5/5.5dB) 1m (PL-259).....	£24.99
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

LIGHTNING ARRESTOR



SP-350V

Replacement fuses £5.00

DC-1000MHz (400W through power). S0-239 fitting.

£24.95 P&P £3.00

ALUMINIUM POLES

20 foot (collection only) 2".....	£49.99
10 foot (collection only) 2".....	£29.99
2.4m (2") Ally pole.....	£24.99
5 foot x 2" pole.....	£13.50

FIBRE GLASS POLES

Del £10.00

1m 1 3/4" £12.50	2" £15.00	Longer lengths available - phone
2m 1 3/4" £25.00	2" £30.00	

COPPER ANTENNA WIRE ETC

Hard drawn (50m roll).....	£19.99 P&P £7.50
New: 50m roll 'PTFE' coated, stranded antenna wire.....	£19.99 P&P £7.50
Flexweave (H/duty 50 mtrs).....	£39.99 P&P £7.50
Flexweave H/duty (18 mtrs).....	£18.99 P&P £7.50
Flexweave (PVC coated 18 mtrs).....	£19.95 P&P £7.50
Flexweave (PVC coated 50 mtrs).....	£50.00 P&P £7.50
Special 200mtr roll PVC coated flexweave.....	£150.00 P&P £10.00
Copper plated earth rod (4ft).....	£14.99 P&P £8.00
Copper plated earth rod (4ft) + earth wire.....	£24.99 P&P £8.00
New RF grounding wire (10m pack) PVC coated.....	£14.99 P&P £5

METALWORK & BITS

(Del Phone)

2" mast-floor base plate.....	£14.99
6" stand off brackets (no U-bolts).....	£8.99
9" stand off brackets (no U-bolts).....	£10.99
12" T & K brackets (pair).....	£18.99
18" T & K brackets (pair).....	£22.99
24" T & K brackets (pair).....	£26.99
U-bolts (1.5" or 2") each.....	£1.50
8mm screw bolt wall fixings.....	£1.70
8-nut universal clamp (2" to 2").....	£7.99
2" extra long U-bolt/clamp.....	£5.50
2" crossover plate with U-bolts.....	£14.99
15" long (2") sleeve joiner.....	£18.99
3-way guy ring.....	£5.99
4-way guy ring.....	£6.99
Heavy duty guy kit (wire clamp, etc.).....	£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
Roll of self-amalgamating tape.....	£7.99
Nylon dog bone insulators.....	£1.00
Very large nylon insulators.....	£2.00
PL-259 (small of large entry).....	£1.50
N-type plugs (high quality).....	£4.50
1 1/4" 6 foot ally poles.....	£13.00
1 1/4" 6 foot "cranked" ally pole.....	£14.99



David Butler's

vhf dxe

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 looks at contacts on the 50MHz and higher bands throughout this summer's Sporadic-E season.

European Sporadic-E (Sp-E) openings on the 50MHz band continued throughout much of August. It was surprising to note that three transatlantic openings were also reported during the period on August 1st, 2nd and 9th. Very few Sp-E openings were reported during August on the 70MHz band, which isn't really surprising. Four events occurred at the beginning of the month, on August 1st, 2nd, 3rd, 5th and then there were two later in the month on the 16th and 21st.

Tropospheric propagation was the prominent mode reported on the 144 and 430MHz bands. The majority of contacts were from southern and central England to the nearer reaches of continental Europe and Spain. Meteor Scatter (m.s.) activity on all v.h.f. bands was particularly high in the period August 9th–15th when the Earth encountered the Perseid meteor shower.

The 50MHz Band

This time around I'm concentrating on reports of openings on the 50MHz band made during the summer Sporadic-E season. Apart from the four days of May 5th, 6th, 7th and 27th, Sp-E openings were reported every day during May. My records show that over 60 DXCC countries were worked by UK stations during that period. The vast majority of contacts were single-hop paths throughout Europe but there were occasions when stations a bit further afield were contacted. Stations that included TN5SN (Congo), TR8CA (Gabon) and OA4TT (Peru) at over 10,000km distant.

Ian G6TGO (Cheshire IO83) mentions that his Kenwood TS-2000 transceiver suffered a disastrous p.a. driver failure at the beginning of the

Sp-E season but, he was fortunately able to borrow a Yaesu FT-857 transceiver from a friend. Running 70W into a home-made 3-ele Yagi he contacted the 50MHz station of IK0FTA (JN61) during an opening on May 2nd. Later in the day he worked EA7DLD (IM67), IZ0DRC (JN62), IK5RLP (JN52), S57EA (JN76), 9A2PT (JN75), 9A5CW (JN65) and 9A6CM (JN74). On May 4th he made s.s.b. contacts with the stations of HA6NL (JN98), HA8AR (KN06) and UZ5DU (KN18).

June Openings

During June, long distance Sp-E openings were reported every day, with normal single-hop paths up to 2000km being worked from all regions of the UK. However in addition to the daily run-of-the-mill European contacts, there were also 16 days during June when multi-hop paths existed across the Atlantic Ocean. These atlantic paths enabled QSOs to be made into South and North America and the numerous Caribbean islands.

There were also nine days when multi-hop Sp-E was reported deep into the African continent and even three

days with openings over the North Pole to Japan. In total I calculated that at least 110 DXCC countries in five continents were worked from the UK during this four-week period.

Chris Hore G6GWX (Cornwall IO70) first became active on the 50MHz band during May but made most of his DX contacts the following month during June. Running just 10W output, he made s.s.b. contacts with many stations that included DJ1OJ (Germany), EA3TI (Spain), EA6DX (Balearic Islands), F1MWV (France), HA6NF (Hungary), HV0A (Vatican City), IZ1GCV (Italy), LA7HJA (Norway), OE6BMG (Austria), OZ2KEC (Denmark), SM0JST (Sweden), SP6ARE (Poland), S57AC (Slovenia), UX1UF/P (Ukraine), 4O3A (Montenegro) and 9A2VR (Croatia). Chris mentions that he would particularly like to thank Jose EA7KW for operating the station of C37NL (Andorra) and operators Filippo IK4ZHH, Giorgio IZ4AKS, Max IZ4DPV, Stefano IW2MJQ and Vittorio I4YSS for operating the San Marino Club Station T70A.

Chas Christie GM1TGY (Highland IO87) is very much a newcomer to



Fig. 1: The 50 and 144MHz antennas at the QTH of Chas Christie GM1TGY.



Examples of QSL cards submitted by David G4ASR for the Worked All Continents award on 50MHz.

David Butler G4ASR

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the 'magic band' of 50MHz and was therefore very pleased that it was wide open when he first turned on his receiver in June. His initial 50MHz contacts were with the stations of IZ5EME (Italy), LZ1YG (Bulgaria), SV9CVY (Crete), YT4N (Serbia) and other stations in France (F), Germany (DL), Netherlands (PA) and Switzerland (HB9). Chas is using a 5-element Vargarda Yagi for 50MHz and a pair of 9-ele Vargardas for the 144MHz band as shown in the photograph, **Fig. 1**.

Ron Adam GM4ILS (Morayshire IO87) mentions that he was up very early around 0400UTC on June 11th trying to work the 10MHz station of ZK2V (Niue, Polynesia) when he noticed some Sp-E activity on the 50MHz band. The beacon stations of HG1BVB, HG7BVA and S55ZRS were all coming in very strongly and that is quite unusual, as he mentions that good 50MHz openings are few and far between at his QTH. Incidentally, in general the further north you are from the temperate Sp-E zone, the fewer chances you have of participating in such an event.

From 0430UTC, on 50MHz, Ron GM4ILS made 25 c.w. QSOs that included stations such as HA8CE, OK2PAU, SG9DWT, S51AY, UX2SB, YO2IS, 4Z5RT and 9A3WL. The 50MHz band was still open around mid-day and Ron went on to work a further 11 Spanish (EA) stations at this time. The signal strengths of the Spanish stations were so strong that Ron then decided to move up to the 144MHz

band. At 1315, the band opened up with 144MHz contacts being made with the s.s.b. stations of EA1FBF (IN73), EA1MX (IN73), EC1KP (IN70), EA4AJ (IM87), EA4AKH (IN70), EA4BGH (IN80), EA4KR (IM98), EA4SG (IN80), EB4FJV (IN80) and EA5TT (IM99).

Later in the month on June 26th, Ron was able to participate in a widespread 50MHz transatlantic opening. His contacts made between 1900-2130UTC included the stations of V29JKV (FK97), K1TEO (FN31), KA1R (FN42), K2LZO (FN20), KD2I (FM29), K3RKJ (FM28), K3ZO (FM18), K4PI (EM75), K4QI (FM06), W4GF (FM83) and N9XG (EN60).

Daren Josey MW0HMY (Carmarthenshire IO71) reckons that this year, Sp-E conditions in May and June, were far better than last year's. He was very active on the 50MHz band during June and was pleased to work 10 new DXCC that brought him up to the magic 100 countries. The new stations were ER1SS (Moldova), SV5/GOTSM (Dodecanese), JY4NE (Jordan), TZ6EI (Mali), 3A2LF (Monaco), 5N0OCE (Nigeria), PJ4NX (Netherland Antilles), 8R1DB (Guyana), KP2HC (Virgin Islands) and P43A (Aruba).

Daren says that one event, that's worth a mention, was the huge opening to North America on June 19th. At his QTH, the opening started at 1330UTC, when he worked the station of HI3/LY3UM (Dominican Republic) and then went on to hear many other stations from the Caribbean area that he'd previously worked. He

Some more examples of QSL cards earned by G4ASR.

then noticed a few DX Cluster spots for North American stations. So, on turning the beam around, he worked W3ZZ and NG4C.

Things then calmed down a little at MW0HMY until 1644UTC, when all "hell broke loose!" In total Daren contacted 142 stations in the USA of which 28 were in new locator squares. The strength of most signals was unbelievable with many c.w. and s.s.b. stations peaking well over S9. His longest distance contact (ODX) for the night was an s.s.b. contact with the station of WD5K (EM12) at 7450km.

There were eight QSOs in the Caribbean area that Daren also managed, including the stations of V29JKV (Antigua), 9Y4D (Trinidad & Tobago). He also bagged a new African country TZ6EI (Mali) before he went QRT at 2245UTC, though the 50MHz band was still wide open so, he may have missed a bit more activity.

July Activity

Sporadic-E openings on the 50MHz band were reported every day throughout July. There was also a five-day period between July 19th – 23rd, when auroral-Es and auroral back-scatter openings were reported. Transatlantic openings to North and South America were also reported on 17 days during the period, as were isolated openings into Africa, Japan and the Middle East. During July, a total

of 85 DXCC countries were worked from the UK.

The DXCC stations included: A61Q (United Arab Emirates), A7/M0FGA (Qatar), FG1PP (Guadeloupe), FM1AA (Martinique), HI3/LY3UM (Dominican Republic), J6/WB4WXE (St Lucia), J79PAK (Dominica), JA6SBW (Japan), KP4EIT (Puerto Rico), OA4TT (Peru), P43JB (Aruba), PJ2BVU (Netherlands Antilles), TZ6EI (Mali), V29JKV (Antigua), VO1KVT (Canada), VP2MSJ (Montserrat), W5OZI (USA), YV4DDK (Venezuela), 8R1TO (Guyana) and 9Z4BM (Trinidad & Tobago).

David Rumbold G4RYV (Surrey IO91) was quite active on the 50MHz band during July. He reports making c.w. and s.s.b. contacts into the Balearic Islands (EA6SA), Croatia (9A8W), Czech Republic (OK2ZI), Finland (OH1XT), France (F5RRS), Gibraltar (ZB2EO), Hungary (HA6NF), Ireland (EI9E/P), Malta (9H1XT), Norway (LA8WF), Poland (SQ9IDE), Portugal (CT7/G3SED), Serbia (YT3N), Scotland (GM4LER), Slovakia (OM5MZ), Spain (AN3FCB), Sweden (SA5K) and Ukraine (UX1DC).

Stewart Wilkinson G0LGS (Gloucestershire IO81) runs 100W output from a Yaesu FT-847 transceiver into a 4-ele Yagi at only seven metres above ground level (a.g.l.). His s.s.b. contacts included the stations of CN8KD, CR5NRA, DH8BQA, EA5/M0MGA, EA6AZ, EA8EU, ES4Q, E7DX, F1HQ, GM8IEM, HA7LW, IQ3TN, IS0/IK5EKB, LB7Q, OE5CTL, OH6JKW, OK1DO, OZ6PI, SA7AGE, SN50RS/7, SV8RV, S56P, UX3HX, YL2JZ, YT1W and 9A0W. He also made a few contacts somewhat further afield, the best being KP4EIT and NP4A (Puerto Rico) and 9Y4D (Trinidad & Tobago) at some 6977km distance.

August Events

Single-hop Sp-E events continued throughout much of August, with pan-European contacts being made at distances of up to 2000km. Transatlantic openings were also reported on August 1st to the stations of AC4TO, J79PAK, KP4EIT and WP2B. On August 2nd there were reports of contacts to the stations of PV8AZ (Brazil) WP2B and J79PAK. Tragically, **Pierre Kubler J79PAK (HB9CUA)** was drowned on August 6th whilst saving his eight-year old daughter from the sea.

The final transatlantic opening of the 2009 season, was reported between



David G4ASR is a very keen 50MHz operator!

to have occurred on 37 days during the summer period.

The first transatlantic opening was reported on May 30th and the last on August 9th with one opening in May, 16 in June, 17 in July and

1515-1720UTC on August 9th with the stations of KP4EIT and NP4A working into southern England and Wales. The only other DX opening of the month occurred around 1730UTC on August 4th with the Nigerian station of 5N00CH (JJ38) being worked on c.w. by G4IGO (Somerset IO80).

At his station, Stewart G0LGS, caught a few 50MHz band Sp-E openings during August. His contacts, all made on s.s.b. telephony, included the stations of EA3AYQ, ER1SS, HA8AR, I0SN, IZ6FXP, OM4KK, S57C, YU1UN, YT2CC and YT9A. On August 25th he participated in the RSGB UK Activity Contest making 60 QSOs. There was no Sp-E ionisation that evening so all s.s.b. contacts were made via tropospheric propagation.

David G4RYV also mentioned catching a few Sp-E openings during August. On the 3rd between 1242-1424UTC he contacted HA7PL, HA8FK, IC8CQF, IT9BCC, YT2CC, YU7RF, YU9XMC, 9A8A and 9A0W. On August 5th between 1802-1905UTC he found the stations of HA6NL, SP7FSF, YT5URW and UX1BZ, on the 19th at 1218UTC EA7/G0WHX and on the 22nd at 1708UTC the station of EA7AH. He reports that his final 50MHz QSOs of the month took place around 1730UTC on August 28th when he contacted the s.s.b. stations of EA5AMM and 9A5CY.

The 50MHz Sp-E

The 50MHz Summer Sp-E season occurred throughout the months of May, June, July and August 2009. During this 123-day period, there were only 11 days when no Sp-E was reported at all, four in May and seven in August. Transatlantic openings to North and South America are particularly exciting and were reported

three during August. In total there were 115 DXCC countries reported to have been worked by UK stations during these four months.

Deadlines

That's it again for this month but before signing off, I would like to mention that I have been very active on the v.h.f. bands for some considerable time. On perusing my very first log book (I was **G8ASR** then), I noticed a contact made on October 12th 1969 – almost exactly 40 years ago. Running 30W d.c. input (we didn't measure output power then), using amplitude modulation (a.m.) on 144.780MHz I contacted the mobile station of **Rob Mannion G3XFD/M**! I was located at Leafield, near Witney and Rob was motoring along the A40, Oxford bypass in his Morris *Minor* with two passengers of G8CEH and G8DXF.

Since that day, sadly **Richard Woodley G8CEH** died from a cerebral aneurism in his early 30s – but **Chris Tarran G8DXF** still retains his callsign and is now the research director at the former Plessey Research Laboratory at Roke Manor near Romsey, Hampshire. Rob Mannion G3XFD however, was destined for far greater things!

Although the summer Sporadic-E season is now over, I've noticed in recent years that there's been an upsurge in Sp-E activity on the 50MHz band during October. Strange perhaps, but true! Keep a look out also on the 144MHz and 430MHz bands for autumnal Tropo openings during periods of high pressure weather systems. Good luck and if you do hear or work any DX stations on the v.h.f., u.h.f. or microwave bands then please send me your reports - or any other news - to reach me before the last Saturday of the month. **73 David G4ASR**

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Carl Mason's

hf highlights

Share your news, views and reports with fellow readers. Reports to Carl by the 15th of each month please.

This month Carl Mason GWOVSW brings news of the great Scottish 'Homecoming' and the GA 'Alba' suffix.

I had an email from **Daibhidh (Dave) Dhuglas GM4ELV** saying he's not seen any mention of Scottish stations being allowed to use the **GA prefix** ('A' for Alba, the Gaelic name for Scotland) instead of **GM**. Scottish Amateurs can use GA, e.g. GA4ELV until November 30th this year to mark 2009 as the year of '**Homecoming**'.

Now I had to look up this 'Homecoming' event on the web as I had not heard of or seen any mention of it in the press! However, I now know that '**Homecoming Scotland 2009**' is a series of events which have been designed to attract people of Scottish ancestry to visit their homeland. The campaign, organised by **EventScotland** and **VisitScotland** on behalf of the Scottish Government, is part-financed by the European Regional Development Fund.

It's claimed, that for every single Scot in their native land, there are at least five more overseas who have justifiable claims to Scottish ancestry. This year is the 250th anniversary of the birth of the national poet **Robert Burns** and in addition to various Burns related events, there are four other themes being celebrated. These themes are: Scotland's culture and heritage, great Scottish minds and innovations as well as golf and whisky.

To date I have not heard any station from Scotland using the 'GA' prefix on the h.f. bands, which is somewhat unusual as such prefixes are generally very popular, especially with DX stations. Dave adds "Ofcom authorised this variation but it applies only to the licence of a station whose main station address is located in Scotland. If the station is not permanently located there then this variation does not apply".

"The Regional Secondary Locator 'A' which signifies Scotland is used

after the United Kingdom call sign prefix 'G', 'M', or '2', when identifying their station and only one Regional Secondary Locator may be used when identifying that station".

Thanks for that Dave! If you want to know more about 'Homecoming' then log on to **www.homecomingscotland.com** and for the licence variation you can log onto **www.ofcom.org.uk/radiocomms/variation** Hopefully,

this might encourage a few stations to use the 'GA' prefix and give some Amateurs the chance to work it before the variation runs out!

The DX News

Now on to this month's DX news, and to Easter Island SA-001, comprising three extinct volcanoes and one of the world's most remote inhabited islands. It's located in the Pacific Ocean lying at its nearest point, about 3510km (2180 miles) west of continental Chile. And it's here that **Marco Quijada CE6TBN**, **Leszek Lechowicz NI1L**, **Art Wedemeijer PA3C**, **Zbig Oltarzewski SP7HOV**, **Stan Strzyzewski SQ8X** and **Victoria Panagiotou SV2KBS** have been given permission to operate as **XR0YA** between October 31st and November 15th.

The team plan to concentrate on the lower h.f. bands of 1.8, 3.5 and 7MHz but will also operate on 10MHz, where they will try as a priority to work European stations, using c.w. only, during the first weeks of the activity. The DXpedition will have three stations running, using two

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amplifiers and several antennas and although s.s.b will not be neglected, c.w. will be the main operating mode with some RTTY being planned on other bands when time allows. Further updates can be found at **http://rapanui2009.org/** where the QSL route will be announced shortly.

Also in the South Pacifica Ocean, Fiji (3D2) is an island group, which lies about two-thirds of the way from Hawaii to New Zealand. It was a British colony until it gained independence in 1970. It is here that **Jacek Marczewski SP5EAQ/3D2MJ** and **Jacek Kubiak SP5DRH/3D2KJ** will be active from Viti Levu, OC-016, the largest island in the Republic, until the end of October. They will operate on all h.f. bands though the emphasis will be on the lower ones as conditions allow. Two stations will be running using small amplifiers and vertical antennas and all QSLs go via their home calls.

Remaining in the Pacific, the callsign **FO8RZ** has been issued to **Philippe Berger F5PHW** for use during a two year stay on Tahiti, OC-046, which is the largest island in the Windward group of French Polynesia,

located in the archipelago of Society Islands in the southern Pacific Ocean. A Butternut HF-V6 vertical antenna has been set up already and other antennas including a 3 element beam for the 14, 21 and 28MHz bands will follow shortly.

Phillipe has already worked on 10 and 14MHz but has said that "Propagation is very strange here as the bands



Guy Pailhories F5BLC was worked on 14MHz s.s.b. by **Martyn M3VAM**. Guy, shown here when activating **Raasay Island EU-008**, is a PW Reader living in **Villefranche de Rouergue**, in the south-west of France.



are often quiet. I understand that this is because Tahiti is a long way from the others continents. Often, when I call "CQ" nobody replies – although European stations can be heard!

Thank Phillipe! So keep an ear open and take a look at Phil's webpage at <http://f5phw.chez.com/?lng=en> for updates while his log will be uploaded weekly to *Log Book of The World* (LBoTW).

Next we head to the Bahamas or officially the Commonwealth of The Bahamas which is an independent English speaking country consisting of 29 islands located in the Atlantic Ocean southeast of the United States. Here **Edwin Steeble K3IXD**, **Randy Hargenrader K4QO**, **Peter Radding W2GJ** and **Dallas Carter W3PP**

will be active from Crooked Island NA-113 from 22nd to the 26th October and participate in the CQWWDX SSB Contest as **C6APR**.

Before and after the contest, look for **C6AQO** using c.w. and s.s.b. and **C6AXD** using RTTY on all bands. All QSLs go via the bureau to K3IXD or direct to 202 Huntington Rd, Summerville, SC 29483, USA.

The Commonwealth of Dominica, NA-101, is an island in the Caribbean Sea south-east of Guadeloupe and north-west of Martinique. It's from here that **Lothar Lingi DJ7ZG** and wife **Baerbel 'Babs' Lingi DL7AFS** will be active as **J79ZG** until the October 15th and they plan to operate s.s.b., PSK

and RTTY on all h.f. bands. The QSL route will be available via DL7AFS, the bureau or direct to **Baerbel 'Babs' Lingi, Eichwaldstr 86, 34123 Kassel, Germany** and you can check out their website at www.qsl.net/dl7afs for further information.

Closer to home now, when special event station **SN120OSP** will be active until October 31st from Gorowo llaweckie, Poland to celebrate the 120th anniversary of the creation of the 'Volunteer Fire Brigades and operation'. It's expected to be active on all bands with the QSL route via SP4CUF.



be replaced by communication with special stations using the ER6 to ER0 prefixes.

Interestingly, you can work the same station on the same band but using three different modes. And a plaque is available for those who manage over 60 contacts. This award is also available to short wave listeners s.w.l. and further information can be found at <http://qrz.ru/awards/detail/616.html> where a translation into English is available.

Your Reports

On to your reports now and we begin with the log of **Martin Addison**

2E0MCA in East Finchley, North London. Martin found the bands in "very poor shape most of the time" but managed a spell on 3.5MHz logging OP0HQ (Belgium) 0504, LX0HQ (Luxembourg) 0507, DF1KB (Germany) 0528, PA/OT7X (Netherlands) on EU-146 at 0612, SM6FJY (Sweden) 2120,

OH0Z (Aland Islands) EU-002 at 2134 and LN9Z (Norway) at 2205UTC using s.s.b. running a Yaesu FT-2000, Heil Pro-set Plus and 50W to a Sandpiper mono-band vertical without radials.

The 7MHz Band

Changing over to the 7MHz band now and welcome to new reporter **Bill Ward 2E0BWX** who lives in



Moldova Sponsors

In Moldova, the **Assotiatia Radioamatorilor din Moldova (ARM)** organisation, sponsors the 'Worked All Moldova' award for contacts made with Moldovian Amateur Radio stations since June 1st 1993. The basic award is for contact with all five radio Amateur areas of Moldova from ER1 to ER5 and any missing area can



Edwinstone, Nottinghamshire and has been trying out a few wire antennas recently. These include a half-sized G5RV with 3.5MHz inductors. He's also tried an SRC S65 end-fed wire antenna, from the **Snowdonia Radio Company** (www.snowdonia-radio-company.co.uk/), which is performing very well. It's an antenna that's built to have low visual impact and fit into small gardens.

Using an Icom IC-7400 and up to 50W on the end-fed Bill worked DL0PJ (Germany) 0710 and PA150SLH (Netherlands) at 0905 while the G5RV pulled in DL7DZ 2015 and EB5GG (Spain) at 2025UTC. Bill also uses a Diamond CP-6 vertical which works fine on 7 through to 28MHz where he has worked most of Europe but, he's found that this antenna's "useless" on the 3.5MHz band.

The 14MHz Band

Moving up to the 14MHz band now and in Chelmsford, Essex **Martyn Medcalf M3VAM** managed to fit in some operating while converting a room into his new shack, where his 10W s.s.b. contacts included S51ZZ (Slovenia) 0917, LR1PK (Norway) 0953, Guy Pailhories operating as MM/F5BLC/P at 1024 who is a regular visitor to Scotland and has activated well over 60 different Islands for IOTA, IOSA and the SCOTIA programs, ES7FQ (Estonia) 1337, RN3AHL (European Russia) 1707, OZ5QSL (Denmark) 1918, IZ4NQL (Italy) 1934, EI0CL (Ireland) EU-115 at 1936 and US6EX (Ukraine) at 2000UTC using a Icom IC-746 and Comet CHA-250BX vertical antenna.

On the 14MHz band in London, Martin 2E0MCA used s.s.b. against

and lists F4BKV (France) 1552, C4I (Cyprus) AS-004 at 1602, YO4NA (Romania) 1612, ER4DX (Moldova) 1801, IZ1IWC (Italy) 2007, YT09AU (Serbia) 2112, RD3ZV (European Russia) 2022 and OY/OZ1AA (Faroe Islands) EU-018 at 2055UTC

The 21 & 28MHz Bands

The higher h.f. bands of 21 to 28MHz also showed signs of life for short periods, with stations fading in and out during daylight hours as conditions changed. The 21MHz band was where Martin logged s.s.b. stations LY0HQ (Lithuania) 0911, SE0X (Sweden) 0926, OE1A (Austria) 0936, EI9HX (Ireland) 0958, OH0JFP (Aland Islands) 1017, F5VKT (France) 1355, IS0/OM8A (Sardinia) EU-024, S51CK (Slovenia)

1402 and 9A7T (Croatia) 1429. While on 28MHz, Martin had the signals of, 9A2NA (Croatia) 0940, EB5KAU (Spain) 0942, YT0HQ (Serbia) 0944, S53EO (Slovenia) 0954, E7HQ (Bosnia & Herzegovina) 1000 and I2PJA (Italy) at 1347UTC all enter his logbook using 50W and a half-size G5RV antenna.

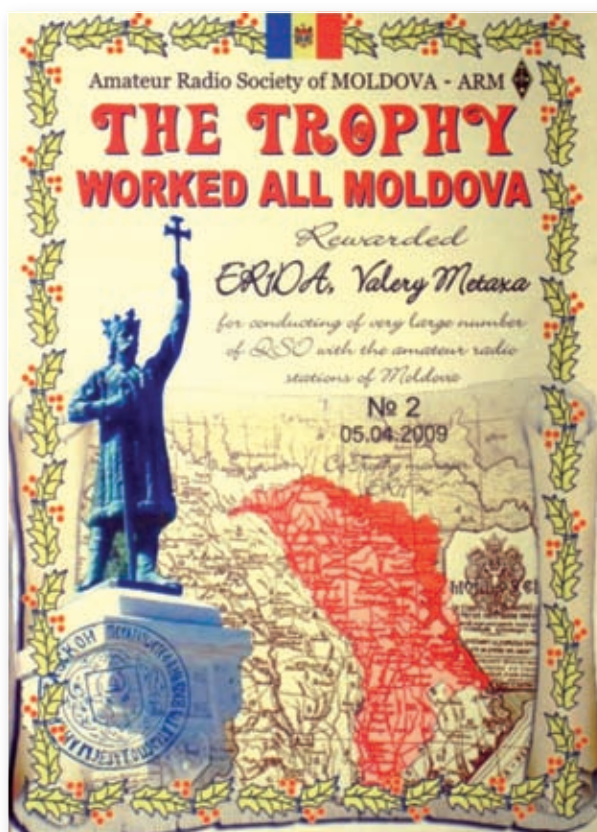
Signing Off

That's it again for another month and the band conditions continue to be unreliable. There were just three reports this month but each one has shown that, even when the bands are in poor shape and with modest antennas there are still stations to be worked! Before I close, don't forget this year's **CQ World Wide DX SSB Contest** which runs over the weekend of October 24th and 25th.

The contest is for all h.f. bands except WARC and is a very popular one that runs a few weeks before the companion c.w. contest in late November. As stations will be operating around the globe it may well provide you with the chance to pick up a few new countries or prefixes to help you towards a DXCC or operating award. You can look up www.cqww.com/ for further details and all the rules and if you get some time why not have a go and see just how well you can do. You may be pleasantly surprised!

As usual my thanks to all our reporters for their logbooks and to **Mauro Pregliasco I1JQJ/KB2TJM** editor of the 425 DX Newsletter for all the DX information. Until next time I wish you all good DX.

73, Carl GW0VSW.





Harry Leeming's

in the shop

Harry Leeming G3LLL is busy behind the counter – sorting out problems for old friends but still enjoying his retirement!

Welcome to *In the Shop* (ITS), where I've just heard that 'Tom' was just tuning up his Yaesu FT-101 when the pilot lamps dimmed, and there was a buzzing noise. He switched off quickly, made a few checks, and noticed a smell of burning and was reluctant to switch the rig on again. Tom rang me to ask, "Will the mains transformer be damaged?"

Mains transformers are the 'Achilles Heels' of older h.f. equipment. Years ago we could have them rewound for a reasonable sum, but they are just not worth the cost of rewinding or replacing now. (That is unless you know of a good economical re-winder, if so please advise me).

When a rig has been getting hot or has blown a fuse, for a start I normally examine the power supply and the mains transformer. First of all I check the main fuse, if it's a quick blow 2.5 or 3A type the transformer will probably be okay, but if it's a slow blow, or any larger value the chances aren't good. So how do you test a transformer?

Hot Windings!

Surprisingly perhaps, when a transformer is overloaded the windings don't usually burn out. Instead, they get hot and this results in the internal insulation breaking down, causing short-circuited turns. A short-circuited turn draws a lot of current,

causing the transformer to overheat, even when the load is taking little current from it.

To test a mains transformer the procedure is to disconnect all the output connections from the secondary. Next, we can apply power to the primary via a fuse for a few minutes.

If the transformer doesn't start smoking, and seems okay, the next move is to very carefully measure the secondary voltages. **To be safe** disconnect the mains, connect the meter to each winding in turn, and then plug in to read the voltage. If the transformer isn't getting hot, and these voltages are normal, then it's okay, and the rig is probably worth repair, so the next move is to establish what caused the trouble.

The common faults are short circuits on one or more of the high voltage rectifiers, power amplifier (p.a.) valves, and smoothing capacitors in that order.

The rectifiers will normally have high value resistors connected in parallel. So, to avoid confusion, it's probably best to remove them from the circuit and test the rectifiers with an 'old fashioned' analogue meter, i.e. one using a needle pointer and scale. Using an analogue meter, a good silicon diode should show a reading of a few ohms in the forward direction and register a complete open circuit when tested the other way round.

When conducting, a silicon diode

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requires about 0.5V, and the meter registers this voltage rather than the resistance. Because of this, the actual resistance reading, even with an analogue meter is pretty meaningless. However, all that matters is that you get a **reading one way**, and that it shows a complete **open circuit the other way**.

Warning: Please remember that your fingers will conduct, so make sure that you're not touching the diode or the meter prods, when making the tests.

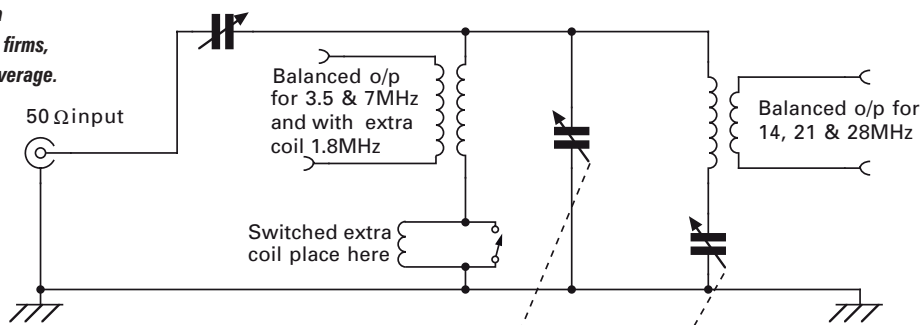
It's best not to use a digital meter, unless it has a dedicated diode testing range, as some digital meters read complete nonsense when testing diodes. (One of mine reads 10Ω, and another 1MΩ – on the same diode!).

Replacing Rectifier Diodes

If you find a short circuit high tension (h.t.) rectifier, replace the lot with 1200V diodes such as the BY127. At the same time, you should replace the 1MΩ or 470kΩ resistors that you'll find in parallel with them.

The exact value of the resistors does not matter, but they **must** all

Fig. 1. The Z-match antenna tuner was made by several firms, though few had 1.8MHz coverage. An extra switched coil can remedy that failing.



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be the same value, and preferably somewhat larger than those you remove. This is important, because a common reason for a rectifier failing in the first place, is that a resistor has gone open circuit. This then places all the reverse voltage on one diode and it's actually better not to fit any resistors, than to fit or leave in a faulty one!

Once you're sure that the diodes are okay, the next move is to check that there is no short elsewhere. Any dead shorts should show on an ohmmeter, but before risking applying full power, try if possible running the rig from a 24V a.c. supply. If everything is okay, all the h.t. rails and the bias voltages should then read approximately a tenth of their normal reading.

If any power rail reads substantially less than this, it points to there being a short somewhere, and this should be investigated. Note that some smoothing capacitors are wired in series to increase the voltage rating. If any of these need replacing, as with diodes, it's important to ensure that all the high value voltage equalising resistors are also replaced.

Note: If you don't have a 24V, or even a 12V alternating current (a.c.) available, and you can't find a short circuit, try switching the rig on with a 100W light bulb in series with the mains lead and the p.a. valves' heaters switched off. This will prevent further damage by limiting the current to around half an amp and if everything is okay it may enable the rig to function to some extent on receive.

Next, measure the a.c. input voltage to the rig's transformer with the lamp in circuit and you can then expect every voltage to be in proportion. If it's around 150V, then all the h.t. rails should be about two thirds of normal. You should investigate any voltage rail that is much lower than you would expect, before applying the full mains voltage.

Once you have all the voltages in the correct proportion, connect the rig directly to the mains with a low value fuse fitted. Then, switch the set on with the p.a. heater switch in the **off** position. If everything is still okay, set the mode switch to s.s.b. or 'phone or speech, press the push-to-talk (p.t.t.), and switch the heaters on. With the front panel meter switched to **IC**, carefully watch the p.a. current

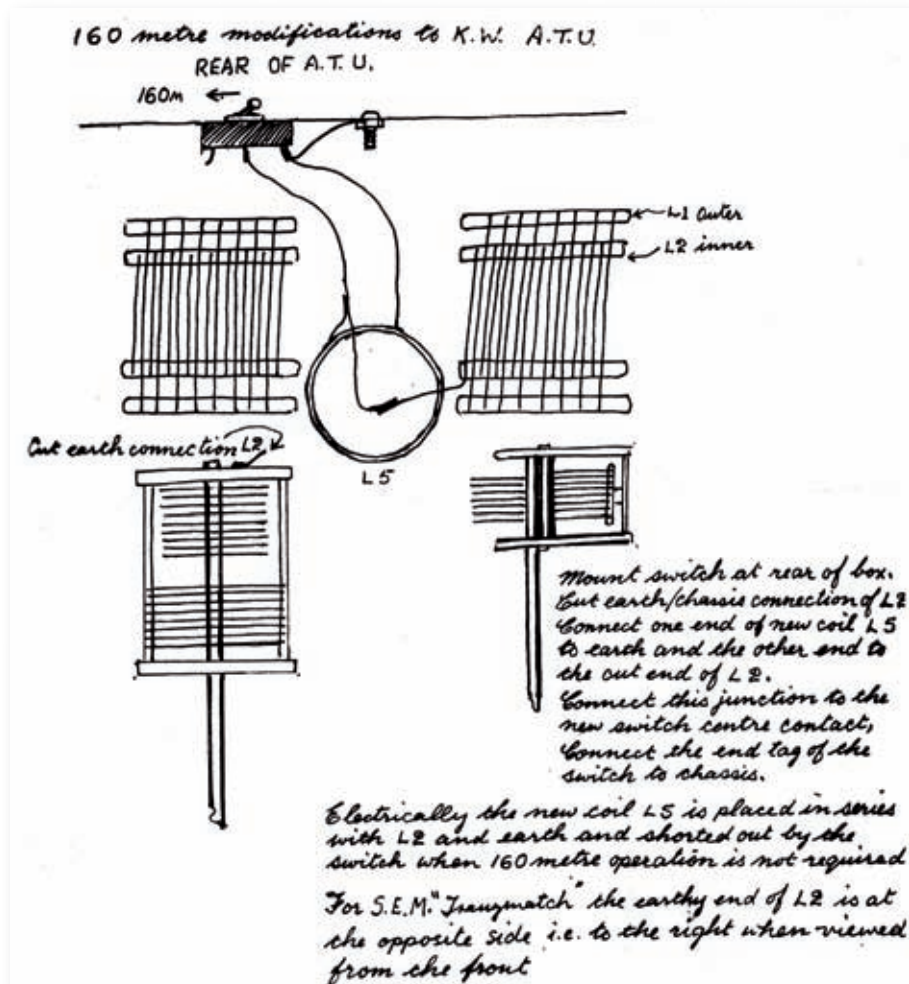


Fig. 2: Harry's notebook entry of how to fit the 1.8MHz extension coil to a KW E-ZEE match was based on work by the late Cliff Sharrot G4CJ.

reading as the set warms up in the transmit mode.

If the current starts to go much beyond the normal 60mA point, quickly switch the rig off and leave it to cool. Once the rig has cooled switch it back on, but this time leave the heaters off.

Next, with the heaters off check the negative bias on the grids of the p.a. valves. With 6146 or 6JS6C valves it should be about -50V with the p.t.t. pressed and at least -65V in the receive mode. If the negative grid voltage is less than this, or varies slightly, replace the capacitor that connects the p.a. stage to the anode of the driver valve, as it's probably leaky. **Note:** It's not a bad idea to replace this anyway on the older rigs, as the 100pF capacitors used on the FT-101 and FT-902 series are very prone to leakage.

Once all the voltages are correct have another try, and if excessive still flows try de-tuning the pre-selector, or remove the driver valve. If this brings the current down to 60mA, you were either transmitting a carrier, or noise from the microphone! If killing the

drive in this way doesn't reduce the current, the p.a. valves are probably faulty and I suggest that you replace them.

Balanced Antenna Feed?

It's often necessary to connect a balanced feed line to an antenna tuning unit (a.t.u.) that only has only an unbalanced 50Ω outlet. So, what do you do? The answer is that a large ferrite cored 4:1 balun or a choke balun will work (see *In the Shop* October 2007) but if you can get hold of one, I think that one of the best answers is probably a Z-Match a.t.u., such as those made years ago by KW Electronics and SEM.

I first came across the Z-Match as a d.i.y. article in the **Radio Society of Great Britain's Radio Communications** monthly journal sometime in the mid 1950s (It was called the *RSGB Bulletin* in those days), and made one for use with my first h.f. rig. I have no idea who designed it but would be very interested to know! The concept, and its method of construction were quite novel, and highly efficient. The coils weren't wound on cores, but used

wire of about 16s.w.g. wound through holes made in a flat piece of Perspex. This made the coils and the a.t.u. almost loss-less.

The circuit is shown in **Fig. 1**, and as will be seen tunes from 3.5 to 30MHz, with no gaps, and without the need for switching. The output was balanced and ideal for feeding twin feeder, but by strapping one terminal to ground it becomes unbalanced and then coaxial cable feed or a long wire could be used. Incidentally, I've had a few 'faulty' Z-Matches brought to me because the operator had forgotten to connect this strap! The circuit claims to match anything from about 30–2000Ω.

One pair of terminals is intended to cover 14-30MHz, and the other 3.5-7MHz. However, in practice if a particular antenna wouldn't tune up on one set of terminals, I often found out that it would operate satisfactorily if connected to the 'wrong' ones.

The very well known K W Electronics company obviously liked the design and brought out their own version known as the KW E-ZEE Match, which was very popular. Later, the SEM Company, based in the Isle of Man, produced their own version. Some of these incorporated a noise bridge so that they could be tuned for minimum standing wave ratio (s.w.r.) without having to transmit a carrier. Unfortunately though, neither version covered the 1.8MHz band.

Top Band Version

Some time later SEM started to produce a version with a 1.8MHz (160m) switch; this put large fixed capacitors in parallel with the variable ones, but it had a rather limited tuning range. Later, they fixed an extra coil on a plastic former so that it electrically and physically extended L2, and switched this in on 1.8MHz. **Note:** I have marked the original circuit in Fig.1 with an X at the point where it is added.

The modification worked very well, and so the late **Cliff Sharrot G4CJ**, who was working for me at the time, started to experiment with his own KW E-ZEE Match, and found that it could also easily be modified. The coil didn't need to be a physical extension of L2, but could simply be added in series, consisting of about 15 turns of well insulated wire on a 1.5in diameter former.



Fig. 3. The KW E-ZEE MATCH can compensate for wide impedance mismatches, but it can be tricky to set up.

The mod also works with the earlier SEM units and we did quite a trade in 160m kits and **Fig. 2**, is based on Cliff's original instructions and drawing. You will see that adding the 1.8MHz band is really quite simple.

Tuning a Z-Match

When you first try to tune up a Z-Match, you may start to wonder if the unit is faulty, as it seems impossible to bring down the s.w.r. The trick is to start with one of the two capacitors near maximum and then to swing the other through its full range whilst looking for a dip in the s.w.r. reading.

If you have no luck, reduce the setting a few degrees, and try again. Eventually you'll find that the reflected power starts to show a dip. Then you have only to carefully tune both dials until you find the combination that results in a 1:1 reading. Do this on every band, carefully note the dial settings, and tuning up becomes quick and easy.

Alternatively some operators find that they can get an approximate setting by tuning the Z-Match for maximum signal on receive.

There seem to be quite a few second hand Z-Matches, around at rallies, etc., but if you want to build your own have a look at **Geoff Cottrell G3XGC's** web site <http://freespace.virgin.net/geoff.cottrell/G3XGC.htm>

Rather Bashed FT-101

'George' brought a very bashed looking FT-101ZD Mk1 in to me and asked if I had any scrap units which he could get some damaged parts from. My immediate reaction was to ask

what on earth had happened? – and so he told me the story.

George had just switched off the rig in his upstairs shack and was carefully carrying it down the stairs with his arms clasped round it. As his fingers grasped the back – one of the tender digits came in contact with the 11-pin auxiliary socket plug. Unfortunately, he'd not troubled to put the cover back on this, "It didn't seem important" he said. Unfortunately however, Pin 5 of this socket has 900V on it and the h.t. hadn't yet discharged, unsurprisingly he dropped the set!

The FT-101ZD followed on from the FT-101E and B, with the first samples being made so they were compatible with either the 50, 70 or 144MHz valved transverters that were made by Yaesu and several other manufacturers. Later versions of the FT101ZD, omitted this connection, as all the latest transverters are fully transistorised and don't need this voltage.

If any of my readers have an early F-101 or FT-101ZD and are never likely to want to use a valved transverter, it's probably a good idea to remove the high voltage and bias connections from pin 3, 4 and 5, or at least be sure that you keep the cover on the auxiliary plug!

Judging the interest shown by the E-mails I receive, it would seem that there is an increase in interest in transverters, particularly for 50 and 70MHz (6 and 4m) so I'll have more about connecting these next time. Thanks for all the E-mails – keep them coming!



Colin Redwood's

what next?

Colin Redwood G6MXL helps aspiring Radio Amateurs to find a suitable Foundation or Intermediate training course.

With the arrival of September, many training courses will be starting up across the country to help aspiring Radio Amateurs gain their Foundation Licence, or upgrade to Intermediate or Advanced levels. So, this month I'm looking at how to find a training course and the various books, web sites, etc. that exist to help.

Additionally, as the current exam structure has 'bedded down' over the last few years, a number of very useful 'learning resources' (to use the jargon) have become available and I'll be mentioning these as well.

Finding Training Courses

If you're looking for a training course, I would suggest there are several ways to set about the job. Firstly, have a look at the website of the **Radio Society of Great Britain (RSGB)** at www.rsgb.org/local/ and try the various local towns in the search box. This will give you a list of people locally to contact.

If my first suggestion fails, try your favourite Internet search engine, with words like 'Amateur Radio Training' together with your town or county. If you know any local Radio Amateurs, ask them for advice.

You could also pop into your local library and ask to see their list of local clubs and societies. Once you are in contact with a local Amateur Radio club, they'll almost certainly know about local courses, even if they don't run training courses themselves.

In addition to the training that local clubs provide, the RSGB publish books that cover the licence material. It's important that you refer to the correct book for the licence training that you're taking and that the book is the current edition. From time-to-time the syllabus for the exams change. Usually, these changes are as a result of changes to the licence itself, but sometimes they are to improve the exam.

Foundation Licence Now!

Alan Betts G0HIQ, the author of

the book *Foundation Licence Now!* (Fig. 1) has aimed it at the absolute beginner. The book therefore assumes little, apart from an ability to do some basic arithmetic. Incidentally, the budding student should be aware and remember that in addition to the exam at the end of the course, there



Fig. 1: The Foundation Now! book – this is the book for complete beginners.

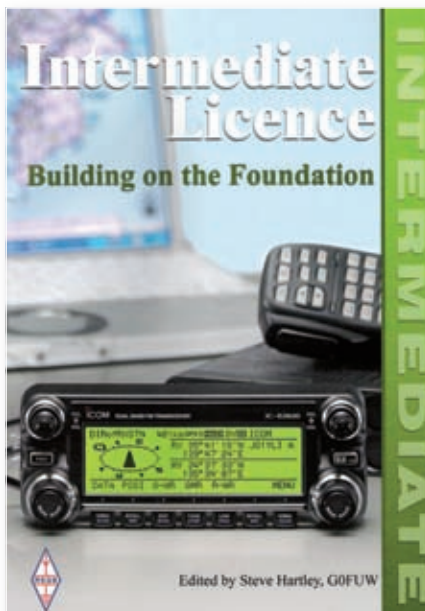


Fig. 2: Intermediate Licence – Building on the Foundation. The latest edition is for exams taken after June 1st 2009.

are a number of practical elements to the Foundation Course, so that self-study can only be part of the learning required.

Intermediate Licence

Having taken and passed the Foundation exam and obtained an M3 or M6 callsign, the next step is the Intermediate Licence. However, unlike the other RSGB books, the book *Intermediate Licence – Building on the Foundation (ILBoTF)* (Fig. 2) is not in syllabus sequence. Instead, it's in the sequence used by its Editor **Steve Hartley G0FUW**, for his very successful courses.

Personally speaking, while I would prefer the book to be in the same sequence as the syllabus, I can't deny that Steve's book is still good. Indeed, it certainly does its job, no matter whether candidates follow the book sequence or follow the syllabus sequence. At the back of the book is a Syllabus Cross Reference and some example exam questions for revision.

The book is broken into 40 worksheets, each requiring about half-an-hour of study. As an example, of one of the work sheets – the soldering sheet – covers not only the basic techniques for soldering but also the safety considerations associated with soldering.

Note: The latest (5th) edition of *ILBoTF* reflects the numerous small changes to the Intermediate Syllabus that came into effect on June 1st 2009.

There's also some practical construction work needed for the Intermediate Course. This includes connecting up a mains plug, attaching a PL259 or BNC connector and undertaking the building of a radio related construction project.

Bath Intermediate DVDs

Steve G0FUW has been a very busy man and has produced because has also a set of video disks (DVDs) showing almost the full Intermediate training course. Although they were shot a few years ago, meaning that they don't reflecting the recent

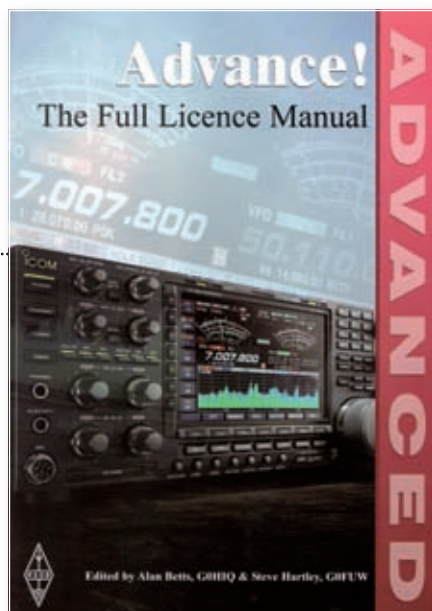


Fig. 3: Advance! Is the Full Licence Manual.

changes to the syllabus, the videos still provide a very good idea of the level of training, and shows how training can be effectively linked to the various work-books in the Intermediate course book.

I can particularly recommend the videos to potential tutors of the Intermediate Course. Have a look at www.g4dcv.co.uk/bathintvid.htm to find out how to get hold of a copy of the DVDs.

Bath Buildathon DVD

Steve G0FUW has now run several extremely successful 'Buildathons' in Bath, where Amateurs and others wanting to build a project for their Intermediate Course, or just for fun, can go along for a day and get all the support they need. I have a feeling that this idea is going to catch on elsewhere – and it's already done so in New Zealand!

Steve obviously thinks they have a great future and arranged to have the second Buildathon videoed. Contact Steve at Hartley_steve@htomail.com to find out how to get hold of a copy of the DVD*.

**Editor's comment: Steve G0FUW sent me a preview copy and I can certainly recommend the video and attending a Buildathon event.*

Advance! Manual

The Full Licence Manual *Advance!* (Fig. 3), is written by Alan Betts G0HIQ and Steve Hartley G0FUW. Each chapter of this book covers part or the whole of one section of the syllabus,

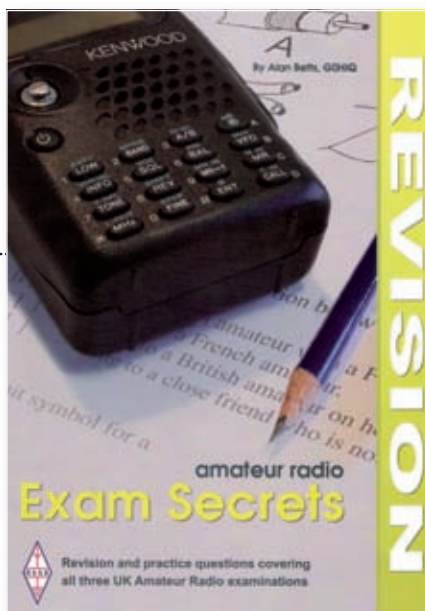


Fig. 4: Amateur Radio Exam Secrets – the revision book.

and (with a few minor exceptions) the book is in syllabus sequence. A mortarboard symbol is used to pick out sections, sub-sections, paragraphs and diagrams, which are essential knowledge.

Maths Primer

Anyone embarking on the Advance course will need to be reasonably comfortable with handling mathematical formula. However, to help, Steve G0FUW, Alan G0HIQ and Brian Reay G8OSN have produced a *Maths Primer*, which may help candidates who are struggling with the necessary mathematics and manipulation of formulae for the Advanced exam. This can be downloaded free from the RSGB web site at www.rsgb.org/tutors/advanced/mathshelp.php

Exam Revision

The RSGB have recently published a new book entitled *Amateur Radio Exam Secrets* (Fig. 4). It's written by Alan G0HIQ, who besides being the Radio Communication Foundation Chief Examiner, also worked for the Radio Communications Agency, the forerunner of Ofcom, for many years.

Alan's book is aimed at students taking the Foundation, Intermediate and Advanced courses. It covers most of the syllabus items of all three courses topic by topic, focussing on the parts of the syllabus that most candidates find the hardest.

Besides containing complete mock exam papers for all three levels of

Colin Redwood G6MXL

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licence, there are individual questions on every topic in the syllabus for each of the three licence classes in each chapter. There are also copies of all the various documentation supplied to candidates taking each of the exams, so that students know exactly what they will have available in the exam, and can practice making use of the material.

I think the book will also be of benefit to tutors and potential tutors, as it shows the level at which each topic is pitched for each of the three exams. In fact, I really welcome this book as it covers some of the more difficult parts of the courses in a slightly different – and perhaps more robust 'adult' way than the individual course books.

My only criticism is that some of the example multiple-choice questions could perhaps have gained some benefit from additional review, as I spotted at least one case where an Intermediate question had strayed a little beyond the syllabus and would, perhaps, have been more suitable as an advanced question. In another case I spotted one question that had more than one right answer.

The well-illustrated new book, certainly doesn't replace the individual course books, but it's an excellent revision book. Indeed, I think it would be particularly helpful to a student that perhaps missed a training session at their local club, and wanted to catch up.

Current Syllabus

In my opinion, obtaining a copy of the current syllabus is an absolutely essential for all tutors. Without the syllabus, it's all too easy to miss out sections of the syllabus or to 'over teach' some topics at the expense of others.

Some candidates may find a copy of the syllabus useful to ensure that they have covered everything they need if perhaps they have missed a training session. At the end of each of the syllabus is a breakdown of which question numbers cover



End Fed Antennas

- Common at HF where wavelengths are long
- Needs an ATU to match it for HF multiple bands
- Is unbalanced
- Has strong RF voltages and currents near the house. These are likely to couple into TV and other equipment and cause EMC problems

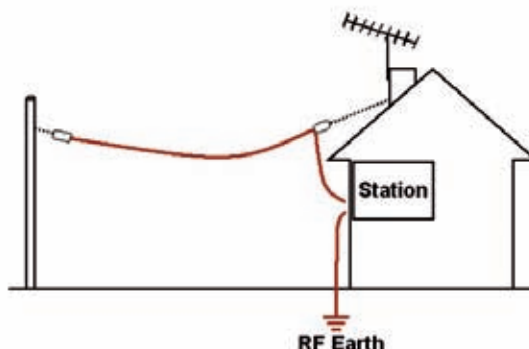


Fig. 5: One of the excellent slides from the Chelmsford Amateur Radio Society (CARS).

Chelmsford Amateur Radio Society
Foundation Licence Course

Murray Niman G6JYB

Slide Set 5: v1.2, 16-Dec-2007
(5) Feeders & Antennas

12

which topic(s) in the syllabus. This is important information if you want to produce a mock exam paper or submit questions to the question bank. The syllabus for all the exams can be found on the Radio Communications Foundation web site at www.commsfoundation.org/rce/

Chelmsford Slides

For course students and tutors alike, the extremely well known *PowerPoint* slides from the **Chelmsford Amateur Radio Society (CARS)** are a really useful resource (Fig. 5). For students they provide a good visual reminder of most of the material in the syllabus. For tutors they provide a good starting point for developing their own material.

Unlike some resources, the Chelmsford ARS are to be congratulated for keeping their slides up-to-date with changes to the syllabus. The slides, which are in *PowerPoint* version 97/2000 for maximum compatibility, can be found at www.g0mwt.org.uk/training/

Mock Exam Questions

I think it's useful for candidates to be able to have a go at mock exam questions. Mock exams allow older students to practice exam techniques that they may not be familiar with and it also helps all students to know which topics they may need some further help. However, I would caution

against an excessive reliance on just practising questions! Constant testing is not a substitute for gaining the necessary understanding – which will be needed as student move on from the Foundation, through the Intermediate and on to the Advance Licence.

Tutors may also find mock exam questions a good way of checking that their teaching has been effective. There are at least three sources of mock exams available on the internet in addition to those in the *Amateur Radio Exam Secrets* – the revision book I mentioned earlier.

Testing Website

The Hamtests website at www.hamtests.co.uk/ has many mock exam questions for potential candidates to practice with. Feedback from many users, suggests that the questions can be considered typical of what may be encountered in the exam. Incidentally, there's no doubt that this is one of the most popular resources for those preparing for their exams with over 67,000 mock tests having been taken to date!

Chippenham Mock Questions

The **Chippenham & District Amateur Radio Society (C&DARS)** have some mock Foundation and Intermediate exam questions on their website. The quality of the questions appears

good and has been expanded quite considerably. Have a look at <http://g3vre.org.uk/mock/asp/index.asp> I think it's a good idea to have a range of questions for candidates to practice with.

Murray Ward G3KZB

Murray Ward G3KZB has a really useful web site at <http://freespace.virgin.net/murray.g3kzb/> for anyone studying for the Advance licence. In addition to a couple of mock papers on the site, there is also a program titled *QADV* that can be downloaded with numerous practice questions. You can then select how many practice questions to do, and from which part of the syllabus.

Murray G3KZB has made a number of worthwhile improvements to *QADV* over recent months and I would recommend readers with an older version to delete it and download the latest version.

Plenty Of Material!

To sum up, there are plenty of materials available to help newcomers understand and learn the material to pass the exams. At the end of the day though, it's down to the individual candidate to put the effort in by reading the books and asking questions of their tutors. Good luck with your studies!



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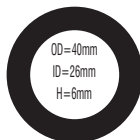
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Ben Nock's

valve & vintage

This month Ben Nock G4BXD is on duty in the 'vintage shop' – and he's peering inside some very interesting equipment!

Welcome to *Valve & Vintage (V&V)* and here we are again, another year progressing at an alarming rate and still so much to do! It's been a poor summer, at least here in Kidderminster, which has limited much of the portable operating I was looking forward to.

I have spent most of the wet summer indoors restoring and repairing many of the sets on the waiting list here. So I'll press on then with some set descriptions.

Skanti Marine Radio

I was planning to have a few days away in Durham in the north east of England, when I spotted the Skanti marine radio set being advertised. As it looked an interesting item to play with I made enquiries and – amazingly – the seller was located about 8km (5 miles) from where I was going to be staying. So, I made arrangements to view the set while I was up there – but in between contacting the seller and turning up to view the rig, it had been discovered that the set was faulty and not working.

After messing with the Skanti for a short while a deal was struck and I purchased the faulty set as it was. I thought it would be an interesting project (of course, I really needed another one!), and worth the revised asking price. The set was then stuck in the corner of the rented cottage while my partner and I got on with the week's holiday, visiting Durham, Hadrian's Wall and the friendly chaps at the **Bishops Auckland Radio Club**. Indeed – I must thank the lads there for a most enjoyable evening.

My Durham purchase was the Skanti TRP6000 Marine set, **Fig. 1**, used on deep-sea trawlers, and is rated at 400W peak envelope power (p.e.p.) single sideband (s.s.b.) transmitter-receiver, covering 1.6 to 4.5MHz in either simplex mode, semi-duplex or full duplex mode.

The transmitter can also generate amplitude modulation (a.m.) output at a reduced power level. The receiver

also has the ability to tune the a.m. broadcast bands from 155 to 281kHz and 531kHz to 1.602MHz in 9kHz steps.

Individual tuning of the receiver and transmitter is controlled from a programmable memory chip, a PROM chip, inside the set and this is usually programmed with the marine frequencies being used in the ship's locality. This PROM can be replaced though with one which, if programmed correctly, opens up the set to any frequency within its tuning range and – fortunately – this revised

PROM was indeed fitted to this set.

A copy of the manual for the '6000' was available as a download from the Internet and initial tests on the set once I was at home revealed a lack of several voltage lines. So, I started with an examination of the power supply boards. With the faults that I found repaired, things started to happen. I could now enter frequencies and there was audio coming out of the speaker.

I found various other faults and areas that needed repair or alignment. But after a short while I was getting a good output from the transmitter and



Fig. 1: The Skanti TRP6000, receiver and transmit driver on top and with the automatic a.t.u. and power amplifier below.

Ben Nock G4BXD

62 Cobden Street
Kidderminster
Worcestershire DY11 6RP
E-mail: military1944@aol.com



Fig. 2: The Pye 619 transmitter.

the receiver was working fine.

The top unit, Fig. 1, houses the frequency synthesiser, the receiver and the transmitter driver unit, while below is an automatic antenna tuner (a.t.u.) and below that the power amplifier unit and power supply boards. I don't, as yet, have a 24V supply to run the set at full output as it takes 25A or so, but as the set generates upper sideband (u.s.b.) I'll need to get one before the set is really useful. However, I can run the set on a.m. on the 1.8 and 3.5MHz bands while I search for replacement filters.

Royal Navy Transmitter

Recently, I was very happy to find a nice clean and unmodified example of the Type 619 transmitter, as used by the Royal Navy. This transmitter, Fig. 2, was made in 1955 by the Pye Company of Cambridge, more famous for the myriad of mobile transceivers they produced over the years. It's a 40W a.m., telegraphy (c.w.) and modulated continuous wave (m.c.w.) transmitter tuning 1.6 to 16MHz.

The Type 619 station comprised a receiver and two transmitters, a low frequency (l.f.) transmitter and the one I have, which carries the Admiralty

Pattern number 100337. A common power supply was provided for the sets and switching to operate them aboard naval vessels.

The transmitter uses three 5B/240M power valves in the main transmitter output stage and a further two 5B/240M valves as the modulator.

In addition to the master oscillator – to derive the operating frequency – there's provision for using up to eight crystals carried inside the set. Two panel meters are fitted, one monitors the antenna current during transmit and the other monitors various stage voltages and currents, which are selected using a front panel mounted switch.

Luckily, I have been able to source a circuit diagram for the transmitter and the associated power supply. It's really useful as it shows the various switching and relay controls needed to operate the transmitter. After a request on the web, two friends in South Africa, **Johan** and **Carvel**, found and sent me the needed power supply plug, so I'll be building a suitable power unit, yet another power supply, in the near future and trying out the set on the Amateur bands.

National 1-10 Receiver

I last looked at the National 1-10 receiver in V&V in May 2004, but I recently purchased another one of these interesting little v.h.f. receivers. The 1-10, as the name implies, covers 30 to 300MHz (1 to 10m) using a pair



Fig. 3: The National 1-10 as it arrived at the 'Kidderminster Kollection'.

of plug-in coils, akin to the HRO, with six sets of coils altogether.

The receiver was in a bit of a state, **Fig. 3**, and obviously required that loving touch. The nice thing about the 1-10 was its small size, just over 250 x 178 x 178mm (10 x 7 x 7in). This made working on the set very easy indeed. The receiver has four valves, two Acorn types, **Fig. 4**, in the tuner section and a 6C5 and 6F6 and audio amplifiers.

The restoration required the whole case to be removed for cleaning and repainting and this is very easy, just 10 screws later and the rear panel and lid were off along with the front and side panel. However, I did have a problem removing the knobs first though, because after some 70 years on the shaft – the grub screws refused to budge!

One of the knobs, the radio frequency (r.f.) tuning control, had a broken shaft stuck inside it. Unfortunately, even after two days soaking in WD40 the grub screws still wouldn't budge.

Drastic action was called for and I used a cutting disk in my Dremel drill to cut a new screwdriver slot into the top of the grub screw. Unfortunately this meant making a cut though the base of the knob as well, but I figured even a cut knob is better than no knob at all!

The 1-10 receiver also uses the well known HRO type dial, more correctly called the Micrometer dial, with a type PW-O gearbox driving the oscillator and r.f. tuning capacitors. This dial was also stuck fast and was very difficult to free.

With the grub screw removed I applied some WD40 and again left it for two days. Unfortunately, after the treatment there were no changes, so I took off the top of the gearbox. Inside, the large gear wheels have holes cast into them, and I used a solid metal bar to lock these gears and then slowly applied rotating force to the dial. This freed it from the shaft and allowed its removal and cleaning.

With the set dismantled the case could be washed, wire brushed and then repainted. I cleaned and degreased the main chassis and polished up the knobs with my drill's wire brush.

After reassembling the set, **Fig. 5**, I tested out the electronics and found the set was working without any problems. I used the coils tuning

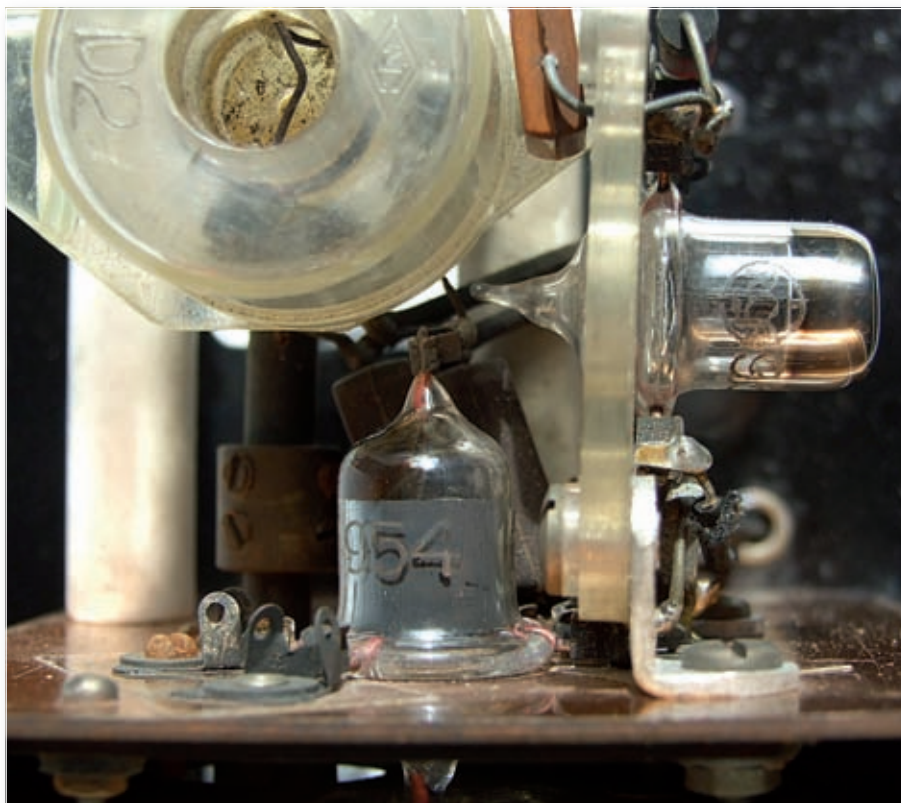


Fig. 4: The two Acorn valves used in the 1-10.

the range 80 to 130MHz and had no difficulty receiving civil aircraft transmission and to some extent, frequency modulated broadcast stations using the 'slope detection' technique. Even though this technique works – the resulting audio output is low.

As the lowest range coil set tunes down to 27MHz, I'm looking forward to some 28MHz (10m) band a.m. DX when it opens up again.

And Finally

Well that's about it for this stint at the V&V 'shop', the last one from me before Christmas, so I wish you all a very happy time. I hope you have enjoyed the selection I have bought you and there are more pictures at www.qsl.net/g4bxd

As always I can be contacted at my Email address military1944@aol.com Cheerio for now!



Fig. 5: The 1-10 after a good cleaning.



Roger Cooke's

morse mode

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This time, Roger Cooke G3LDI, brings some feedback he's had, some nostalgia and looks at the supposed gains with iambic keying.

I've had some feedback from readers of the column, firstly the feedback from **Eddie Ramm DK3UZ**. Anyone who's worked Eddie in a contest or indeed a normal QSO will certainly have received a QSL card. Eddie is an avid collector of cards and also a Morse tutor in Germany. Eddie saw my comments on the Sideswiper operation of the Begali key and sent me some information. There is a Sideswiper Net (SSN), and they have a web page: to be found at: www.sideswipernet.googlepages.com/home

Included on the site are some tips on how to master this type of key (I should obviously have read this page first!). Practice makes perfect is the message I preach in the GB2CW classes, so perhaps I should practice what I preach! If you want further information, then you can E-mail Eddie at: dk3uz@db0hht.ampr.org

Incidentally, Eddie still wants cards from 2E0CVN, G3LET, GM3YEH, and GW0GEI. I hope they now feel suitably embarrassed enough to send him his cards now!

From **Steve Box-Edwards GW7LOP**, I had the link for another 'take' on how to learn Morse: <http://w6rec.com/duane/amateur/cw.htm> Have a read and see if can help you. On the site it describes most of the known methods, but it has a friendly approach and should encourage those that need encouragement!

Croatian Telegraphy Club

Morse enthusiasts all over the world are invited to join the Croatian Telegraphy Club (CTC). Membership is free and you can join via E-mail, plus membership of the **European CW Association (EUCWA)** is automatic at the same time. Just send your call, full

name and date of birth in an E-mail to: ctc@hamradio.hr

There's a web site too. Have a look at: www.hamradio.hr/ctc The EUCWA also have a web site which is worth looking at: www.morsecode.nl/eucw.html

Wallowing In Nostalgia

While we're wallowing in nostalgia, spend some time with the following site, sent in by **Steve Nichols G0KYA**. It really is fascinating to learn how Morse was taught in the USA Military back in the days of 75rpm records! You can actually go through a course taking you up to 16 words per minute (w.p.m.) here. The site is as: www.archive.org/details/U.S._Armed_Forces_Institute_Basic_Radio_Code_ca1942 The background hiss and noise aren't too distracting! I would love to hear a UK version of this with the old 'plum-in-the-mouth' BBC accent that Harry Enfield can create so well.

Now here's one that I 'lifted' from the CDXC reflector. The sender is **Denise Stoops**, the first female operator at KPH, transmitting the closing message at the recent 'Night of Nights' activity. And that can be viewed at: www.youtube.com/watch?v=2a4scmlC7tl I always have said that the ladies make good c.w. operators. Even commercial operators make mistakes however and that was comforting to note!

Iambic revisited

I had a few E-mail exchanges with **Steve Cook G4ANA** a little while ago. Steve questioned me on my

comments regarding my preference to a single-lever paddle, which I have used all my life. Steve told me about a friend of his **Dale Chadwick G3VMK** who ran a company called Telegraph Systems in the 1970s and had designed a non-iambic squeeze keyer using c.m.o.s. devices.

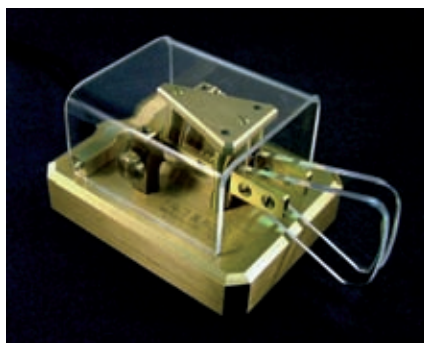
Apparently the mode of operation, to which they gave the name 'Last-pressed Precedence', which meant that, when squeezed, the last pressed paddle took over, much like a single lever paddle does when flipped to the other side. It has dot and dash memories, which makes 'blipping' a single dot or dash into a string of the other character very time uncritical and unless modified has a free-running clock to ensure perfect spacing.

If you fancy trying 'real' squeezing, Dale G3VMK has given his permission to publish the circuit and some information. As mentioned before, it's all early 1970s stuff, so if you can still see 0.1in Veroboard it should be a nice project. I shall be continuing this theme in the next *Morse Mode*, with the circuit and circuit description in the hope that some of you will consider it worth a try. I hope to do so when time permits. However, I don't foresee a transition to the twin-lever paddle as far as I'm concerned!

Looking around for other thoughts on this, I came across a very interesting article, in PDF format, written by **Marshall G. Emm N1FN**, entitled *Iambic Keying - Debunking the Myth*. I learned quite a bit from this and it's well worth a read. Go and have a look at: www.morsex.com/pubs/iambicmyth.pdf

I'm sure you will find it just as intriguing as I did. 73 and May the Morse be with you!

Roger, G3LDI



A quality paddle key, the Shurr Pro 2 – smooth perfection perhaps?

TRADERS TABLE

The equipment for sale on this page is secondhand or ex-demonstration

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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.**

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fitted, manuals included, £195. Tel: Alan 07759 821 742 (Plymouth).

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Please insert this advertisement in the next available issue of Practical Wireless.

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CARD NUMBER

Signature Security number
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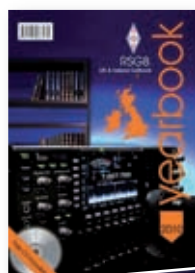
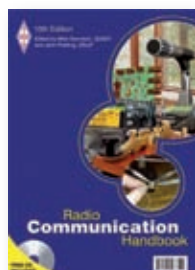
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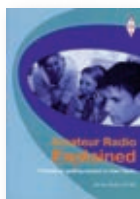
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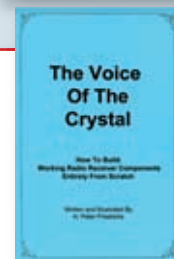
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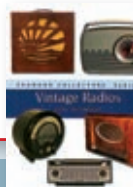
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Rob Mannion's

topical talk

Support for repeaters networks and the passing of cartoonist John Worthington G3COI.

The letter from **Vic Van Den Bergh G6DIF** (*Letters* this month) raises a very interesting point as far as I'm concerned. Although nowadays – because I rarely operate while on the move – I don't use repeaters very often. However, at times I'm exceedingly grateful for the facilities they offer. Vic's suggestion that we should offer financial support for the repeater network is very sound and I fully agree with the idea.

However, there's always a 'however' that arrives with every idea, whether it be an old suggestion or a completely new one! My 'however' draws attention to a basic problem – just how do we get the financial support to the people that manage and operate the repeaters and their sites?

I must admit that in the past, because my work in broadcasting – often involving extremely difficult access to remote TV relay stations – I've thought of the people who set up, manage and maintain the repeaters with a lasting respect for them. But although the operational logistics may be difficult enough – the money management side must surely be a nightmare?

Vic G6DIF is in a good position to be able to comment on finances! Indeed, many Anglican clergy I know often say that the money management aspect of their vocation is the most difficult and time consuming! And – as an Anglican Church Warden myself – I can fully sympathise!

But, just how can we support the repeaters we may use on our way on holiday to the West Country, to Wales, Scotland, Northern Ireland or the Irish Republic? It's very difficult (and extremely undesirable in my opinion) to even think about a 'pay as you use' system.

Even Governments, with plenty of taxation money to spend have hesitated to introduce 'pay as you go' to use national road networks. So, if governments with a steady and assured income can't afford a pay as you go system, we'll never do it – thankfully! On the other hand, I would be utterly dismayed if the American idea of 'private' Amateur Radio repeaters were introduced here in the UK.

In fact, I think the network management is workable but could do with some

financial help. The **Radio Society of Great Britain** (RSGB) does its best with the overall management of the UK repeater network and I'm not in a position to suggest any changes, or interfere in any way – apart from offering my full support to their efforts and by promoting the network via our *In Focus* features.

Amateur Radio clubs and associated groups already promote their activities via *In Focus* and now we would be delighted to do the same for individual repeater groups – if they contact *PW* for further details. I'm sure that many Amateurs would be pleased to help finance repeaters they use – if they knew where they could send their donations.

Whatever happens – I would, of course, also be pleased to support any RSGB initiative – we must be prepared to help the repeater groups carry on with their valuable service to Amateur Radio.

John Worthington G3COI

Writing obituaries has never been a pleasant job for me and it's particularly difficult when a close friend is involved. On the other hand – it does provide the opportunity of saying a special 'thank you' to honour the person involved.

Surprisingly perhaps – preparing John G3COI's obituary wasn't as difficult as I thought it would be and as I worked I laughed – and I'm sure that's just how 'Worthington' himself would have liked it! Incidentally, using the surname only when discussing a cartoonist and their work is traditional in publishing. In fact, John always said, "Worthington here" when he called the office!

So many readers have contacted me to express their sympathies, that I would have to publish a very long list. But despite this I must acknowledge that literally everyone who contacted me about the death of our friend, said "He made me laugh" and they all mentioned a favourite cartoon that John had produced. Finally, as I typed these last few words, I thought I could hear a typical Worthington chuckle and I just caught a whiff of pipe smoke!

Rob Mannion G3XFD/EI5IW

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- Fast/slow tuning control
- Squelch control for VHF airband
- Bass and treble controls
- Auto/Manual/Direct frequency key-in and station memory tuning
- Auto Tuning Storage function (ATS) for FM/AM
- 1000 station memories (each band 100 memories, 500 customisable)
- Dual alarm clock function
- MP3: Aux input
- Rotary Antenna: MW/LW
- Antennas: switchable internal/external
- Headphone Socket
- Power requirements: AC adaptor supplied 240V / 6V
- Power requirements: 4 x D size batteries (not supplied)
- Size: 372 x 184 x 146 mm WHD
- Weight: 3.22kg

£299.00
£10 P&P

etón Globe Traveller G3

AM/FM/Shortwave with Aircraft Band,
SSB (Single-Side Band), RDS (Radio DataSystem)
and Synchronous Detector

- Digital AM/LW/FM-stereo, the complete Shortwave spectrum with SSB (150-30000 kHz) and the VHF Aircraft band (118-137 MHz)
- Dual Conversion PLL Digital tuner, with digital display (LCD) showing frequency, time, sleep time and symbols for sleep timer and alarm activation
- RDS (radio data system) on FM shows frequency, call letters, artist, song title, date, messages in display when available
- Synchronous Detector with selectable side-band
- Line-in/out
- 700 randomly programmable memories for all frequencies
- Clock, sleep timer, alarm function
- 3.5 mm headphone output (earphones not included)
- Telescopic antenna for FM and SW reception
- Internal ferrite bar antenna for AM reception
- Power source: 4AA batteries (not included)
- Display Indication: Time, frequency, stereo, sleep, alarm, lock, battery, memory page, memory, time zone, week-day, wide narrow, signal strength, synchronous detector, SSB, RDS
- Speaker type: Wide range 1 x 60 mm
- External antenna jack SW, FM, Aircraft Band
- Batteries: 4 x 1.5 V (LR6, AM3, AA);
4 AA rechargeable NI-MH
- Dimensions: 6.614" x 4.13" x 1.1" and
168 x 105 x 28 mm (W x H x D)
- Net weight: 345 g
- Accessories:
Owner's manual, warranty card,
protective pouch, AC adapter/charger

£99.95
£10 P&P

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CORPORATION

Yaesu FT-950 Transceiver

Direct lineage from the legendary FT DX 9000 and FT-2000



HF/50 MHz 100 W Transceiver **FT-950**

Recommended Retail Price
£1275.95 inc VAT

- Triple-conversion super-heterodyne receiver architecture, using 69.450 MHz 1st IF
- Eight narrow, band-pass filters in the RF stage eliminate out of band interference and protect the powerful 1st IF
- 1st IF 3 kHz Roofing filter included
- High-speed Direct Digital Synthesizer (DDS) and high-spec Digital PLL for outstanding Local Oscillator performance
- Original YAESU IF DSP advanced design, provides comfortable and effective reception. IF SHIFT / IF WIDTH / CONTOUR / NOTCH / DNR
- DSP enhancement of Transmit SSB/AM signal quality with Parametric Microphone Equalizer and Speech Processor
- Built-in high stability TCXO (0.5 ppm at room temperature)
- Built-in automatic antenna tuner ATU, with 100 memories
- Powerful CW operating capabilities for CW enthusiasts including CW Zero-in and CW Spot features
- Five Voice Message memories, with the optional DVS-6 unit
- Large Multi-colour VFD (Vacuum Fluorescent Display)
- Optional Data Management Unit (DMU-2000) permits display of various operating conditions, transceiver status and station logging.
- Optional RF μ -Tune Ultra Sharp Preselector System for 160 m, 80/40 m and 30/20 m Bands

Optional, YAESU Exclusive, Fully-Automatic -Tuning Preselector System!

Fully automatic, Ultra-sharp, External μ -Tuning Preselector (optional) features a 1.1" (28 mm) Coil for High Q

On the lower Amateur bands, strong signal voltages can impinge on a receiver and create noise and intermod that can cover up the weak signals you're trying to pull through. YAESU engineers developed the μ (Mu) Tuning system for the FT DX 9000/FT-2000, which is now available as an option for the FT-950. There are three modules available, the MTU-160, MTU-80/40, and MTU-30/20; these may be connected externally, using the optional base kit, with no internal modification required.

When the μ -Tuning module is engaged, the VRF system is bypassed, but the fixed Bandpass Filters are still in the received signal path.



Optional External Data Management Unit (DMU-2000) Provides Many Display Capabilities

Enjoy the ultimate in operating ease by adding the DMU-2000!

Enjoy the same displays that are available with the FT DX 9000 and FT-2000: Band Scope, Audio Scope, X-Y Oscilloscope, World Clock, Rotator Control, Extensive Transceiver Status Displays, and Station Logging Capability. These extensive functions are displayed on your user-supplied computer monitor.



Shown with after-market keyer paddle, keyboard, and monitor (not supplied).



DMU-2000
Data Management Unit (option)