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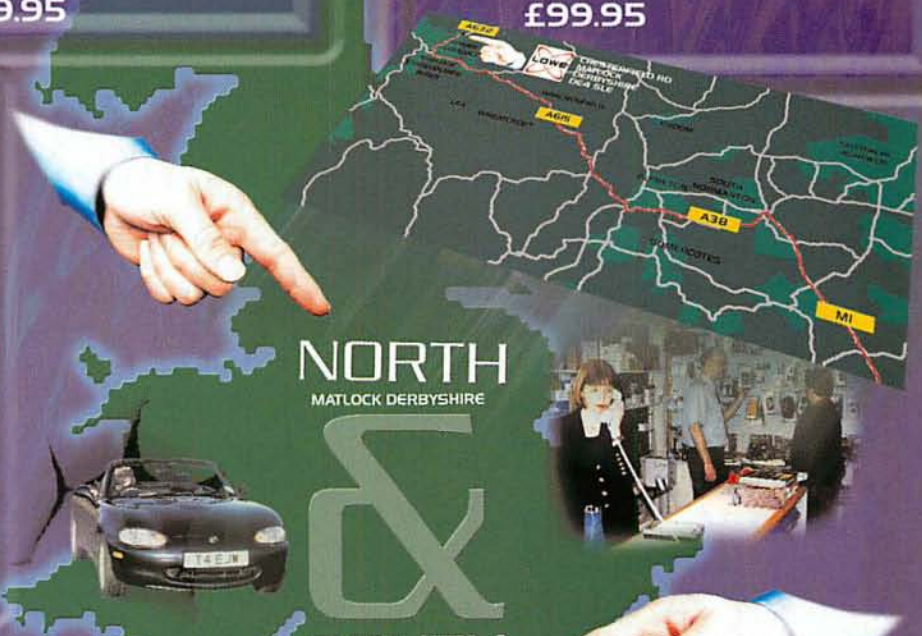

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£69.95 Plus £6.00 Carr.

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* CTCSS Encode / 1750Hz tone
* 25 / 12.5kHz Steps
* 30 Memory Channels
* AM Airband Receive
* Ni-cad Cells & Charger

£169 Plus £6.00 Carr.

IC-910 VHF/UHF Transceiver - Coming Soon

£1299 Plus £7.50 Carr.

IC-910 VHF/UHF Transceiver - Coming Soon The new IC-910 from Icom will shortly be available. 100W on 2m and 75W on 70cms, plus the option of 1.2GHz. Well placed to take advantage of satellite operation, you can simultaneously operate 2 bands at once. Phone For Details

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Includes FREE Remote head cable.

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FT-90R Can you believe the size?

2m/70cm Dual Band

SAVE

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* 2m 50 Watt Mobile Airband Receive
* Full CTCSS Encode / Decode
* 81 Memories 25 / 12.5kHz Steps
* Keypad microphone & Mounting Kit

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£139 Plus £7.50 Carr.

* 134 - 174MHz Rx * 144 - 148MHz Tx
* 60W Power output, 4 power levels 60/25/10/5W
* Channel steps 5/10/12.5/15/20/25/50kHz
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ICOM

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* 2m / 70cm
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* Microphone, Mounting Bracket etc.

KENWOOD

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* 50W and 35W
* Full CTCSS
* 180 Alphanumeric Memories
* Detachable Head with Amber Display

YAESU

FT-8100R

£369 Plus £7.50 Carr.

* 2m and 70cm
* 50W and 35W
* Wideband RX AM & FM 208 Memories
* 7 Tuning Steps DTMF Remote Front panel
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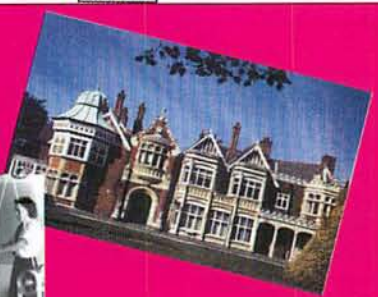

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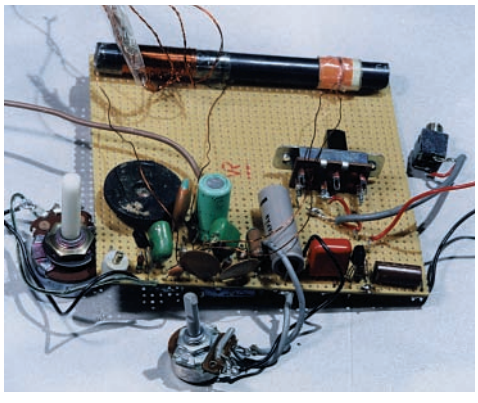
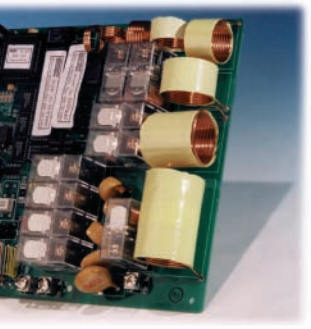
Cover Subject

Read the fascinating Cape Verde Adventure article in this issue. Here you can see **Carlos D4AAC** pictured in his well stocked radio shack with the idyllic scenery of Mindelo harbour in the background.

Photograph by: **Henryk Kotowski SM0JHF**
Design by: **Bob Kemp**

June features





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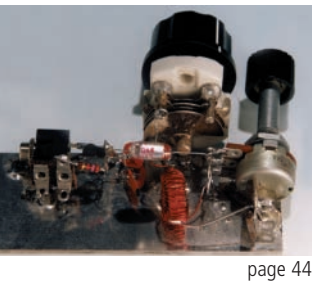

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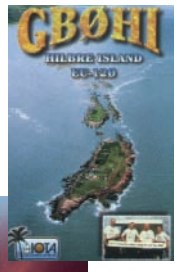

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WELCOME TO ANOTHER CRAM-PACKED ISSUE

rob mannion's keylines

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

It's always a pleasure to meet readers and I was really looking forward to the Junction 28 QRP Convention on 17 March - so called because it was literally adjacent to the appropriate junction on the M1 motorway. I wasn't disappointed - it was a marvellous event, typical of the old-style rallies where people get together to buy, bring & buy and share a common interest...in this case QRP operation and the home-brewing of Amateur Radio equipment.

However, there's no doubt at all in my mind that although it was deemed a success by everyone who attended, the number of visitors attending the Junction 28 event, hosted by the **South Normanton, Alfreton & District Amateur Radio Club** in association with the **G-QRP Club** was badly affected by the weather. I'd arrived at my overnight accommodation following a club visit to the **Nunsfield House Club** in nearby Derby and woke up on the Saturday morning to find I'd got a Volkswagen-shaped snowmobile!

The snow obviously put some visitors off from visiting the QRP convention but by not coming they missed an enjoyable event. The community centre where the event was held was an ideal size for a QRP-style rally and there were some fascinating lectures and demonstrations - including a mechanically scanned narrow band television set-up. (fascinating!).

Personally, I feel sure that the Junction 28 QRP Convention is going to become a regular and popular event. The SNA&DARC organisers have already committed themselves to organising it (date to be announced) and I'm looking forward to meeting you there in 2002.

Brothwell Brother!

Whilst on the subject of the Junction 28 event I must take a little time to publicly thank **Ian Brothwell G4EAN,** Secretary, of the **British Amateur Radio Teledata Group (BARTG)** who (appropriately enough with his surname) treats me, well...just like a brother! Amateur Radio is full of people like Ian who give unstintingly of their friendship, time and attention and they're very special people.

Ian came from Nottingham especially to help me unload and set-up the *PW* stand. Then, just in time, he arrived later in the day to help pack up!

But now, as a humorous tribute I'd like to share some photos taken by **Tex Swann G1TEX** using his telephoto lens at the Rochdale QRP Convention last October (Yes, Ian's there to help too!). The photographs really do illustrate just how it is for anyone manning a special interest stand - spirits up and down. Thank you Ian, for all your valuable help and friendship. Amateur Radio and BARTG have a superb Ambassador in the shape of G4EAN!

Irish Rally Postponed

Due to the threat of Foot & Mouth Disease it was inevitable that the **Irish Radio Transmitter's Society** (IRTS) rally and AGM, to be held in Limerick on Saturday and Sunday 7 & 8 April would be postponed. It was, and with the maximum notice possible in the circumstances.

For other reasons I'd already had to postpone my trip to EI and GI, and to re-schedule the planned club visits which were to take place during my holiday. Apologies to all the clubs involved and I look forward to meeting you all as soon as possible after the F&M outbreak has been overcome.

The RSGB Bletchley Show

As I was originally to be in Ireland on holiday, I was not due to attend the new RSGB Spring Show & VHF Convention, which was promoted last Autumn, long after the IRTS's Limerick event was arranged for the same weekend. However, the magazine was well represented by News & Production Editor **Donna Vincent G7TZB** and **Tex Swann G1TEX**, Technical Projects **Sub-editor** (and et al!).

Donna and the rest of the rally team enjoyed meeting the readers who came to chat to everyone on the stand. Incidentally, all the messages (**and I mean all!**) were passed on to me - as promised, including one from a subscriber with some suggestions on the future contents of this Editorial page. All comments duly noted! Thank you for your enquiries, comments, suggestions and ideas.

Rob G3XFD

● Pleased as Punch! - "Oh...I do love to be at the Rochdale QRP Convention... especially when there's a lot of interest in BARTG" thinks Ian G4EAN.

● Feeling Lonely! - "Trust George G3RJV to go and announce pie & peas for lunch just as I was busy - suppose I'd better go and get mine before they sell out".

practical wireless services

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

Subscriptions

Subscriptions are available at £28 per annum to UK addresses, £35 in Europe and £38 (Airsaver), £45 (Airmail) overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Practical Wireless* and *Short Wave Magazine* are available at £55 (UK) £68 (Europe) and £74 (rest of world), £85 (airmail).

Components For *PW* Projects

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

Photocopies & Back Issues

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

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

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

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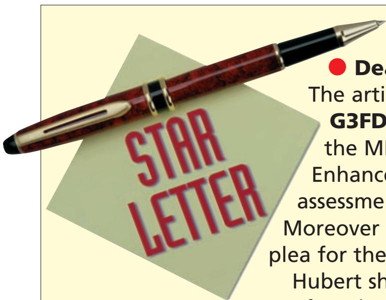
Technical Help

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

amateur radio waves

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

The Star Letter will receive a voucher worth £10 to spend on items from our Book or other services offered by *Practical Wireless*.
All other letters will receive a £5 voucher.



The Indefatigable G3FDC

● **Dear Sir**
The article by the **Rev. Hubert Makin G3FDC** (April 2001 *PW*) evaluating the MFJ-616 Speech Intelligibility Enhancer made compelling reading. His assessment of the MFJ-616 was superb. Moreover his article made an impassioned plea for the hearing impaired.

Hubert shows remarkable talent for his years, for when his hearing loss almost rendered his Amateur Radio licence useless he went into a pro-active search for a remedy. I warmed to his attitude, nothing negative or reactive. His experimentation and exploratory investigations of the MFJ-616 was partly of the Marconi dimension in my opinion.

What a remarkable coincidence that the monthly quotation from the **Rev. George Dobbs G3RJV** (in Carrying On The Practical Way) should read *"You imperfect speakers tell me more"!*

Finally, for those with perfect hearing **no explanation is possible** and for the hearing impaired **no explanation is necessary**.

Peter Knowles M0BRV
Denton
Manchester

Missing The Point?

● **Dear Sir**
I read with interest the letter originating from **David Thomas G6VAZ** (May 2001 *PW*). In reply I think David is absolutely right in one thing that he says, namely "Technology for the sake of technology".

Since the early days of radio there have been two spurs to the development of the art of radio communication: War and the enquiring mind of the Radio Amateur. When those two were mixed there have always been immense benefits to the communications capability of the world as a whole.

Being an ex military man I would not advocate another war. But I would say that **we should encourage** those amongst the Amateur Radio fraternity who have a bright idea, and who are technically adept, to push forward the frontiers of science, for the benefit of all of us.

If David wants to have a 'Good old fashioned QSO' let him do so, we all enjoy that from time to time. But do not decry, or stand in the way of, those who want to invent a new mode, investigate new uses for DSP and sound cards, use the latest technology to exercise the privilege of communication by radio, or whatever comes next.

I think David **has himself** missed the point. I bet those old fashioned QSOs are made with the benefit of a lot of R&D by Radio Amateurs in the past?

Roy Walker G0TAK
Thornton-Cleveleys
Lancashire

Inspired By PW

● **Dear Sir**
I couldn't resist the opportunity to tell you how a recent article - Warbling Wonder - PSK31, by **Robin Trebilcock GW3ZCF** (*PW* February 2001) in your magazine really inspired me to get back into my beloved hobby.

Although I have been licensed since 1992, I have operated on an ad hoc basis for much of that time. When my last rig, (a KW2000B) developed a serious fault, it was never replaced. My wife never did fully appreciate the finer points of Amateur Radio!

Following the most informative and helpful article about PSK31 I was desperate to convince my wife that I could operate an h.f. rig without whispering a word. And (perhaps) more importantly, without wiping out her beloved *Coronation Street* on the television. So, in a rare display of compassion, my wife conceded and reluctantly gave permission to purchase a shiny new TS-50S.

A few days later and I was in business. As suggested in the article, I contacted **Peter Lockwood G8SLB**, described my needs for an interface and a few days later my customised VOX operated interface arrived. (Great service Peter! - Thank you).

After everything was connected up to my PC I delved into the TS-50S and made good a simple QRP modification found on the Internet. The rig was now set to deliver 2W p.e.p. on its low power setting. After 15 minutes practice with a program called *Digipan V1.6*, (again downloaded free from the Internet) I answered my first PSK CQ call.

Success - the German station responded immediately! The rush of excitement was identical to the thrill my first s.s.b. contact gave me almost six years ago!

Now I'm able to enjoy a totally new and fascinating aspect of my Amateur Radio hobby. My wife on the other hand is delighted she can't hear any "CQ" calls from me and best of all - *Coronation Street* blares away merrily without so much as a flicker on TV (at the same time my PSK signal drifts silently out into the ionosphere).

The day before I wrote this letter, I completed a 14MHz QSO with a station in Alabama, USA, all with 2W of r.f. and PSK31! This just shows the power of the mode and how Amateur Radio, computers and the Internet can co-exist side by side! Thank for an excellent article, keep up the great work in *PW*. See you on PSK hopefully too!

Paul Morrison G0VHT
Bromsgrove
Worcestershire

Keyline Photographs

Ian Brothwell G4EAN heard that G3XFD was to use the photographs (Keylines this issue) and wished to respond!

● **Dear Sir**
At the successful and new QRP mini-convention at South Normanton in Derbyshire on March 17, the Editor showed two photos taken of me at last year's Rochdale QRP mini-convention. "Look", he said, "you're happy when people are visiting the **British Amateur Radio Teledata Group** (BARTG) stand but down in the mouth when you have no visitors"!

Well, that wasn't quite true. The 'down in the mouth' look was really due to 'long day' syndrome rather than disappointment at having no visitors.

Rob's teasing (tongue-in-cheek) comments then led me to wonder if many rally visitors realise the work involved in running a rally stand? Especially when that stand is for a voluntary group such as BARTG.

I've manned many rally stands for BARTG, a voluntary group with the aim of promoting datacoms within Amateur Radio. Our budget is limited, so we try to keep our rally stand costs to the minimum, often accepting a long day's drive to/from a rally instead of allowing for an overnight stay in order to reduce to workload.

Our aim in attending rallies is two-fold. First, we wish to promote datacoms as widely as possible. Secondly, we want to recruit as many new members as possible (and of course it's members' subs which keeps BARTG going).

If we **are kept busy** chatting about datacoms and signing up new members then the rally is a success for us and we are happy. Even when our rally day started at 4am and our travelling to/from the rally will take six to eight hours.

However, when our stand is quiet and all we can do is watch the rally then, personally, my thoughts start to wonder "should we come to the rally next year"? I must stress that **all rallies** have quiet times and that the Rochdale QRP mini-convention had perhaps the fewest quiet times of any rally I've attended.

Indeed, many people who visited that BARTG stand examined our printed circuit boards and clearly understood what a p.cb. was for and what, once built up, it could do! On that point, those who think the days of the home constructor are past should get to one of the QRP mini-conventions where they will see that home construction is very much alive and well and still a part of Amateur Radio.

I enjoy working on the

BARTG stands because I very much appreciate meeting other Amateurs and helping them to appreciate the virtues (and fun!) of datacoms. Visitors who stop for a chat and ask questions are always welcome. By contrast, some visitors flick superficially through a copy of *Datacom* (the BARTG magazine) and wander away aimlessly or so it seems!

Some rallies have been cancelled or closed in the last few years and BARTG's own rally fell victim to rising costs of venue and is no more. Personally, I suspect the future will see two types of rally surviving. One type is the big rally/show which attracts all the major traders and visitors from a wide area. The other type is the small rally (such as the excellent QRP mini-conventions) which attract particular types of enthusiasts and are run by, and for, the Radio Amateur who has a real interest in the hobby (especially when it comes to home construction).

So, rallies can represent very long days for our BARTG staff but can also be very, very rewarding as well as fun. Please excuse my tired or 'down in the mouth' appearance but that was a very long (but enjoyable) day. See you at a rally somewhere in 2001?

Ian Brothwell G4EAN
Arnold
Nottingham

Editor's comment: Ian and his fellow members put so much into meeting the Amateur Radio public and BARTG deserve the respect they've earned. But I stand by my comment that (albeit for a very short while) he DID look lonely at Rochdale. However, you can keep the BARTG rally team busy by visiting them yourself can't you readers?

Young Amateur Update

● **Dear Sir**

Sorry I have been so long in writing back to you but I have been very busy with exams of both the school and radio kind. If you cast your mind back to early last year I sent you a letter about how helpful people in this hobby are (Help From Friends - published in the March 2000 *PW*). At the time I was 14 going on 15 and planning on taking the RAE, etc. Since then I have taken and passed the RAE in May 2000 getting the call **M1ETJ**. I then took my 12w.p.m. Morse test at the **Peterlee Radio Club** in September 2000 and gained the call **M0PCB** (M0 **P**rinted **C**ircuit **B**oard...good eh!) and also just turned 16 in March 2001.

I have since been on the air as M0PCB, enjoying every minute of it, and have a total, as of 24 March, 95 DXCC countries in the log, including VK, JA, YB, JW, TF, V2, JY, PZ, 9K, etc., most of which on 21MHz.

My station is in the spare bedroom in the house and only have a 1m by 500mm table top to play with. This is where I play radio, construct things, etc. I work s.s.b., c.w., f.m., Packet and hopefully soon things such as PSK31, etc., from an Icom IC-746.

I have a half-size G5RV for 7 to 28MHz and an 18/21MHz nested half-wave dipole, various other dipoles and verticals all in my loft. Yes that's right indoor antennas from 3.5 through to 430MHz. I've lost count of the number of people who have said that my antennas would never work but so far I seem to be managing nicely.

What more do I need (apart from a 3-element beam and 20m tower hi!) to get 59s all over the world? I am an active member of the FISTS CW Club and RAYNET. I must say though I didn't know how much fun Amateur Radio **really was** until I got my callsign.

I would like to thank everybody who has helped me over the past year and a half especially those in my local area who had 100% support for me i.e. My RAE tutor **Tim M0ACV**, the people who sent me Morse while I was getting to grips with it (**Brian M0BAR**, **Glenn M0AYI**, **Wally G4CNK**), etc. However, if I listed all the names and callsigns they would be too many to publish in your magazine but I'm sure they know who they are.

Since reading your magazine for the first time I don't think I've missed an issue in over a year so keep up the good work *PW* team! I wish you and all *PW* readers the very best and hope to work some of you on the air soon.

Iain M0PCB
Crook
Co Durham

Editor's comments: Wow! Well done Iain and to the marvellous team who have helped. I look forward to reading next year's instalment - this young man is going to achieve much more!

Two Reviews!

● **Dear Sir**

Thanks for a great May edition of *PW*. A real treat with **two** great reviews, which some of us readers prefer to the technical stuff!

Jonathan Kempster
M5AEO
Milton Keynes

Editor's comment: We try hard to achieve a good editorial balance Jonathan. However, there's been a noticeable lack of major new rigs recently and the Yaesu FT-817 and Kenwood TS-2000 were long awaited by everyone!

amateur radio rallies

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

May 20
The Drayton Manor Radio & Computer Rally
Contact: Peter G6DRN
Tel: 0121-443 1189 evenings
Taking place at Drayton Manor Park, Fazeley, Tamworth, Staffs, on the A4091 there will be traders in four marquees, as well as a large flea market, Bring & Buy stall, local clubs and special interest stands. Doors open from 1000.

May 20
The Mid Ulster Amateur Radio Club Rally
Contact: Jim GI0OND
Tel: 0283-885 1179
The Mid-Ulster ARC are holding their rally at the Silverwood Hotel, Lurgan, Co. Armagh, starting from 12 noon. There will be trade stands, a Bring & Buy plus a talk-in on S22.

June 3
The Mid Lanark Amateur Radio Society Tram Ride
Contact: John Neary GM0XFK
Tel: (01698) 822860
This event takes place at Summerlee Heritage Park, Heritage Road, Coatbridge, North Lanarkshire ML5 1QD, Scotland. Features will include talks, radio traders, bring & buy, catering, parking and talk-in on S22.

June 10
The Windermere Steamboat Museum ARS Event
Contact: Roy G0TAK
Tel: (01253) 862262.
This is a new event celebrating the users of mobile radio in the Lake District, with exhibits by Army, Air Force, Police, Fire, Mountain Rescue Teams and Park Rangers, set against the Museum's exhibits of working steam launches. A great family attraction. All users, or those who have an interest in mobile radio, are invited to attend, bring your radio with you! Gates open 1000 and admission to museum is £3.50.

June 17
The Newbury & District ARS Boot Sale
Contact: George Cook
Tel: (01488) 682814
Website: http://www.nadars.org.uk
To be held at Acland Hall & Recreation Field, Cold Ash, Newbury, from 0900-1500. Talk-in on S22.

June 17
The Leeds & District Amateur Radio Society Rally
Contact: J. Mortimer M0JAM
Tel: (01943) 874650
This twice yearly traditional outdoor rally and car boot sale is being held at the Yarnbury Rugby Club, Brownberrie Lane, Horsforth, Leeds. There will be plenty of free parking for buyers.

June 24
Bangor and District ARS Summer Radio Rally
Contact: Norman GI3YMY
Tel: (0289) 146 6557
E-mail: normannewell@beeb.net club
Website: http://welcome.to/bdars
This summer rally takes place at Crawfordsburn Country Club, which is near Bangor, County Down. A good selection of radio and computer traders will be in attendance and there will be a bring and buy. Doors open at 12 noon, admission is £2.

Rally Cancellations: Due to the possibility of rallies and other Amateur Radio events being cancelled due to Foot & Mouth Disease restrictions, you are strongly advised to contact the organisers before setting off. For the full rally picture visit our website at www.pwpublishing.ltd.uk Editor

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

Letters Received Via E-mail

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

amateur radio **news**

A comprehensive look at what's new in our hobby this month.

Back on Air

Repeater resurrected

The 50MHz repeater GB3WX situated NE of Wincanton, is back on air.

On Saturday 7 April.at 1125 hours GB3WX sprang back into life. The repeater had been off air following modification to the logic controller, the DTMF and the data bit stream circuits having been disabled and isolated.

Don't forget that you can check-out the latest info on all the Wessex Repeater Group repeaters, GB3WA, GB3WX and GB3YS, at **www.twxrg.org.uk**

Useful Addition

New ATU

Have you got a Yaesu FT-817 or other similar QRP h.f. transceiver? If so this will interest you.

Waters & Stanton PLC have announced that they are introducing a 30W automatic a.t.u. for the Yaesu FT-817. The Z-11 a.t.u. is capable of matching a wide range of impedances from around 6 to 800Ω, which allows it to be used with any coaxially fed system and some medium impedance end-fed wire configurations.

The unit is triggered by r.f. and levels as low as 100mW are capable of driving it. Its comprehensive front panel controls enable it to be used as a fully automatic a.t.u. or with manual intervention for fine tuning. A by-pass position is also included and four l.e.d.s monitor the v.s.w.r. status.

The power requirements for the Z-11 are 11 to 15V and in keeping with QRP operation, the a.t.u. unit draws around 75mA whilst tuning and zero once tuned. The last tuning adjustment remains stored even when power is disconnected.

Measuring 127 x 216 x 32mm and weighing in at 425g the Z-11 features rear terminations in the form of SO-239 sockets. The price of the unit is expected to be around £190 with delivery expected in late May.

Waters & Stanton PLC, 22 Main Road, Hockley, Essex SS5 4QS
Tel: (01702) 206835. FAX: (01702) 205843. E-mail: info@wsplc.com. Website: www.wsplc.com

Final Reminder

Contest Cancelled

Due to the ongoing Foot & Mouth crisis the following action has had to be taken.

The Editor, **Rob Mannion G3XFD**, writes: Normally in this issue of *PW* readers would have read the rules, etc., for the annual 144MHz QRP Contest. However, I hope that by now all those who were looking forward to the annual day out in the countryside will have learned of, or read the news item in last month's magazine, that due to the tragic continuing onslaught of the Foot & Mouth disease epidemic, that **the 2001 event has been cancelled**.

The decision, taken jointly by Contest Organiser and Adjudicator **Dr. Neill Taylor G4HLX** and I, wasn't taken lightly. However, despite our disappointment we look forward to a very special contest next year which will coincide with *PW*'s 70th anniversary year. So, Neil and I look forward to working you on **Sunday 16 June 2002**!

Get On The Air

International Lighthouse Weekend

Planning for this year's International Lighthouse/Lightship Weekend is well under way. So, if you fancy taking part read on...

Last year's International Lighthouse/Lightship weekend was a huge success with over 200 Amateur Radio Stations being established at lighthouses and lightships. This year's event takes place on Saturday 18 and Sunday 19 August between 0001 to 2359UTC, when it's hoped many more stations will be active.

The event is not a contest and it is up to each individual station to decide how they will operate with regard to bands and modes. You are not required to be on air for the entire period of the contest and there are no restrictions enforced for antennas or power.

The idea of the weekend is for operators to have fun while trying to make as many contacts as possible at the same time as obtaining maximum exposure for Amateur Radio as a hobby. As space in many lighthouses is restricted the stations do not have to be set-up inside the tower itself, a field-day type set-up next to the light is permitted, providing permission is obtained.

Stations taking part are requested to add Light, LGT, Lighthouse or Lightship after their call. Usually UK stations will obtain a GB callisign with the letter L in the suffix to help other stations identify them as part of the event.

The event segment of the classic bands, 3.5, 7, 14, 21 & 28MHz with a centre frequency is used in case conditions are bad to ensure there is one place where contestors can 'meet'. The organisers request that centre frequencies are not used as primary frequencies.

A full list of stations already signed up for the event can be found on the Web at **www.vk2ce.com/illw/2001.htm** and full rules and further info can be found at **www.vk2ce.com/illw/index/html**

DXpedition Time!

Bardsey Island On Air

The North Wales Radio Rally Club are mounting a DXpedition to Bardsey Island from the 4 -11 August. The club are taking ten members in total and will be operating from Bardsey Lighthouse for the first three days and then operating from Plas Bach for the remaining time.

In 1999 the North Wales club ran a similar DXpedition to Bardsey Island for the very first time and had over 1000 contacts, it could have been more, but unfortunately they were very limited on battery power so had to cut back on operational time to allow the batteries to recharge. This year they are rectifying the power problem by purchasing a bigger generator and taking more batteries, this with the extra operators should enable the club to run the station for 24 hours in each day during the event.

It takes nearly two hours to reach Bardsey by boat and the group will have to load and unload the equipment eight times in all before they can begin to erect the antennas. Once set-up the DXpedition group will be active on all bands 1.8 - 50MHz from the 5 until the 10 August, as the 11th has been set aside for dismantling and packing ready for the boat.

For info and pictures on previous DXpeditions see **http://www.nwrrcw.org.uk**

Packet Advertising

Changes to the rules now mean you can use Packet radio to advertise Amateur Radio and computer related items.

With effect from 1 April 2001 the Radiocommunications Agency (RA) announced that Radio Amateurs are able to advertise either Amateur or computer related items via Amateur Radio. Following consultation with the Radio Society of Great Britain (RSGB) the RA stated that they would be allowing advertising over Packet radio for a trial period of one year after which a thorough review and overview will take place. The RA announced that future discussions will hinge on whether or not this facility should/could be extended to other modes/bands.

Radio Amateurs can place a **private** (not commercial) advertisement through their nearest available operational mailbox, where it will be held for viewing. Subject to the agreement of the SysOp the advertisement can also be passed onto other mailboxes. The SysOps would be responsible for ensuring that the advertisement complied with licence conditions. If this were not the case the SysOp will be required not to place the advert on their system.

For further information in connection with the licence conditions, refer to the Gazette Notice published on the RA's website under What's New. Alternatively, further information is available by telephoning them direct.

Radiocommunications Agency
Tel: 020-7211 0211
Website: www.radio.gov.uk

Mini Beams

Canadian Antennas

Do you have a small garden? Looking for a multi-band h.f. beam ? Look no further.

Candian Company T.G.M. have recently added two 3-element h.f. beam antennas to their range of compact multi-band antennas. Sold in the UK by Waters & Stanton PLC the MQ3 and MQ4 have been designed to improve gain and front-to-back ratio whilst still keeping their compact size.

The MQ3 is a four band version, retailing for £399 and the MQ4 covers six bands and costs £499. Additionally upgrade kits are available to convert the orignal 2-element beams to 3-element versions. For the full spec or to order contact Waters & Stanton direct.

Waters & Stanton PLC,
22 Main Road,
Hockley, Essex SS5 4QS
Tel: (01702) 206835 FAX: (01702) 205843
E-mail: info@wsplc.com
Website: www.wsplc.com

Special Event Station

On Air For 60th Anniversary

The RNARS will be taking to the air-waves in May to activate GB2HA once again.

On 24 May it will be the 60th anniversary of the sinking of HMS *Hood.* to mark this event a special event station is going on air on **26 May** at the QTH of Malcom G0LMD, station manager for GB2HA.

HMS *Hood* was built at Clydebank and launched by Lady Hood on 22 August 1918. Before she met her tragic end HMS *Hood* is said to have been the largest, heaviest and fastest armoured warship in the world.

On the 22 May 1941 HMS *Hood, Prince of Wales, Achates, Antelope, Anthony, Echo, Electra* and *Icarus* all sailed from Scapa Flow in search of the *Bismarck* and *Prinz Eugen*. On the 24th HMS *Hood* and *Prince of Wales* took on the *Bismark* and was struck and sunk with only three survivors.

In 1975 the *HMS Hood* association was formed by ex *Hood* ship's company and the membership is now world-wide. The special event station GB2HA first went on air in 1975.

To work GB2HA on the 26 May listen out on the 3.5, 7, 14 and 144MHz bands. For more information on the HMS *Hood* Association look at their website at **www.hmshood.com**

amateur radio **shows**

RSGB Spring Show

Did you go the RSGB's Spring Show & VHF Convention? We did and to give a you a taste of the two day event here's the lowdown.

The first **RSGB's Spring Show & VHF Convention** took place over the weekend of 7 & 8th April at the Bletchley Leisure Centre, Milton Keynes. The rally was attended by several of the major radio manufactuers, dealers and specialist interest groups.

Situated just outside Milton Keynes close to Bletchley Park, home of the ENIGMA machine, the rally took place in the leisure centre's sports hall thus keeping all exhibitors together in one hall. Visitors to the rally came from as far afield as Scotland and even Europe and ticket sales topped 2500 visitors. As the rally was combined with the VHF Convention visitors had the opportunity to attend a variety of lectures over the two days covering everything from Beginners Microwave to the VHF Open Forum. For a snapshot of the event check out our photo file below.

Communication takes on many forms! Semaphore was just the job for directing the traffic and these girls were doing a great job.

Plenty to see, loads to buy and bargains to be found. Although all the exhibitors were in one hall there was plenty to look at!

Smiles all round! The Moonraker men, Charles and son Justin. Their stock of antennas and accessories is varied and vast. Look out for them at other shows and you'll see what we mean.

More men in black! This time it's the Icom team, Mark Jarvis and Chris Ridley eagerly await the crowds to demonstrate the new IC-910H all-mode transceiver.

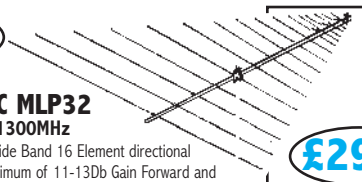
Would you buy a copy of *PW* from this man? - plenty of you did as you can see from the depleted shelves on our 48ft stand!

The original men in black? Martin Lynch's team were there in full force with radios galore and bargains in abundance.

www.scannerantennas.com

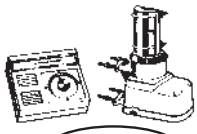
E&OE

£99.95



LOG PERIODIC MLP32

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

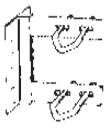


ROTATOR AR-300XL

* Rotation Torque-222Kg
* Vertical Load-45Kg
* Mast Size - 28-44mm
* Control Box-230v AC
* Cable-3 core
* Direct Compass Bearings

(Ideal for Light to Medium Beams, i.e. LOG PERIODIC above.)

£49.95



6" STAND OFF BRACKET

Complete with 'U' Bolts

£6.00

9" STAND OFF BRACKET

Complete with 'U' Bolts

£9.00

MD37 SKY WIRE (LONG WIRE BALUN KIT)

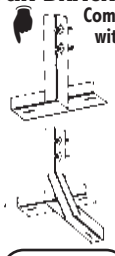
25 METRES OF ENAMELLED WIRE & INSULATOR

FOR USE ON WITH RECEIVER 0 - 40 Mhz. ALL MODE NO ATU REQUIRED 2 "S" POINTS GREATER SIGNAL THAT OTHER BALUNS. MATCHES ANY LONG WIRE TO 50 OHMS IMPROVED RECEPTION

£29.95

T&K BRACKETS

Complete with 'U' Bolts



12"- £10.95
18"- £14.95
24"- £18.95

5' SWAGED POLES

Heavy Duty Ali (1.2mm wall)

SINGLE 1 1/4"..... £6.00
SET OF FOUR 1 1/4". £19.95
SINGLE 1 1/2"..... £9.00
SET OF FOUR 1 1/2". £29.95

CONNECTORS

PL259/9	0.75 each
PL259/6	0.75 each
PL259/7 for mini 8	1.00 each
BNC (Screw Type) 8	1.00 each
BNC (Solder Type) 8	1.00 each
N TYPE for N58	2.50 each
N TYPE for RF213	2.50 each
SO239 to BNC	1.50 each
PL259 to BNC	2.00 each
N TYPE to SO239	3.00 each
Amalgam tape 10 metres	£7.50

CABLE

RG213 MILITARY 0.85 per mtr.
MINI RF8 ..... 0.85 per mtr.
RG58 STANDARD 0.35 per mtr.
RG58 MILITARY 0.60 per mtr.

£29.95

SUPER SCANAIR BASE (Airband)

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

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

£29.95

SUPER SCAN STICK

Freq. Range 0-2000MHz Length 1000mm

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

£39.95

SUPER SCAN STICK II

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

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

£39.95

MULTISCAN STICK

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

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

£89.95

IVX 2000

Freq. Range Receive - 0-2000 MHz. Transmit 50 - 52 MHz gain 2.00DBd 144 - 146 MHz gain 4.00 DBh 420 - 430 MHz gain 6.00 DBd Length 2.5 m.

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

£49.95

MULTI SCAN STICK II

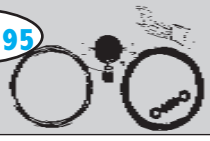
Freq. Range Receive (0-2000MHz) Transmit (144-146 MHz) Gain 4.00Dbd (420-430 MHz) Gain 6.00Dbd Length 1500mm

Same as Super Scan Stick but with extra gain, makes it an even better antenna for the amateur and expert alike. *(Ideal for the Ham Radio user)*

MWA HF Wire Antenna Mk11

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

£59.95



£49.95

SWP 2000 FREQ. 25 - 2000 MHz. Length 515mm.

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

£29.95

SWP HF30

Freq. Range 0.05-30MHz Length 770mm

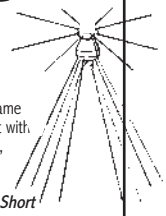
Although small, surprisingly sensitive for the H.F. user. Fitted with two suction cups for ease of fitting to any smooth surface (i.e. inside of car window) comes with 5 metres of mini coax and BNC connector. *(Good for the car user who doesn't want an external antenna.)*

£39.95

HF DISCONE

Freq. Range 0.05-2000MHz Length 1840mm

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



TRI SCAN III

Freq. Range 25-2000MHz Length 720mm

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

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ROYAL DISCONE 2000

(Stainless Steel)
Freq. Range Receive 25-2000MHz Transmit 50-52MHz 144-146MHz 430-440MHz 900-986MHz 1240-1325MHz Length 1540mm Connector-N TYPE

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

£49.95

SUPER DISCONE

Freq. Range 25-2000MHz Length 1380mm

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

£39.95

MRW-100

(Super Gainer) (Rubber Duck) Wideband extra sensitive Dedicated VHF/UHF all mode Length 400mm. P.P £2.00

£19.95

WEATHER SATELLITE ANTENNA

TURNSTILE 137

Freq. 137.5 MHz Length 1000mm

(Simple and easy to install a must for the enthusiast who has it all.)

This Antenna is designed for external use to receive weather satellite signals.

Complete with mounting hardware.

£39.95

MRW-40 (Rubber Duck)

Dedicated for Civil & Military Airband VHF/UHF RX & TX Capabilities Length 215mm. P.P £2.00

£19.95

MRP-2000 (Preamplifier)

Freq Range 25-2000 Mhz 9-15v input (Battery not included) 14 db Gain. Complete with lead and BNC connectors.

£49.95

MRP-125 (Preamplifier)

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

£44.95

G. SCAN II

Freq. Range 25-2000 MHz.Length 620 mm.

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amateur radio trade

What's going on in the UK's Amateur Radio trade this month?

Icom Odyssey

Icom in the Pacific

Icom equipment is set to make a 5000 mile journey across the Pacific ocean - want to know why? - then read on.

Icom (UK) are lending their support to two British Marine Commandos by donating two IC-M1EuroV waterproof transceivers, four IC-446S licence free transceivers and a selection of accessories to them as they attempt to row across the Pacific Ocean from West to East in their boat *Crackers.* The Pacific Odyssey team consists of Corporals Tim Welfrod and Dominic Mee who will set out in May from Choshi, on the most easterly point of the Japanese mainland and row into the east-flowing Kuroshio - 'black current', which is described as the strongest current in the world, as they head towards the San Franciso coast.

The two IC-M1EuroV's will be used to keep the team in touch by ship to ship communication while the IC-446S' will be used to co-ordinate the departure from Choshi harbour and arrival in San Francisco. Icom equipment has been successfully used before in a similar venture in 1997 and so was the obvious choice this time.
So radio really can help you travel the world and the sea too!

Icom (UK) Ltd.,
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Herne Bay,
Kent
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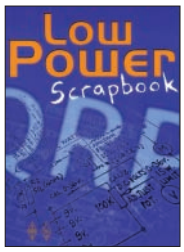
FAX: (01227) 741742
E-mail: info@icomuk.co.uk
Website: www.icomuk.co.uk

Amateur Radio Books

New Titles To Add To Your Bookshelf

Low Power Scrapbook

Keen on construction? Enjoy working with low power? If the answer is Yes - Rob Mannion G3XFD has news of a new book from the Radio Society of Great Britain which could provide you with many hours of pleasure.



The **Rev. George Dobbs G3RJV**, and the work of the **G-QRP Club** are well known to *PW* readers. George's column in the magazine provides much pleasure for keen constructors but unfortunately (by not being a member of the G-QRP itself) many readers may have missed a number of the projects produced in *Sprat*, the G-QRP Club's journal. However, if you're not a member of the club to a certain extent you can now make up for it by buying a copy of the *Low Power Scrapbook*.

This new compilation of projects published in *Sprat*, follows on from the *G-QRP Club's Circuit Handbook* (a compilation of articles published between 1975 and 1982) privately published booklet. The new A5-sized edition is much smaller in format than the original and it's literally jam-packed with projects and ideas.

Keen constructors will find an enormous amount of basic ideas, complete projects and enough material to keep them busy for very many years. The typeface size used **is rather small**, and the print quality and drawings are very much of the home-brewed style already familiar to anyone who has seen or read *Sprat*.

Reproduction quality of some of the photographs and drawings have also suffered somewhat because of the reproduction process from the originals. Despite this, I have no hesitation at all in giving my highest recommendation possible to this book which has already given me much pleasure. It has 320 pages of inspiration for the most jaded constructor! **Very highly recommended.**

The *Low Power Scrapbook* is available from the PW Book Store for **£12.99 plus P&P.**

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Website: www.pwpublishing.ltd.uk

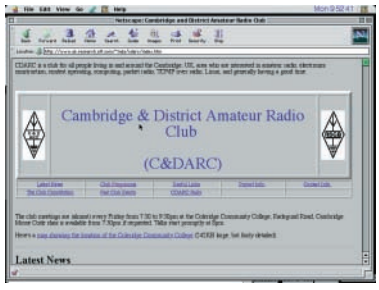
amateur radio clubs

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

CAMBRIDGE

Cambridge & District ARS
Contact: Clive Hollins
Tel: (01223) 573705
E-mail: g8bou@dial.pipex.com
Website: http://www.uk.research.att.com/~mda/cdarc/club_programme.htm

The Cambridge club programme is varied and packed, here's a taste of what to look out for in the coming weeks: **18 May**: Project GDO/Freq counter debug by **M0BLP**; **25 May**: Tesla coil demo and talk by **Jenny Bailey G0VQH**; **1 June:** ATV Operating evening at 1.3GHz; **8 June:** Designing the AZ/EL antenna controller. Further details on club events are published and regularly updated on the club web page.



EASTBOURNE

Southdown ARS
Contact: Glynn M0CHO
Tel: (01323) 765731

The Southdown Club meet on the first Monday of the month at 1930 hours at Chaseley Home, Bolsover Road, Eastbourne, and each Friday at Hailsham Lagoon. Club nights to look out for are: **4 June:** "Short History of Timekeeping", **by Bob Munroe** and **2 July**: "Systems and noise" by **Mike Christienson G8FCD.** Visitors are very welcome.

MIDDLESEX

Edgware & District Radio Society
Contact: Bill G0STR or David G5HY
Tel: 020-8958 1255 eves or (01923) 655284 days/ 020-8954 9180 eves

The Edgware club meet at 2000 hours at the The Watling Community Centre, 145 Orange Hill Road, Burnt Oak, Edgware, Middlesex on the 2nd & 4th Thursdays of the month. Go along on **14 June**: Surplus Equipment Sale; **28 June**: VHF Field Day Briefing.

WORCESTERSHIRE

Redditch Radio Club
Contact: Ray Mutton G3VET
Tel: (01789) 762041

The Redditch Club meet on the 2nd Thursday of the month at the WRVS Centre, Evesham Street, Redditch, Worcester. The club welcomes new members and would love to see you at the Three Counties Radio & Computer Rally on the **13 May** which they are involved in. The rally takes place at Perdiswell Leisure Centre, Bilford Road,Worcester from 1000 hours. Admission is £2 with free car park, talk-in on S22, trade stands, flea market, special interest groups, licensed bar, catering, free raffle. For more info call **John G8MGK** on **(01527) 545823** or **(07808) 272080** or look at **www.qsl.net/gb2tcr**

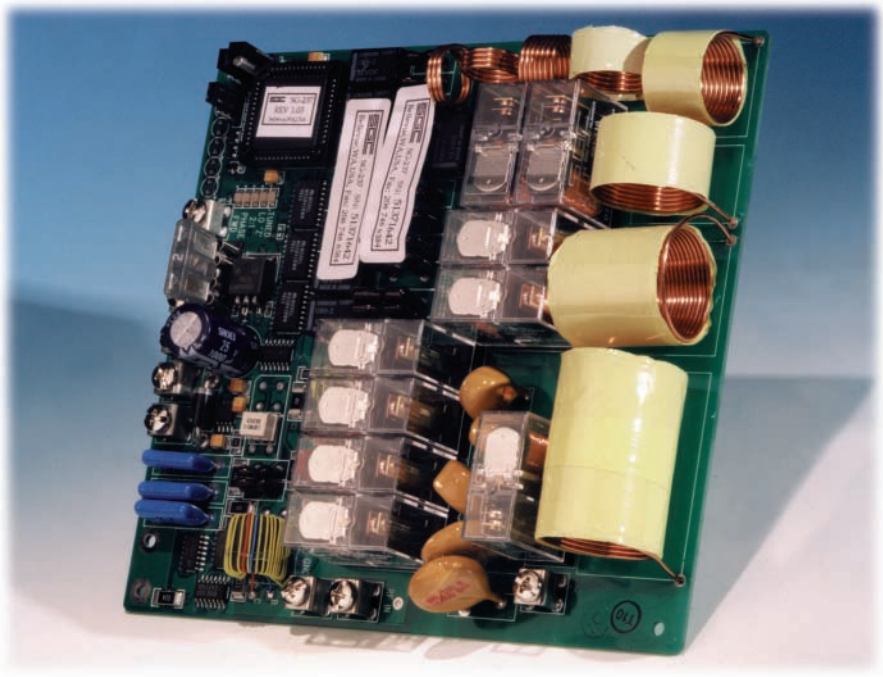
YORKSHIRE

Wakefield & DRS
Contact: John G7JTH
Tel: (01924) 251822
Website: http://www.wdrs.org.uk/

Meeting on Tuesdays at 2000 hours at the Ossett Community Centre, Prospect Road, Ossett, West Yorks.the Wakefield Club look forward to welcoming you to the following meetings: **5 June:** Crystal set competition judging; **12 June:** On-the-air/natter night and DF tutorial; **19 June:** 144MHz DF foxhunt competition and **26 June**: QRP - talk by **George Dobbs G3RJV**

SPECIAL PRIZE COMPETITION

WIN! AN SGC-237 AUTOMATIC ANTENNA TUNER



In the January issue of *PW* **Rob G3XFD** reviewed the 'add-on' auto a.t.u. printed circuit board unit from SGC. He found it to be extremely useful and worth considering if you want to add an auto a.t.u. to an older rig.

The unit retails for £199.95 but this month we're offering you the chance to win one thanks to the generosity of Waters & Stanton PLC. So what are you waiting for have a go! If you want to read the review back copies of the January issue are available for £2.75 from the Book Store, **Tel: (01202) 659930.**

M	G	U	N	A	U	T	O	M	A	T	I	C	R
L	W	T	J	O	T	F	Q	V	N	G	F	H	Z
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H	W	A	Z	K	N	I	U	Y	S	E	G	T	G
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V	N	N	P	X	R	D	E	W	T	P	D	P	S
B	A	Z	B	W	B	H	X	S	T	U	N	E	R
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WORDS TO FIND:

Add
Antenna
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Board
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Printed
SGC
Stanton
Tuner
Unit
Waters

Wordsearch rules:

Twelve different words have been hidden in the letter grid. They have been printed across (forwards or backwards), up and down, diagonally, but they are always in a straight line without odd letters between. You can use the letters in the grid more than once for different words. Once you have found all 12 words, mark them on the grid and send it, along with your name and address (photocopies accepted with the corner flash) to our editorial address by **2 July 2001**. The first correct entry drawn from the Editor's hat will win!

Name .....

Callsign .....

Address .....

.....

.....

Postcode .....

☐ I do not wish to receive future correspondence and mailings as a result of entering this competition.

Send your entry (photocopies acceptable with corner flash) to: **SGC Competition, June 2001 PW, PW Publishing Ltd., Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW**. Editor's decision on the winner is final and no correspondence on his decision will be entered into.

SGC COMP June '01

Hello and welcome to the occasional column that, although it's called Tex's Tips and Topics, it's really about your ideas and tricks that you have. So, how does it work you may ask!

Tex's Tips & Topics

Well, to answer the question above, think about that simple trick you have been using, maybe for many years but you've not seen it mentioned anywhere else. We would like to know what that trick is. For every tip published in this column a £5 book voucher, to spend in our bookstore, goes to the person telling us.

In addition to the first £5 voucher, we offer another £5 voucher to the tip considered to be the neatest one of the month. It need not be complicated, just a rather simple, but clever trick to achieve an end. So, get writing!

First off this month is the first of two tips from **Jim Brett G0TFP**, who is no stranger to readers. Jim's first tip concerns trying to clear track from Veroboard. But I'll let him describe it in his own words.

Track Cutting

Jim says: "Cutting the unused part of the track with a drill or track cutting tool after the connecting points is all very well. However at h.f. an adjacent track can produce coupling to the other side of the break or simply have other interfering effects.

"The ideal solution is to remove the unwanted track completely. When experimenting with h.f. circuits I have on occasions striped out alternate tracks before starting to lay out the circuit.

"This can easily be done by first tinning well the whole length of the unwanted track and leaving plenty of solder on it. A piece of wire is soldered to one end of this track and once the solder has set but the track is still hot a sharp tug on the wire will pull off the whole length of track cleanly".

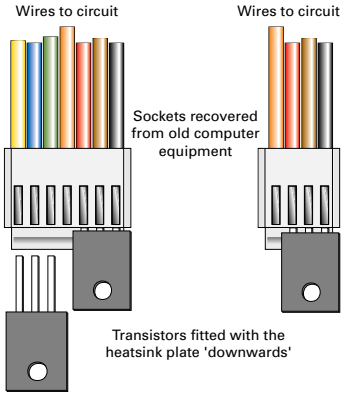

Fig. 1: A simple idea for using old computer connectors, sent in by Mike G7PWL. See text for more detail.

Who's Next?

Well that's the first voucher given away, so who's next? Well the next £5 goes to **Mike Turnbull G7PWL**, who enclosed a transistor mounted on a recycled computer lead. Look at the illustration of **Fig. 1** to see how it works. Mike says that he often has trouble soldering some components and transistors are one of the items he struggles with - but no more! He now uses free sockets recovered from old computer and electronics units, that would otherwise be thrown out.

There are two basic types of sockets around, those that mate to square pins and others that mate with flattened pins. Using two sockets, it's even possible to use the pair in parallel on integrated circuits that have two rows of pins, such as the TDA2003 and similar devices. Or you can put a pair of transistors into the one socket.

Stereo to Mono

Back in the February issue of *PW* there was an adapter allowing personal stereo 'phones to be used for either stereo or mono on a stereo output. From George Fisk come a related idea for using stereo or mono 'phones on a mono audio output as shown in the illustration of **Fig. 2**.

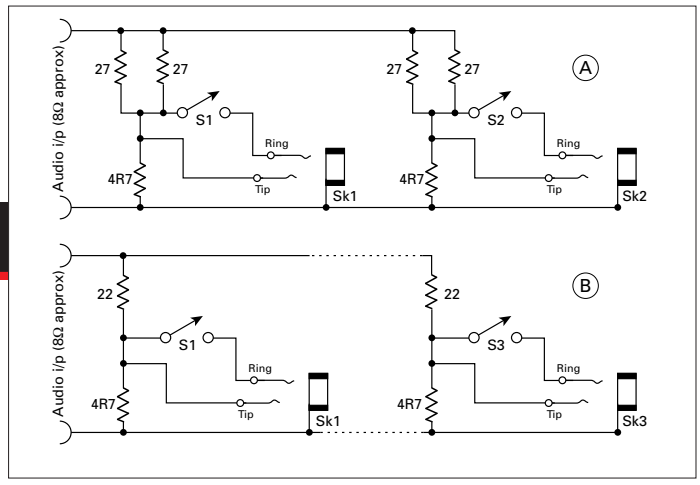

Fig. 2: Two or three headphones coupled up to a radio's mono output from George Fisk. See text for more detail.

The two circuits shown in Fig. 2 are two or three-way headphone adapters, allowing the use of mono, or stereo, headphones on the mono output as is found on many communication receivers. The individual switches are all shown in the 'mono' headphone position.

The circuit allows proper matching (about 8Ω) for most radios and a reasonable output level to be provided. The resistors should be at least 0.6W rating. Ideally the larger value resistors should be 1W rating. In the lower part of Fig. 2, there should be an identical network to the ones shown.

One more voucher on its way! And for the final voucher for this month, we turn again to Jim Brett.

Garden Shunts

Jim's final offering for this month is garden wire for shunts. He writes: "Using a milliammeter from the junk box for high currents of say a power supply can present a difficulty in making a shunt. Fortunately heavy duty steel plastic covered garden wire can provide the answer.

"Unfortunately however, it does require a bit of hit and miss experimentation. After a couple of tries however a relationship between the length of wire and the full scale deflection should be established. The steel wire is not difficult to solder if it is well cleaned with emery paper. Plumber's flux makes it easier, but this must be cleaned off after soldering as the residue can cause corrosion.

"I always make the circuit connections to the shunt end wires by solder or terminal blocks rather than use the actual meter terminals. This ensures that should the meter terminals work loose no damage to the meter occurs".

The Winner!

And this month's winner of the best idea voucher is: Well my choice may not be the same as yours, but my vote goes for the idea about using old computer connecters by Mike G7PWL. However, I must congratulate all of you that have sent ideas in. Other ideas will appear "in the fullness of time" as one of my old teachers was fond of quoting! See you next time.

Tex

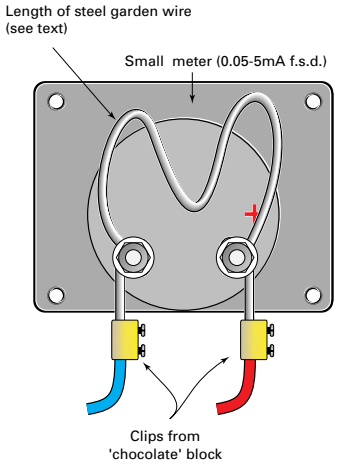

Fig. 3: Jim Brett's idea for making your own high current shunt, with steel wire from the garden. See text for more detail.

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

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40 mtrs	Traps	(a pair)	£25.00 P&P £4
80 mtrs	Traps	(a pair)	£25.00 P&P £4
10 mtrs	Traps	(a pair)	£25.00 P&P £4
15 mtrs	Traps	(a pair)	£25.00 P&P £4
20 mtrs	Traps	(a pair)	£25.00 P&P £4

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R-6000	Vertical 6, 10 , 12, 15, 17, 20m	~~£299.00~~	£269.95
X-7	7 ele 10, 15, 20m	~~£549.95~~	£449.95
X-9	9 ele 10, 15, 20m	~~£799.95~~	£699.95

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QT-100 GF 144/70, 3/6dB (1.1m)	£39.95
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MOBILE ANTENNA

P&P £7.00

DB-770M	2m/70cm (3.5 - 5.8dB) 1m PL-259	£24.95
DB-7900	2m/70cm (5.5 - 7.2dB) 1.6m PL-259	£39.95
PL-62M	6m + 2m (1.4m) PL-259	£19.99
MA5M	(20 - 10m) 3/8" fitting	£29.99
CA-HV	(20m - 6m/2m) PL-259	£89.99

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Flexweave (PVC coated 20 mtrs)	£18.95 P&P £5
Flexweave (PVC coated 50 mtrs)	£40.00 P&P £5
PVC coated earth wire (6mm) 15m roll	£10.00 P&P £5
Copper plated earth rod (4ft)	£13.00 P&P £6
Copper plated earth rod (4ft) + 10m wire	£18.99 P&P £6

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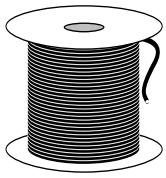

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Wimdoms are ½ or end fed.....P&P £7.00

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

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LIMITED STOCK
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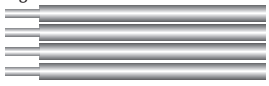

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ALL MEASUREMENTS ARE APPROX

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Fibreglass available up to 5m lengths.

NB. WE CAN ONLY DELIVER UP TO 2.5M LENGTHS

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6 section telescopic masts. Starting at 2½" in diameter and finishing with a top section of 1¼" diameter we offer a 8 metre and a 12 metre version. Each mast is supplied with guy rings and stainless steel pins for locking the sections when erected. The closed height of the 8 metre mast is just 5 feet and the 12 metre version at 10 feet. All sections are extruded aluminium tube with a 16 gauge wall thickness.

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Telescopic mast lengths are approx.

Tripod for telescopic masts.....£89.95

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18"	T&K Brackets	£18.00 P&P £8
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Radio Basics

Rob Mannion G3XFD looks at the basic moving coil meter, one of the most useful aids you can have in the radio workshop. In preparation for the next Radio Basics project he introduces you to this often overlooked instrument.

Fig. 1: Moving coil meter units galore! A selection of meters from the G3XFD and G1TEX collection. The large square meter at the rear (with right hand zero) was rescued from a redundant Band III v.h.f. 405 line television transmitter. The two large round types on the right are useful surplus units which both feature large single hole ring nut fixing methods (see text).

Most Radio Amateurs of my vintage, in other words those who have been in the radio hobby for 40 years and more, have been brought up with the moving coil meter instrument. They have been and continue to be extremely useful for the radio hobbyist.

Unfortunately, though, nowadays the trend is away from the analogue type of instrument as it's often now replaced by an illuminated light emitting diode (l.e.d.) bargraph type indicator or the liquid crystal display (l.c.d.) equivalent. This can be to our advantage because the moving coil instrument is seen by some people as being obsolete and is often available as surplus.

On the other hand, with the exception of electronics coming from the Island of Taiwan where smaller factories make literally everything they require in-house, moving coils meters are fast disappearing from equipment. So, when you see them on sale, **my advice is to buy, because they will always be useful!**

Host Of Types

The meter, as it's usually called has been available in a host of different sizes, types, shapes and full scale deflection (f.s.d.) movements. The photograph, **Fig. 1**, even though it gives an indication of the variety of sizes and shapes to be found, provides only a tiny clue to the huge numbers of different instruments to be found.

Recently, I was surprised to see that I had over 50 different style moving coil units! And there was only one type, the small round meter in black aluminium in Fig. 1, to be found in quantity. The reason? - I bought a dozen or so of these little 1mA f.s.d. movements at the Picketts Lock Amateur Radio show a few years ago for £1 each. A real bargain!

However, for the beginner in radio construction there are several pitfalls to avoid when buying unknown meter movements. So, I intend to help you avoid them so you won't be put off using these beautiful pieces of miniature engineering to your advantage.

Note: Most of the meters we - as constructors - will come across are of the **basic moving coil type**. Various specialist instruments such as the electrostatic, radio frequency thermocouple, galvanometer and moving iron types are best left alone until you specifically need one.

Full Scale Deflection

Moving coil meter movements are made with what's referred to as **?A/mA, A** (the ? mark refers to the quoted current) full scale deflection, a term I've already mentioned. So, what does it mean?

In simple terms f.s.d. is the current required to provide full scale deflection of the meter's indicating needle or pointer to the right (normally) and (in some special cases) to the left. This movement is provided by electromagnetism as the stated current flows through a tiny coil which is mounted inside the field of a very small magnet with the poles shaped to accept the moving coil unit.

The diagram in **Fig. 2a**, shows the heart of a simple moving coil meter: **the magnet**. Note how the pole pieces are shaped to accept the moving coil unit itself.

Incidentally, if you look carefully at most meter movements you'll be able to see how the magnet and the moving coil itself is placed between the pole pieces. It's a beautiful example of engineering isn't it? Even the cheapest movement reminds you of the watchmaker's art - especially when you see the hairspring (used to tension and bias the indicating needle to the left (usually) for the reference datum.

The diagram in **Fig. 2b**, shows (in very simplified form) the basic moving parts of the moving coil unit. The hairspring, as previously mentioned, keeps the pointer/needle to the left, and there's usually some form of simple adjustment which allows the pointer to be moved a few degrees from left to right for calibration purpose. This adjustment can sometimes be achieved from outside the meter, via an externally mounted screw adjuster.

Note: Please don't be tempted to dismantle a moving coil meter unless you're

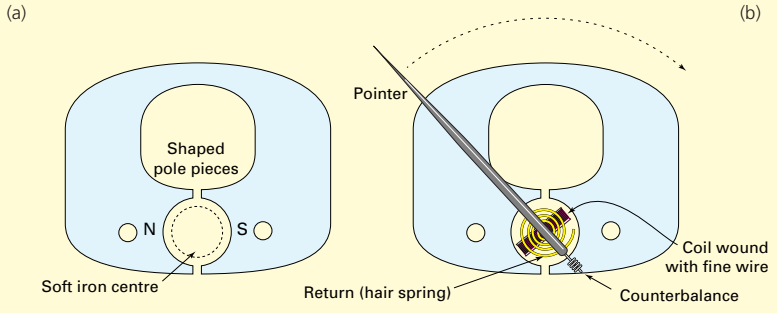

Fig. 2: (a) The heart of a moving coil meter movement is the specially shaped magnet. Note how the pole pieces are formed to enclose the moving coil movement itself. (b) The moving coil unit in place. In this simplified illustration support components are omitted for clarity but the hairspring which rotates the pointer to the datum reference (0) is shown, with the moving coil winding, wound over a special former/core, directly below (see text).

experienced in clock and watch repairs! Your enthusiasm can be disastrous - and I speak from experience of course! The only time I suggest you go inside a meter movement is to check for shunts (**see later comments**) and to paint over a scale - if necessary - for your own purposes. Apart from that...I advise you leave them well alone.

The pointer, Fig. 2b, is usually made of aluminium and is very delicate. Despite this it will withstand many collisions (due to overloads) with the stop at the end of the scale, provided you leave it alone!

The moving coil itself is mounted between the pole pieces, often using jewelled bearings in the same way they're used in watches. The winding itself is wound over a specially shaped former and the connecting wires can go directly to the connectors on the rear of the meter, or to an internal shunt (**see later**) or other internal components - depending on the unit and its function in circuit.

When a current is passed through the windings on the moving coil unit the electromagnetic field associated with winding produces repulsion and attraction forces due to the permanent magnet's field and that of the moving coil. (Don't forget that the coil's magnetic field only exists when current is flowing). The movement is then either rotated (or repelled) to the left or right, depending on the design of the meter, although the vast majority indicate from the left to the right.

Important note: Most moving coil meter units are polarity dependent. In plain English this means that the needle will move to the right and indicate that current is flowing through the moving coil unit when the correct polarity is observed*. So, when applying current, ensure that the terminal on the meter marked with a **+** sign (positive) goes to the positive side of the supply but not before you've taken the precaution outlined in the next but one paragraph.

*There's **always an exception** and if you come across a central-zero-reading meter movement you'll see what I mean! Keep the meter in stock for use later on...you can never have too many in your workshop in my opinion.

Tiny Fraction

My late Father often said to me "If you only learn a tiny fraction from the mistakes you make in life Rob you'll end up a wise man". He was right!

Never one to hesitate in telling a story to prick my own pomposity I must warn other keen constructors: **When buying surplus/second-hand never be fooled by what's marked on a meter scale**. It might be scaled in Amps, or hundreds of milliamperes or volts but could still be plain nonsense because the scale may (if there's no internal shunt or series resistance fitted to the meter) assume that the correct value external components have been used as it may have been during the meter's original role in other equipment.

I've lost count the number of times I've damaged a meter because I've been misled by what's marked on the dial. So, forewarned is forearmed and RB readers won't fall into the same trap!

The sub-heading for this section - Tiny Fraction - was deliberately chosen because in effect that's what a shunt used in conjunction with a meter does: it allows only a tiny fraction of the current flowing to pass through the instrument. The rest passes through the shunt (shunted into a siding you might say).

We'll be dealing with shunts and series resistances for meters when the next RB project, making your own test-meter, starts in the next month or so. However, so that I can concentrate on presenting the project to you at that time - I'll briefly explain a little more now. So, please pay attention to the Radio Basics blackboard information panel on page 23!

Next time I'm planning to describe a very simple - but robust - test meter project using a moving coil meter. Providing you don't require superfine accuracy it will prove very useful in the workshop. Cheerio until then.

PW

Information Board

Meter shunts: A meter shunt does exactly as the name suggests - it provides an electrical method of shunting the majority of the current in the circuit to be monitored away from the meter movement. In practice the value of the resistance which forms the shunt, is calculated so that enough current is available to provide full scale deflection (f.s.d.) of the instrument when that amount is flowing in the circuit. In practice most meter movements are relatively low reading (one milliampere - 1mA - is a very common rating) so if the meter is required to monitor a maximum current flow of 100mA in a circuit a shunt is required. This shunt will allow 99mA to flow through the resistance (forming the shunt) and the remaining 1mA to pass through the meter circuitry. So, with the correct value shunt we can safely use the 1mA f.s.d. meter to indicate the 100mA current.

Warning: Never assume that a shunt is already fitted to a meter. **Always assume that no shunt is fitted**.

Series Resistance: For a meter movement - let's assume we're using a 1mA f.s.d. instrument - to be used to indicate voltage, an external resaistance will be required. In effect this allows a maximum current (to allow maxium deflection of the meter's needle) to flow through the circuit's meter-resistance combination. The meter's scale can then be calibrated in volts, and when the combined circuit is placed across a d.c. voltage source, a reading will be obtained. Alternatively, in conjunction with a known voltage, the current flowing can then be read (via an appropriately calibrated scale) as resistance in ohms (Ω) - the basis of the very familiar test-meter.

Please note: this is an extremely basic explanation and does not take into account very high voltages, insulation and safety. Always take care with electricity - especially as most of us work alone in our workshops. Even 12V from a car battery can cause problems, particularly if you inadvertently cause a short circuit/overload due to low a resistance in circuit!

Internal resistance: The resistance offered by the internal circuitry of a meter movement. This has to be taken into account when calculating series/parallel resistance calculations (for voltage, current and resistance measurements). More on this topic in later RB columns.

Meter load: When storing or transporting moving coil meters it's a good idea to short out the terminals with a short length of wire. This (because the movement generates current itself as it bounces around as it moves) provides a resistive load and reduces the chance of damage.

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* 30 Memory Channels
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KENWOOD

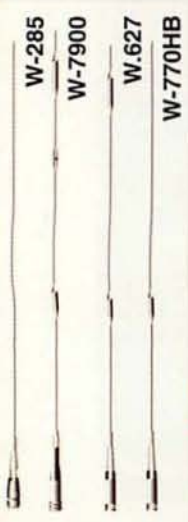
TM-D700E

2m / 70cm Data Mobile

£449 Plus £7.50 Carr.

SAVE

Just arriving, this new model has built-in TNC, port for GPS, Data connector for SSTV, RTTY etc., CTCSS/DCS, Switchable TX/RX deviation, Dual receive, Wide receive option, Detachable head unit, 50 Watts on 2m, 35 Watts on 70cm, 200 memories, Alpha tag memo capability and a lot more. And who has the best price? - look no further!



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IC-910 VHF/UHF Transceiver - The new IC-910 from Icom with 100W on 2m and 75W on 70cms, plus the option of 1.2GHz. Well placed to take advantage of satellite operation, you can simultaneously operate 2 bands at once. Optional 23cms + £400

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SCOOP!

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In Full Colour!

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* Colour TV Screen
* Full CTCSS and 1750Hz Tone
* 50W 2m 35W 70cm

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Includes FREE Remote head cable.

KENWOOD

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* 6W Output on 13.8V DC
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* Built-in Packet Modem
* 200 Alphanumeric Memories
* DTMF Keypad & AM Airband
* Ni-cads & AC charger

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FT-90R Can you believe the size?

2m/70cm Dual Band

SAVE

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The tiny dimensions of the FT-90R from Yaesu, are hard to believe. Yet it produces 50W on 2m and 35W on 70cm. Auto repeater shift on UK channels and switched 12.5 / 25kHz deviation, make this a number one choice.

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AM Airband Receive

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* 2m 50 Watt Mobile Airband Receive
* Full CTCSS Encode / Decode
* 81 Memories 25 / 12.5kHz Steps
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If you want to receive data, then connect the audio output of your receiver to the WMM-3 and the output of the modem to your PC serial socket. A CD-ROM is provided with lots of software, this will get you started.

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* 50W and 35W
* Full CTCSS
* 180 Alphanumeric Memories
* Detachable Head with Amber Display

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* 50W and 35W
* Wideband RX AM & FM 208 Memories
* 7 Tuning Steps DTMF Remote Front panel
* Very compact, supplied with all hardware.

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* 50W 2m, 35W 70cm
* Clear LCD Readout
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● **Don't be misled! The simple front panel lay-out and the minimum of controls bely the fact that the DSP-599zx is an extremely versatile and powerful main station audio signal processor.**

Processing Luxury

The Timewave DSP-599zx

Rob Mannion G3XFD takes another look at a digital processing unit he referred to as "An incredible package" in 1998. But now he's had more experience with DSP... has he changed his mind? Read on to find out...

I first tried the Timewave DSP-599zx digital signal processing (DSP) unit and published my opinions in the January 1999 issue of *PW*. However, since then there have been many developments and I've also had much more experience with DSP so I thought...let's take another look to see if my initial enthusiasm had changed.

Additionally, from the letters and E-mails I've had from readers tells me that many people are confused by the claims made on behalf of DSP equipped Amateur Radio transceiver, etc. So, this gave added support to my idea to take this second look at the Timewave, and also try to demonstrate, through my writing, just how effective they can be...but in simple practical terms.

Since 1999 I've had new equipment in my workshop and shack and have extended my working collection of Amateur Radio transceivers. Most of the rigs in my collection don't come with DSP - on the other hand I do know many such transceivers are in service with you - the reader.

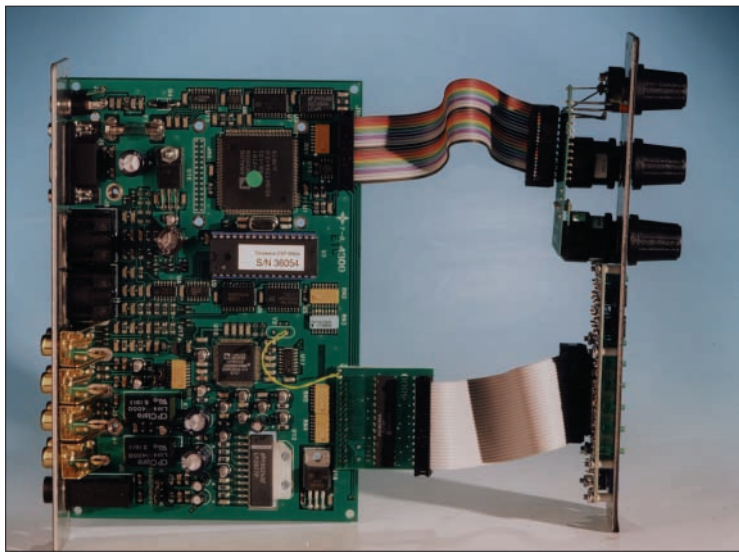
The main rigs I've now got include my two work horse DX-70s, a Kenwood TS-850, Yaesu FT-100 (I was looking forward to using that on the *PW* QRP Contest this June), and an old and trusted Trio TS-9000 144MHz transceiver. Also (in my vintage collection) I have various Eddystone receivers, two KW2000B transceivers (visitors to the *PW* office can see one on my desk), and my original and much loved Yaesu FT-75.

First DSP Thoughts

My first real thoughts on buying equipment fitted with DSP came when I had the marvellous experience of trying, in extremely difficult band conditions, the pioneering Kenwood TS-870 in the December 1995 issue of *PW*. To be honest, I can still clearly remember the truly outstanding results this transceiver's DSP provided for me while I was operating it during my holiday in Ireland - but at the time I did not have the necessary funds to buy one - much as I would have liked.

However, having discovered the benefits of DSP equipped Amateur Radio transceivers I wondered...just how could I go about getting the benefits of DSP while not be able to afford a newly equipped transceiver? Fortunately however, that's where the extremely useful budget-price W9GR III DSP unit came into my life for the first time.

I reviewed the fascinating little W9GR III in the June 1999 issue of *PW* (DSP - In A Nutshell). Imported as a kit into the UK by **Sheldon Hands** of **Hands Electronics** my review of this versatile (It was available from Sheldon as a kit or ready-made) DSP unit worked against me. I say this because by the time I got round to buying one Sheldon Hands had sold the last unit and was waiting for the new model to be introduced at the 2001 Dayton HamVention!



● **The processing power within the DSP-599zx is very evident on the unit's printed circuit board!**

Not prepared to wait for the new model W9GR III I did something that many readers do when they want to get hold of something -I advertised in the *PW* Bargain Basement section. And it worked...a kind reader who lived up in the Shetland Islands, had seen my original review and bought his own DSP unit decided he'd invest the money in another aspect of the hobby and sold it to me.

The W9GR III proved very useful and although it only has a limited number of switch-selectable functions...for general use with my portable h.f. station it's proved ideal. I'm very pleased with it indeed.

W9GR Versus DSP-599zx?

Obviously, bearing in mind that the W9GR III - although it's an excellent little budget DSP unit, originally available as a kit for £169 and ready made for £185 - cannot truly compete with the host of facilities provided by the much more expensive DSP-599zx. Despite this, the little W9GR unit works extremely well, as I originally stated in my review - and is also exceptionally neat, and convenient to use in a portable set-up.

Additionally, the W9GR unit provides a reference (in the same way I've used the Alinco DX-70 transceiver) to gain experience on and to base my comments so that readers can evaluate my comments fully. In other words - it's my yardstick (sorry M'lud....I meant metrestick!).

With Older Receivers

Firstly, I began my second look at the DSP-599zx with some of my older receivers/transceivers. First rig to be tried was the KW2000B which I keep at home and immediately I switched on to 3.5 and 7MHz with the old KW using the DSP unit I realised there was a new lease of life for the rig!

The same effect was very noticeable with my old Eddystone receivers - noticeably the Eddystone EA12. In fact, the DSP-599zx was so good with the EA12 - now back in my *PW* office - that I'll use it again. Doesn't technology leap ahead?

When the EA12 first arrived on the market I desperately wanted one - but nowadays it seems so dated when compared to modern equipment. However, when used with the DSP-599zx I had the pleasure of using the EA12's huge analogue dial and get the much improved selectivity provided by the audio filtering via the DSP unit. Best of both worlds.

Despite the efficiency of DSP units such as the '599zx...you cannot expect them to provide you with the proverbial silk purse from the porcine ear! No, to be fair and to get the best out of the DSP unit - you must always try to use them with the best receiver possible.

In other words - I'm trying to break it gently to keen simple-receiver users - don't expect that DSP-599zx or any other unit to turn your two f.e.t. regenerative receiver into a unit with the same sort of performance provided by a Yaesu FT-1000MP! The DSP **will help** an older rig tremendously...but there is a limit even for the best of processors!

On The Air

Although of course I used the DSP-599zx with my main transceivers while in QSO...to be honest I found myself using it a very great deal whilst listening on the bands while I worked in my new workshop...developing projects for us in Radio Basics. And this is where my recently acquired Trio (Kenwood) TS-120V transceiver came very handy.

The TS-120V - being a small rig (It's the low power - 12W or so-version of the TS-130 and is basically a single conversion rig covering 3.5 to 28MHz only (no general coverage) but missing the WARC bands. Although I've had this rig for six months or so now, a good friend gave it to me in exchange for some tape recording equipment and hi-fi units, **until my new workshop came into use** it was not the rig of choice for general listening.

The TS-120V - despite its single conversion receiver copes exceedingly well on the bands. The rig I've got - in similar fashion to the '120V readers may remember I used in the early 1990s - is equipped with a narrow band c.w. filter. However, despite the filter...it has problems when operating on s.s.b. with modern conditions and that frustrating problems: the carrier 'swishers' and microphone scratcher.

Since I've had the W9GR III DSP unit for use with any of my transceivers, the nuisance effect of the anonymous (deliberate) people determined to disrupt QSOs and to get some form of acknowledgement that **they have been heard** has been overcome. Of course, with a DSP unit you only have to select a tone notch (or heterodyne) and the nuisance station will almost certainly disappear immediately. And in one case, I found it particularly useful indeed.

The connections to and from the DSP-599zx are all via high quality rear panel mounted sockets. Rob G3XFD says that the unit is extremely well built and finished to high standards.

One weekend I was listening to a valiant (single handed) special event station based near Helston in Cornwall. The good hearted soul operating it has undertaken to run this station for quite a while and was doing a good job. And although I wasn't able to reply to him (Only using the workshop's rather short general purpose antenna) I soon realised he'd attracted a carrier swisher.

Obviously, all I had to do was to select the heterodyne notch on the DSP-599zx and the nuisance disappeared. Unfortunately though...the Cornish station responded to the swisher and told him to go away. Wrong thing to do in my opinion because until the nuisance operator gets that acknowledgement - they can never be very sure they've been heard.

Whilst listening to group QSOs - these really seem to attract nuisance operators at times - particularly on 3.5 and 7MHz I found the DSP filters to really come into their own. This is because there can be several (and sometimes more!) separate carrier swishers active.

On the occasions when there were more than one nuisance operator at work the W9GR III coped relatively well, with only minor heterodynes audible for most of the time. However, the much more sophisticated Timewave '599zx really proved itself. Despite the determined actions of the swishers - I was able to enjoy listening to the various QSOs.

In trying to provide readers with a written evaluation of just how effective DSP filtering can be - I was almost at a loss. However, it's strange isn't it that the anti-social behaviour of a tiny minority of (perhaps illegal?) operators can actually help. Strange world isn't it?

Other Advantages

The many other advantages of audio DSP filtering must also be considered. However, at this point I must remind readers who have a specialised interest

Product

The Timewave DSP-599zx DSP Audio Noise Reduction Filter

Pros & Cons

***Pros**: Easy to use, rugged and packed with features. Supplied CD ROM disk provides (very complete) full information on the unit and other Timewave products.*

***Cons:** Price may seem high (the almighty Dollar is high yet again!) but facilities offered reflect investment and excellent facilities.*

Summary

I still think that the DSP599zx still offers the very best audio DSP filter package for the Radio Amateur and dedicated s.w.l. It's not cheap but the facilities offered truly reflect the investment made. My station felt complete with a DSP-599zx in place!

Price

Price: £359.95 plus P&P

Thanks

I would like to thank Nevada, at Unit 1, Fitzherbert Spur, Farlington, Portsmouth, Hampshire PO6 1TT, for the loan of the review unit. Further details on the Timewave DSP-599zx are available by telephone on 023-9231 3090, or E-mail: info@nevada.co.uk

(such as RTTY, SSTV, packet, etc.) that this article is looking at the s.s.b. and c.w. modes.

Of course, the benefits for the c.w. operator using audio DSP filtering are many. The filters really do offer the so called brickwall filtering - at the cost of being rather tiring to listen to (in my experience) for any length of time. However, with the DSP you should be able to complete the QSO more efficiently and quickly under difficult conditions, so with everything taken into account I think that the rather tiring (using the very narrow filters) effect is more than compensated for.

Noise - I found that the DSP-599's noise filtering was very effective, rendering the static crashes on the h.f. bands inaudible. On the other hand, my own W9GR III - although good -did not cope so well mainly because of the limited switched selected filter choices.

Revised Opinion?

So, after trying the DSP-599zx out once again, comparing it with my own little W9GR III unit, and having used it with a good selection of Amateur Radio equipment....you're probably wondering: have I revised my opinion on the Timewave's performance. The answer? - I still think it's superb!

Certainly, as with most things available to us nowadays...you can be sure (generally!) that you will get what you pay for - either a budget item with specifications to match, or a much higher priced unit with specifications to match the cost. With this in mind I can say truthfully - the Timewave DSP-599zx is a superbly effective unit...reflecting its price very well indeed.

At the same time I'm not decrying the performance of the little W9GR III unit, after all I own one myself and was very happy indeed to pay £120 or so for it second-hand. However, if I wanted a bigger unit for main station use with many extra facilities and flexibility offered by the DSP599zx - I would not hesitate to buy one..

There's no doubt in my mind that with modern h.f. band conditions and the often horrendous noises to be heard from those pesky un-licensed multiple frequency transmitters (television sets!) and many types of computers...an add-on DSP is a wise investment.

The specialist data mode operator is also well catered for and the latest software (fully explained on the supplied CD ROM) also demonstrates the advantages of the 599zx with PSK31. But until I try this exciting new mode myself I cannot comment any further.

The results I've mentioned regarding the use of DSP filter units with older equipment back up my suggestion that it is worthwhile considering such add-on to use with classic transceivers or receivers. In fact, if you've got an older rig fitted with good quality r.f. crystal filtering - an add-on unit such as the Timewave DSP-599zx may well end up making you decide to keep the older rig to use with the new filter! *PW*

Abridged Manufacture's Specifications

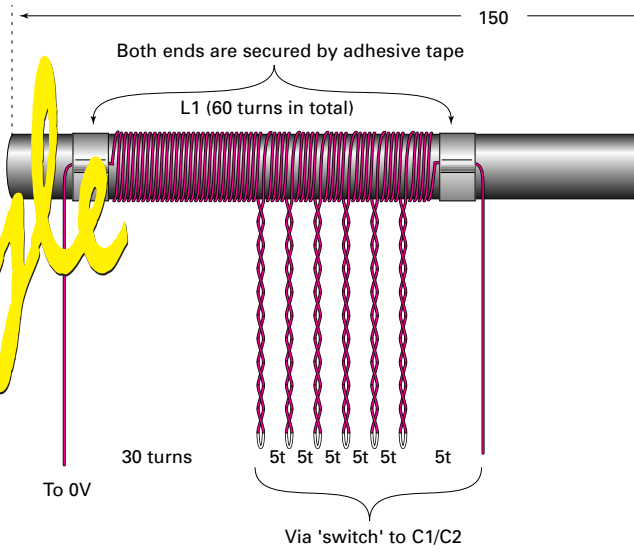
The specifications below are a very much condensed listing from the comprehensive full specifications in the user manual and omits data modes.

Audio input A&B				
Impedance:	20kΩ or 25Ω, selectable by jumper.			
Input range for full output:	10mV to 1V, front panel programmable.			
Audio output A&B				
Speaker output power:	1W into 8Ω at 13.8V d.c., both output channels operating. 1.5W into 4Ω at 13.8V d.c., both output channels operating.			
Line output:	0dB level referenced to input level. (Not controlled by gain control)			
Headphones:	0.25inch two circuit jack (Stereo for all functions, mono headphones for most functions)			
Harmonic distortion:	< 1% at rated output.			
Noise reduction filters	**Frequency range**	**Attenuation**	**Type**	**Delay**
Random noise	entire range of selected filter	Up to 20dB,	Adaptive	5ms
Heterodyne filter (multiple automatic notch)	entire freq. range of selected filter	Up to 50dB	Adaptive	5m
Heterodyne eliminator (manual)	Entire freq. range of selected filter	Up to 50dB	Manual	

Notes: The random noise reduction and band-pass filters can operate simultaneously. The random noise reduction, tone notch and high pass/low-pass filter can operate simultaneously.

CW Filters				
Bandwidth max	*5Hz to 600Hz* Centre freq.= 200 to 2.15kHz	*55dB at 60Hz* out of pass-band	*FIR linear* 5Hz steps	*64ms max*
Marker tone	Sine wave at centre freq. of selected filter.			
Voice Filters				
Highpass 24 ms	100Hz to 1kHz, in 10Hz steps.	60dB at 180Hz outside pass-band	FIR linear phase	Max 24ms
Lowpass 24 ms	1 to 5kHz in 10Hz steps	60db at 180Hz outside pass-band	FIR linear phase	Max 24ms
Automatic gain control (Voice)	36dB			
Data modes & c.w.	18dB			
Signal processing				
A-D/D-A converter	16 bit linear, sigma-delta conversion, dual channel			
Single processor	16 bit, 27ns Analogue Devices ADSP-2181 with 80kb of memory.			
Display				
Type	2 x 16 alphanumeric characters, dot matrix, yellow-green backlit l.c.d.			
Dimensions				
Size	193 x 216 x 48mm			
Weight	1.15kg			
Power				
Requirements	15 -16V d.c. @ 1A			
Fuse protection	1.6A5 x 20mm			

A Receiver - Traditional Style



David Rowlands G6UEB thinks that his traditional short wave receiver project should 'regenerate' some interest

Regenerative receivers were the mainstay of Amateur Radio operation for many years. Relatively good performance is possible with a small component count. This simplicity, compared to a superhet, makes them a firm favourite among constructors old and young to this day.

I've had good results with this receiver using an antenna of about a metre of wire draped over the workbench. This receiver will work on all frequencies from medium wave up to approximately 22MHz. For the simplest setup, high impedance headphones or a crystal earpiece are best.

As such, this receiver, is ideal for the newcomer to learn more about radio whilst building, operating and experimenting with the set. Construction and testing may be carried out in stages. Indeed many older Amateurs may remember building in stages, valved sets similar to this design, buying each valve as funds permitted.

How It Works

Let's look at how the receiver works by starting with the circuit of the receiver/detector stage shown in **Fig. 1**. The signal is received by the antenna and selected by the tuned circuit L1, C1 and C2. The tappings on the coil L1 allow a different range of frequencies to be selectively tuned by C1/2. The variable capacitor C2 has small value of about 5pF, which provides bandspread. (I shall explain the use of the bandspread control later).

For the time being, ignore the second winding (L2) on the ferrite rod. Transistor Tr1 amplifies and detects the selected signal. The demodulated audio is available at the collector of this transistor stage, from where it is passed through C7.

I've shown two values of C7, suitable as either a single stage value (C7a - 100µF) or as part of a multi-transistor radio (C7b - 0µ1). After C7, the subsequent stages of the receiver circuit are straightforward audio amplifiers.

The complete circuit of the project is shown in the diagram of **Fig. 2**.

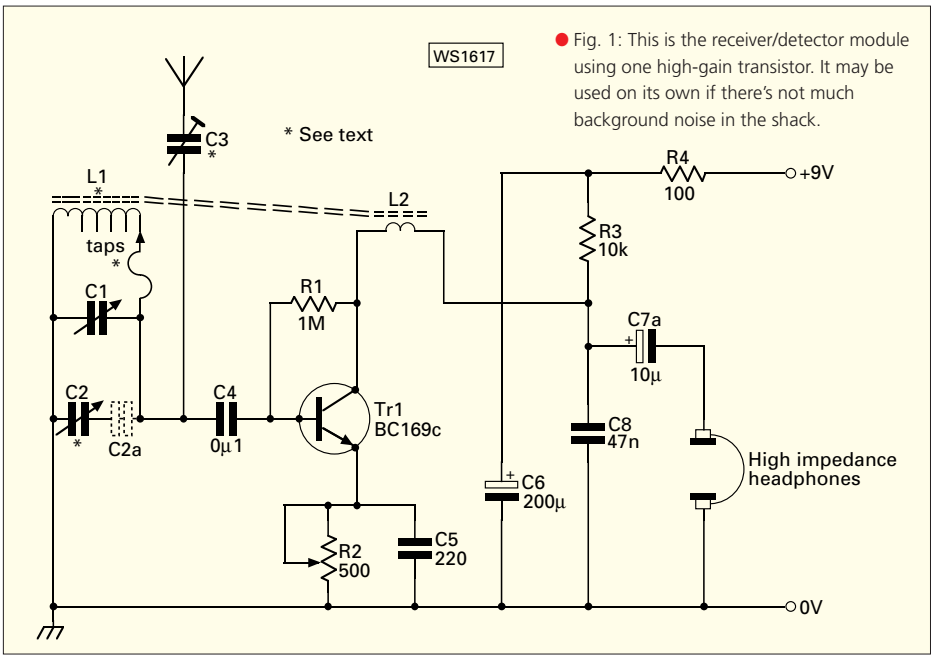


Fig. 1: This is the receiver/detector module using one high-gain transistor. It may be used on its own if there's not much background noise in the shack.

Amplified Feedback

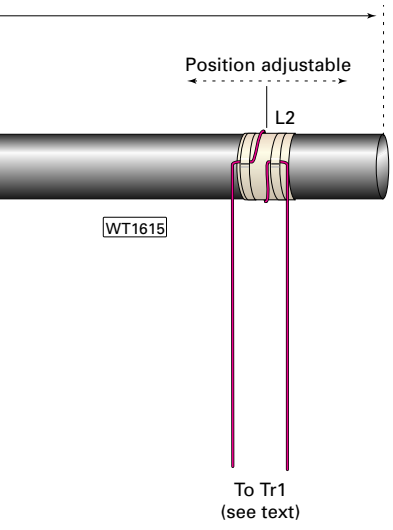
Now to consider the purpose of L2, which is amplified feedback. A small amount of the signal, amplified by Tr1, is also fed back to L1 via the winding L2. This small amount of feedback is arranged to increase the gain of this part of the circuit.

As the feedback is made variable, it's possible to bring the stage into oscillation as described later. But in this set, to work effectively, the feedback has to be in phase with the incoming signals, otherwise the effect of the feedback becomes counterproductive and we end up with no signal at all!

The feedback process is referred to as regeneration. If the regenerative feedback is too strong, nasty screeching sounds are produced as the results of heterodyne mixing. For the reception of a.m. signals, the optimum setting for regeneration is **just before** the onset of oscillation (the 'threshold').

The optimum setting of the regeneration control results in the a.m. signals becoming noticeably sharper and louder. Beyond the onset of oscillations, whistles will accompany the received a.m. signals as Tr1 becomes a mixer as well. The self oscillations of Tr1 will be very close to the frequency being received.

The pitch of the whistle accompanying the signal, is due to the difference in frequency between Tr1's oscillations and the signal being received. In this state, the



● Fig. 3: This is the overall layout of G6UEB's ferrite rod antenna in the prototype. See the text for more details.

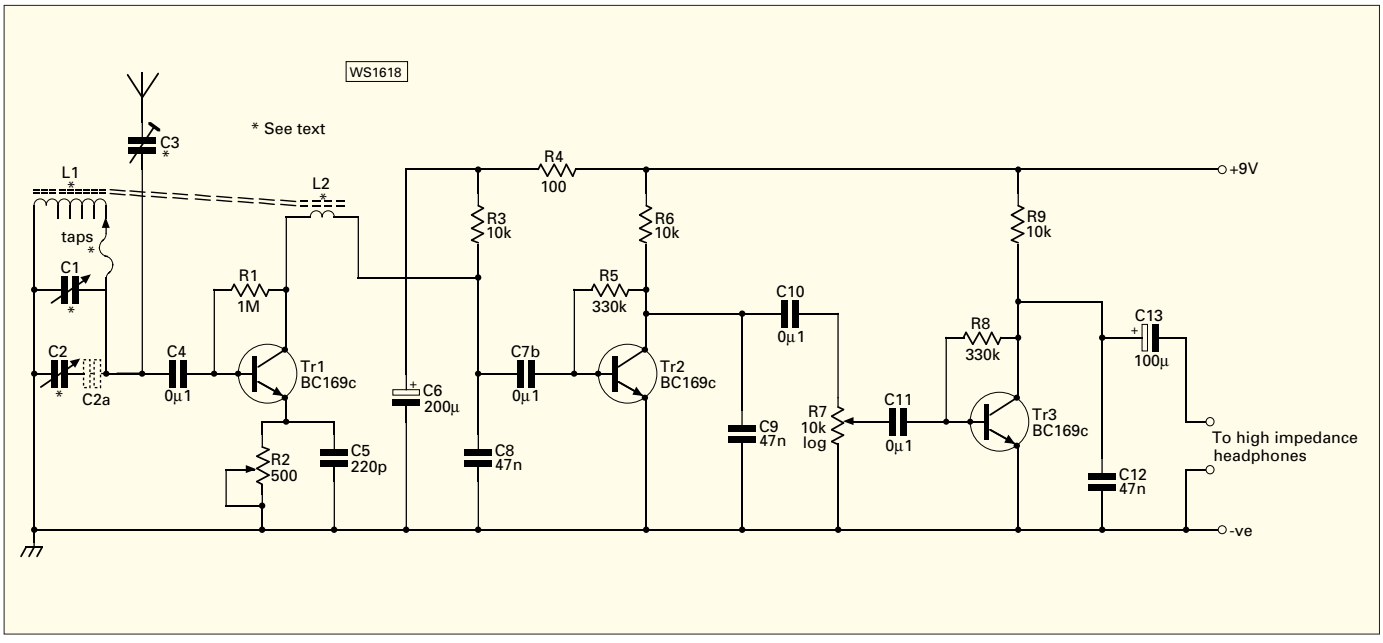
allows for regeneration adjustment later. Wind a single turn of copper wire onto the former and tape it to the former. For L2, leave lead lengths of about 250mm. Put this L1/2 assembly aside for use later.

Open Style

An open style of construction could be adopted, it's simple and the components can be mounted either on veroboard or tagstrip. At this stage, I'd recommend that you use a fixed 5pF (4.7 - 6.8pF) capacitor in the position shown as C3. A trimmer can be installed later if desired.

Perhaps a more permanent set up for L1 would be to bring the tappings out to a piece of tagstrip. Cut the tagstrip down to 7 way, and solder each tapping to a tag. Fix the tagstrip to a convenient point on the baseboard.

Connect a short piece of wire with a crocodile clip, to



set can be used to detect both s.s.b. and c.w. signals – but more on this later.

Start Building

Now let's start building the set, which may be built in a one, two or three transistor version. Depending on which you build, the current consumption ranges from around 600µA, for the one transistor set, up to just under 3mA for the three transistor set. Even with three transistors, a PP3 battery will give many hours of listening.

I've found that such sets are best built in one particular order, especially for the newcomers to construction. I would begin by winding coil L1 onto the ferrite rod. Leave a lead length of about 100mm and tie or tape the startpoint to the ferrite rod.

Then wind on the first 30 turns, and then make a small tapping loop of wire, twisted as shown in **Fig. 3**. The final 30 turns are tapped every five turns. So, just repeat the wind-and-tap process until you have 60 turns from start to finish Tape the end of the coil down on the ferrite rod.

Now we turn to the reaction coil L2. Start by making a former out of a strip of medium weight card about 10mm wide and 60mm long. Wrap the card around the ferrite rod and tape it, making it a reasonable friction fit on the rod.

The former, being a sliding fit on the ferrite rod, the point on the board that is the junction of C4/C2 (and C2a if fitted). This becomes the switch, used to select the tapping point on the coil, by clipping the crocodile clip to one of the tags.

The front and base panels are pieces of copper clad p.c.b. material coupled to the negative supply line. A small piece of copper clad board should also be used at each end of the front panel to act as corner braces.

The receiver board should be screwed onto the base panel. But take care though, not to short any contacts together with the copper surface of the chassis. Rubber feet should be placed at or near the corners of the base.

The set should be mounted on the base panel such that the ferrite rod is furthest from the front panel All the controls are best mounted on the front panel along with the phone socket.

● Fig. 2: Adding two stages of audio gain and a volume control could help cut through the shack's background noise level.

Common Ground

The centre terminal of the polyvaricon capacitor is the common ground (*and usually the shaft of the variable too.* **Editor**.), whilst the two outer terminals are for the two separate variable capacitors. For maximum medium wave coverage, join the two outer terminals together with a short piece of wire, when, the set should cover most of the medium wave band.

For short wave coverage, use only one tag of C1 so, using only one section of the polyvaricon. The

...continued from page 31

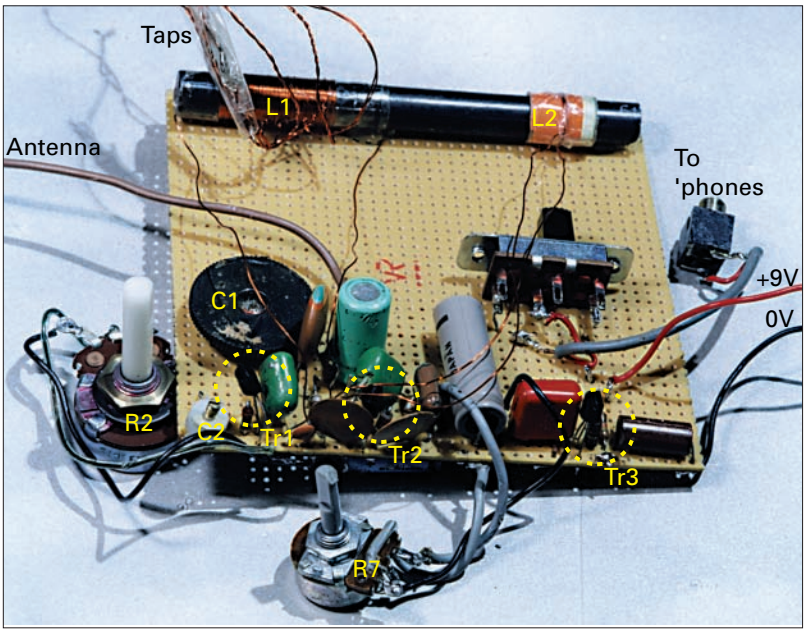


Fig. 4: One of David's early prototypes - not pretty perhaps, but it works and was very cheap to construct!

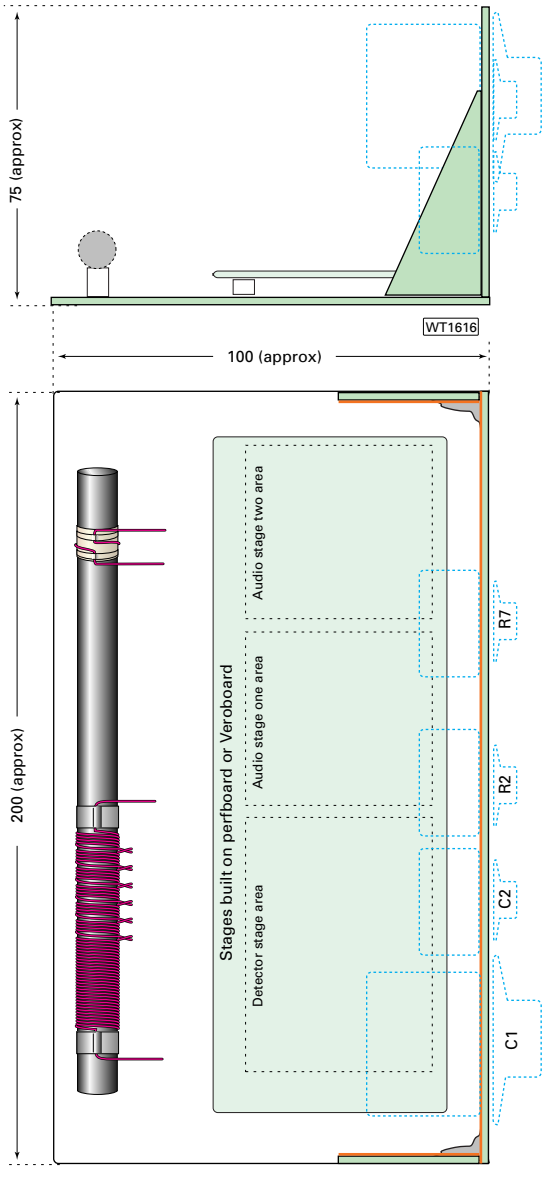


Fig. 5: The usual layout that David G6UEB adopts for his receiver projects.

bandspread capacitor C2, must be a smaller value compared to the main tuning C1.

Bands Covered

The value for C2 rather depends on the bands covered. For medium wave reception it can be a single low value polyvaricon. But more likely it will need to have small value capacitor in series with it to reduce the overall capacitance swing.

For coverage of the short wave bands, a suitable value for the series capacitor (shown as C2a) would be a fixed value of about 5pf. It should ideally be an high stability silver mica or polystyrene capacitor in series with C2.

If you intend to listen more to the higher 3.5MHz band rather than the medium wave and 1.8MHz bands there's a better arrangement for C2 and C2a. The better alternative might be a single 5-10pF variable unit, or a board mounted trimmer.

Whatever the arrangement of tuning capacitors, mount the circuit board onto the base panel using 6BA screws etc. Mount C1, R2 and C2 (if not using a board mounted trimmer) onto the front panel, along with the headphone socket. The copper side of the p.c.b. material is used as the earth plane.

Temporary Connection

Temporarily connect a crystal earphone or high impedance magnetic earphone between C7 and the negative rail. With the single transistor circuit the loading should be as light as possible so, use a circuit that puts the earphones in series if it's at all possible.

Set the potentiometer R2 so that the emitter of Tr1 is connected directly to the negative rail. The vanes of C2 should be completely open. Check that all your solder joints are good and that there are no solder bridges or other short circuits. There's no need to attach an antenna wire at this stage.

Connect a low current 9V source (such as a small 9V battery) to the circuit. Slide L2 along the ferrite rod towards L1. If little or no sound is heard, this most likely means that the signal being fed back by L2 is out of phase with the incoming signals.

Slide L2 off the rod, turn it around and try again. This should result in an increase in noise from the circuit. as the signals from L2 are now enhancing those from L1, rather than tending to cancel them out.

Should you hear an unpleasant screeching sound, move L2 away from L1 to the point just short of oscillation i.e. just before the screeching sound is heard. Tune around with C1 and you should hear some medium wave broadcast stations.

If you can hear broadcast signals but whistles accompany those signals, just move L2 a little further away from L1. If no signals are heard, it would be advisable to recheck your soldering, the circuit connections, the orientation of components and all connections and for short circuits.

Most Critical

The most critical part of the circuit is now working and you have a complete radio receiver. It should be possible to hear medium wave stations even with no antenna connected.

Now attach a length of wire (approximately a metre in length) to the small value capacitor (C3). Connect the crocodile clip to one of the middle tapping points of L1. This bypasses part of L1 and increases the frequency on which the set will now be working to about 4.2MHz when C1 and C2 are at minimum capacity setting.

Set C1 and C2 vanes fully open. Again adjust L2 to be just short of the position that screeching commences. Now adjust R2, the main regeneration control, until a slight hissing sound is heard. The hissing sound should be apparent over a range of R2's travel.

If the adjustment of regeneration control via R2 is too critical, move L2 slightly further away from L1. Adjustment of L2 and R2 **is an art**, but you will soon get used to it.

Leave C2 in the minimum capacitance position and tune very slowly over the band by increasing the meshing of the vanes of C1. Some broadcast stations will be heard. Tuning will now be coarser than it was on medium wave and whistles will probably accompany the broadcast signals.

Tuning Slowly

Keep turning very slowly until s.s.b. signals are heard. You have now found the 3.5MHz amateur band. Now back track C1 slightly. This is where the bandspread tuning comes in of its own.

By using the reduced tuning rate of C2, it's possible to very carefully tune in the s.s.b. signals. There is a knack to tuning s.s.b. So, if you're new to the hobby persevere, you will soon be able to tune the set such that the Donald Duck sounds become clearer and you can hear what is being said.

The best time to listen around on the 3.5MHz band, is in the evening when there is usually plenty of Amateur activity. You will probably find that, as you tune through the band, it may be necessary to readjust L2 or R2 or both together.

Don't worry if the task of adjustment seems to be rather difficult, you will soon learn how to co-ordinate the adjustment of L2 with that of R2 whilst tuning through the bands. In some cases, it may be necessary to remove L2 from the ferrite rod completely.

First Audio Stage

Now to build the first audio stage. If you haven't already done so, disconnect the power source and crystal earphone and remove the set from the copper clad base and front panels. Start building the first stage of audio amplification formed by Tr2 and it's associated circuitry as shown in Fig. 2.

After adding the amplifier, connect the crystal earphone etc between C10 and the negative rail. Reconnect the battery or power source and once again, listen for signals. They should all be somewhat louder than before. If not, or if nothing is heard, check the circuitry around Tr2.

If you have problems, as ever, first check all your soldered joints and for direct shorts such as solder bridges. There's no need to remount on the copper clad panels, as the test at this stage is simply to ensure that there is a greater audio output

Second Audio Stage

The final step is to add the volume control and other associated components along with the second audio stage. Wire the variable resistor R7 into circuit. Although it's best to use short shielded cable leads, I've found that simply using connecting wire was without problems.

The second stage of audio amplification should give more than enough output to drive a set of high impedance headphones. Arranging the output socket wiring so that both earpieces of a set of personal stereo 'phones are in series should create a load of sufficiently high impedance.

I've opted for the discreet component circuits shown here in the diagrams rather than using integrated circuit being both simpler to build and understand as well as being cheaper.

If you felt you'd like to experiment with other audio amplifier circuits, then by all means carry on. One of my early prototypes is shown in the photograph of **Fig. 4**. It may not look pretty, but it does work!

So, having confirmed that the set works, all that remains to be done is to complete the installation of your circuit board into the p.c.b. chassis section. Now the set's ready for use. The layout shown in **Fig. 5** is the one that I tend to use for this sort of project, it seems to work without problems.

Different Tappings

Now the set is complete, experiment with the different tappings to explore the frequency coverage offered by each. If you have access to a frequency counter and signal generator, this will help to identify the frequencies that you are covering.

There will be some overlap of coverage between adjacent tappings, so eventually, you may not use all of them. Just choose those that suit the frequencies you wish to listen to most.

If your just going to listen to the higher short wave frequencies, try connecting a small capacitor – in the range of 33 or 68pF in series with C1. This will reduce the capacitance swing, reducing the tuning range of frequencies covered, but it does make individual stations easier to resolve.

Experiment with different values of series capacitor, to see what suits your requirements best. Then use a high stability polystyrene or silver mica capacitor of the value you have identified as being most suitable.

Reducing Amplification

I've already described how to operate the set during the description of construction. So, what's left? Well, you could, as more skill is acquired, try reducing the audio amplification. Try running the set with only one audio stage.

I've found that when it's (in audio terms) quiet in the shack, I'm able to hear some QSOs on 3.5 and 7MHz using the version using only the detector itself. The thrill is in the challenge of getting more for less!

If desired, replace the fixed 5pf capacitor in C3 position with a small trimmer, say 22-60pF. In the evenings, especially on 7MHz, the effect of the trimmer will be to reduced or prevent the receiver becoming overloaded with strong broadcast signals.

You will also probably notice that frequency coverage is affected by adjustment of C3, due mainly to the additional capacity of the antenna wire coming into play with L1. In general the greater the capacitance of C3, the lower the frequency received.

Happy listening, and good DX!

pw

Shopping list

***Resistors**: (fixed any type)*

100Ω	1	R4
10kΩ	3	R3, 6, 9
330kΩ	2	R5, 8
1MΩ	1	R1
Miniature Rotary		
500Ω	1	R2 (Lin.)
10kΩ	1	R7 (Log.)

Capacitors *(any type)*

4.7pF	1	C2a (see text)
220pF	1	C5
47nF	3	C8, 9, 12
100nF	3	C1, 7b (see text), 11
Electrolytic (all 16Vminimum working)		
10µF	1	C7a (see text)
100µF	1	C13
220µF	1	C6
Variable		
5pF	1	C2 (see text)
200pF	1	C1 (polyvaricon type)

Semiconductors:

BC169C	3	Tr1, 2, 3

Miscellaneous:

Ferrite rod 150mm long (or more), medium thickness enamelled copper wire (30s.w.g.), crystal or high impedance earphone, antenna wire or telescopic whip of approximately one metre in overall length, tag strip, assembly board or small a piece of perf or Veroboard, crocodile clip, copper clad board for the chassis. a 9V battery and clips or power supply.

ISLANDS ON THE AIR

The strongest guys - Manolo EA8BYG and Waldemar SM0TQX hold the tower with the antenna. Mindelo harbour can be seen in the background.

CAPE VERDE ADVENTURE

Henryk Kotowski SM0JHF recounts his trip to Cape Verde. Not so much a DXpedition, more a radio holiday!

I would never go to a distant place solely to operate an Amateur Radio station. When anyone refers to my trip to Cape Verde as a DXpedition, I smile and say "There's a lot more in the world than Amateur Radio". However, I will not explain the difference between *morna* and *coladera* music, how to prepare the national dish of *katchupa rica* or how to drink *grogue*, instead I wish to report on the Amateur Radio activity in Cape Verde.

Until 25 years ago, the Cape Verde islands were a neglected Portuguese province with a bunch of active Radio Amateurs. All the Portugese colonies were easy to work on the bands.

For many people living there Amateur Radio was a substitute for the telephone and postal services, keeping in touch with family and friends this way was both easy and common. One of the best contest operators in the world, **the late Jose CT1BOH,** was born and brought up in a Amateur family in Angola.

Independence of Cape Verde in 1975 brought some changes to the Amateur Radio scene. **Julio CR4BC**, later D4CBC & D44BC, gained an influencial position and acted as adviser on Amateur Radio issues for the authorities and the number of active Amateurs was diminishing rapidly. Amateur Radio is unfortunately not a number one priority in a poor country undergoing radical changes.

Any active Radio Amateur on the air, who's been around for some time knows that Julio passed away in autumn 1999. Nevertheless I visited his home, while in Mindelo.

Most of the antennas and equipment were still intact at Julio's home. Julio's widow, **Ondine**, was emotionally upset when I took pictures and talked to her on 10 November - Julio's birthday.

I was shown the log books and QSL cards, pictures and guest book. Julio's first QSO took place in October 1964 and the last one was on the morning of 14 September 1999 with a station in Coimbra, Portugal logged as CR8MA.

Carlos D4AAC climbs his tower to make the necessary adjustments.

View from Mindelo harbour, the white house in the centre is the QTH of Carlos D44AC, above it the old jail where Henryk tied his long wire antenna.

● On the air - Jose EA8EE in the background is in digital mode while Waldemar SM0TQX runs s.s.b. assisted by Carlos D4AAC.

Julio liked to talk to anybody on the air and he was there almost every day. He did not chase DX or participate in contests himself. His shack was often filled with eager visiting contesters from all over the world.

Ondine told me that she still had a number of blank D44BC QSL cards and could verify past QSOs. The post office box number has been changed to 66 after a period of problems with vanishing letters. A man with a duplicate key to their box was finally apprehended by the local police.

Another Amateur I met was **Angelo D44BS**, who lives in the capital Praia on the island of Sao Tiago (Santiago). He was first licensed in 1970 and admits that living a few years on the island of Sao Tome next door to CR5SP prompted him to become a Radio Amateur himself.

The first rig Angelo had was a Swan 350 and in less than 10 years he received the first Five Band Worked All Zones award! In spite of having 354 countries confirmed he still has as much enthusiasm as when he started.

Angelo recently moved to a new QTH and revealed to me that the roof where we were standing was not the final roof - a dedicated radio shack would be built there next to the antenna tower. Angelo's wife, **Zizi**, holds a licence, too - D44BW

Another callsign in Angelo's family is D4A, a contest special for CQ WW 2000 efforts by Italians, **Alberto IV3TAN** on s.s.b. and **Giorgio I2VXJ** on c.w. They shipped a load of equipment and antennas there just for the contest. The D4A call is actually assigned for a maritime coast radio station in Mindelo, Sao Vicente Island, according to an international listing.

On Air Activity

On now to my activity on the air as D44CF in November 2000 during my visit. I had been planning to visit Cape Verde for a few years but what triggered me off was a short message in DX bulletins that a group of Amateurs from Las Palmas, Canary Islands were going there at the beginning of November.

I contacted the group and decided to go there at the same time. I even managed to convince my friend and an experienced Amateur, **Waldemar SM0TQX**, to join me. My philosophy is that the burden of carrying radios, setting up antennas demands better utilisation than I alone can provide; I never want to sit by the radio all the time so it's better to share the hardware.

We flew from Amsterdam to Sal with TACV - the Cape Verdian airline where Julio's (D44BC) son flies a Boeing 757. Sal is one of the nine inhabited islands in the archipelago and has an international airport. Except for the airport and a few expensive holiday resorts, this island is desert like.

We were heading for the island of Sao Vicente and the town of Mindelo. There we were met by **Carlos D44AC.** Carlos has been a Radio Amateur for 15 years, his favourite activity on the air is assisting boats in this area of the Atlantic and was even recently presented with an award for this by **EA0JC**, the King of Spain!

Carlos D44AC has been off the air recently due to moving to a new house with an awesome view over the harbour of Mindelo. Mindelo was once a blooming

Useful Contacts

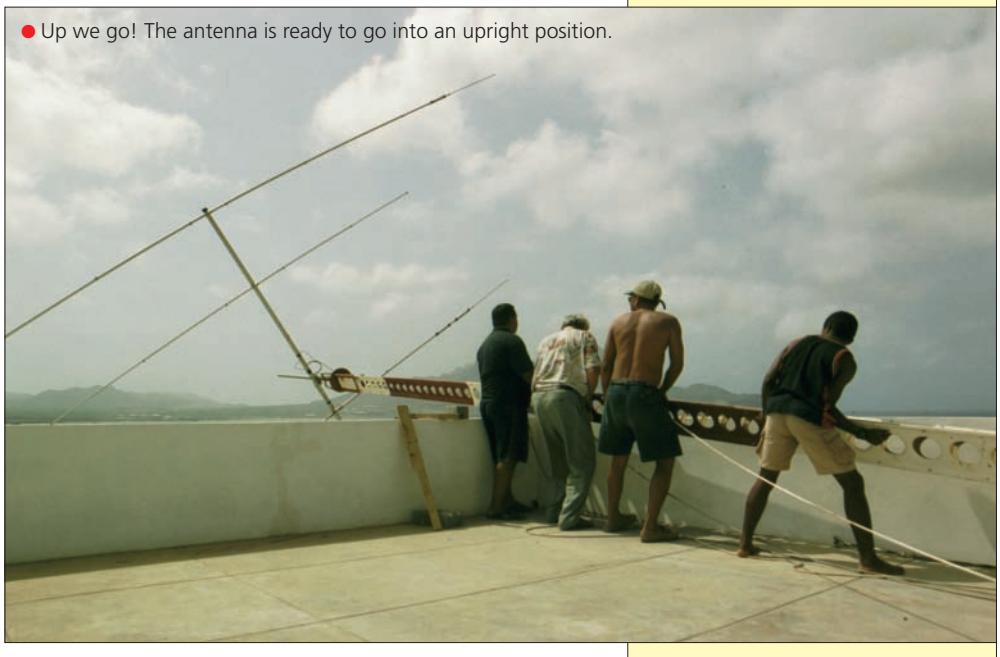
QSL for all contacts only direct to:
Carlos Pulu Monteiro D44AC,
P.O.Box 398,
Mindelo,
Sao Vicente Island,
Republic of Cape Verde
E-mail: c.pulu@cvtelecom.cv

All QSL cards
(D44BS, D4A, D44BW) only direct to:
Angelo Mendes D44BS,
P.O.Box 308,
Praia,
Santiago Island,
Republic of Cape Verde
E-mail: d44bs@cvtelecom.cv

D44BC via
Ondina VeraCruz,
P.O.Box 66,
Mindelo,
Sao Vicente Island,
Republic of Cape Verde

Henryk Kotowski D44CF,
Sibeliusg 28 XI,
SE-16477 Kista,
Sweden
E-mail: sm0jhf@qsl.net

● Up we go! The antenna is ready to go into an upright position.



Cape Verde Facts

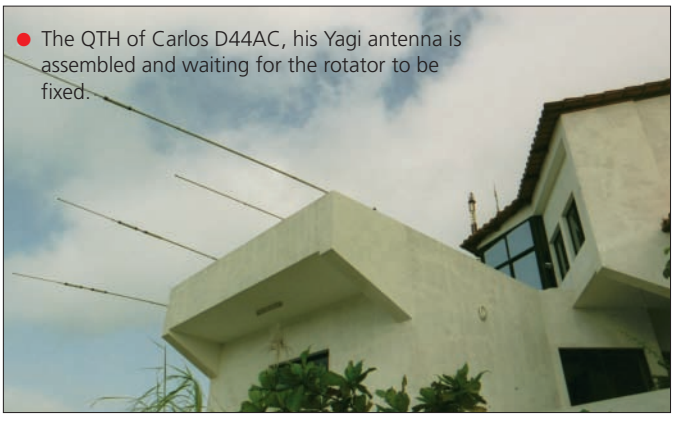
The Archipelago of Cape Verde lies about 500km west of Dakar, Senegal. Nine islands are inhabited and every one has a different character, landscape, climate. The official language is Portugese but Creole is commonly used. Approximately 80% of population of some 400 000 people are of mixed race. Twice as many Capeverdians live abroad. Tourism is not well developed yet but there is a significant potential in these islands.

trade and bunker hub of sea transport between Europe and South America as well as between South Africa and North America. Today, an occasional cruising ship will call for a day and the harbour is falling into decay.

● With the visitors gone Carlos D4AAC spends time in his shack.

Carlos tried to find out what happened to the 3.5m long package with a 50MHz antenna in that we checked in with at Schiphol airport in Amsterdam. Inter island aircraft are relatively small and have no cargo space for such long items; they should have known it in Amsterdam.

Anyway, off we went to Carlos QTH and started working on our antennas. His antenna is an old tri-bander, in quite poor shape.



● The QTH of Carlos D44AC, his Yagi antenna is assembled and waiting for the rotator to be fixed.

Waldemar SM0TQX and **Manolo EA8BYG,** assisted by Carlos, assembled the antenna, repaired the rotor, mounted everything in the tower while I executed a bit of 'practical' wireless with a random wire.

In the scorching sun I climbed the hill nearby and suspended a long piece of wire between the bars of an abandoned jailhouse and Carlos' place. This wire did tune on all h.f. bands and even on 50MHz, which I discovered a little too late.

The 50MHz band is open almost everyday on Cape Verde, mostly to South America and West Indies, North Africa. At least judging by the active beacons that could be heard.

Morning To Night

For a week the visitors occupied Carlos' radio room from morning to late night. We did not go on the radio at night in order not to disturb the family.

We used the D44AC callsign, even though I have a callsign of my own, D44CF. I used my call exclusively on c.w. and preferring the WARC bands. The c.w. activity by local Amateurs is almost non-existent so I thought I would fill a gap.

Throughout the rest of my stay in Mindelo I was on the air daily thanks to Carlos' hospitality. Sometimes I came over to his house while nobody was at home and even his Rottweiler dog did not bark at me.

I had my Icom IC-746 rigged up in a spare room and used the random wire for most of my contacts. However, this QTH is not perfect for Europe nor Japan as the ridge screens off most of north-east and east directions.

After ten days the 6m Yagi arrived on a cargo ship to Mindelo. I assembled the antenna and even tested it but it did not appeal to me to try to mount the antenna on top of the tower all on my own. I am not a fanatic of 50MHz, Carlos has no 50MHz rig and I was leaving soon.

However, the 5-element Yagi is at Carlos' home and any visitor with serious 50MHz interest is urged to bring a radio and use this antenna. According to Carlos, visitors are welcome in his radio room, whether it is a planned or an improptu visit. His callsign must be used on the air as there is no possiblity of gettimg a visitor's licence yet.

● Angelo D44BS' antennas as seen from the hotel where Henryk stayed.

I wish there were more DXpeditions that could assist local Radio Amateurs, leave some of the equipment and antennas, know how and instructions for existing or prospective Amateurs in these remote places. It gives more substance to the slogan of friendship through Amateur Radio.

Looking at Carlos' happy family I wondered, could there be more Radio Amateurs here in this family? Perhaps we influenced them in some way? I aim to visit this country again and try to see all the islands and maybe even operate on the air from each of them.

PW

● Carlos and his family gathered under the antenna tower.

Antenna Workshop

TOP LF LOOP

Peter Dodd G3LDO describes a receiving loop antenna that's suitable for both the 1.8 and 3.5MHz bands.

A low frequency loop antenna, such as the one I'll describe here, is useful for receiving signals in the 1.8 or 3.5MHz bands. This is particularly handy if you live in a suburban location where the electrical noise level is high. I originally built this loop for working DX on 3.5MHz, when I was operating '/mobile' using a kite supported antenna.

Although the designed antenna was superb on transmit it suffered a lot from wind and rain static - the sort of conditions encountered when using a kite supported antenna. However, because of their directional characteristics, loop antennas can be set up to null out sources of persistent electrical interference.

Often, loop antennas are located in the shack but, by far the best place to locate them, is as far away from the house as possible. This in turn means that, unless you can locate the loop in a garden shed, it needs to be weather proof.

Plastic Pipe

The following project is a design making use of plastic pipe to form a weather proof enclosure for the loop antenna. All the materials for the enclosure are readily available from almost every do-it-yourself outlet. The structure itself, is made from 22mm plastic pipe sold as overflow pipe.

You could make the loop housing by bending a single section of plastic pipe around in a circle but, in practice, this often proves very difficult to achieve because the plastic pipe is not flexible enough. The best solution is to use a square configuration as shown in the heading picture.

The loop housing is made from a single two metre length of 22mm plastic tube, cut into four equal 500mm lengths. In addition to the pipe itself, all that is required are three 90° joints, some pipe glue and some suitable clips to fix the loop to a support plate. The finished structure is rigid and self-supporting and suitable for portable operation.

The loop itself comprises five turns of 2.5mm plastic insulated electrical wire (including the insulation) and a single turn pick-up loop (six lengths of wire in all).

Insulation Thickness

The electrical wire used for the project must have an insulation material thickness of at least 0.5mm. The reason for this requirement is that the insulator material determines the wire spacing between turns. The wire should also be reasonably soft and flexible to ease construction.

When you cut the lengths of wire, make sure you make them long enough to enable some manipulation afterwards. When cutting the plastic tubing and the wire, remember the carpenter's adage "measure twice and cut once".

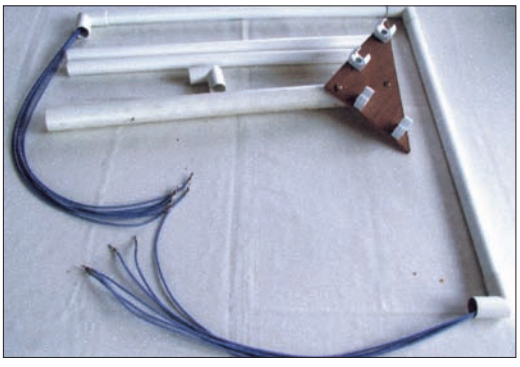
Each of the wires should be a total of a total of 2190mm long. That is 500mm for each of the four sides, plus three lots of 30mm for the 90° joints and finally, 50mm at each end for making the connections.

Start by cutting each of the wires to length. Then strip 5mm of insulation from each end of each wire and tin each end. It's easier to do this before rather than after the wires have been placed in the plastic tube.

The loop is assembled by first passing the wire bundle through a single 500mm length of plastic pipe. One 90° elbow is fixed to the end and the wires passed through.

The wire bundle is then passed through the second 500mm length of pipe. The second joint added and the process continues until the square is complete. The photograph of the half-way stage is shown in **Fig. 1**.

A fourth 90° joint is unnecessary at the bottom of the loop because it is held in place with pipe to wall clips as shown in **Fig. 2**. Additionally, access for wire connections is also required.



● Fig. 1: Part way in the construction of the loop. The wire bundle has only to be fed through the final two lengths of piping. The triangular plywood base is shown already fixed to the support pole using brass woodscrews.

● Fig 2: Five of the wires are joined together to form a continuous loop, tuned with the polyvaricon capacitor, fixed in place by double-sided sticky tape. The series capacitor is held in place using the connecting block.

Plywood Base

The loop is fixed to the support pole using a triangular plywood base, that may be seen in both Fig. 1 and 2. This, in turn, is attached to a 22mm plastic support pole using brass woodscrews, which screw into a small section of doweling (a length of broomhandle) within the support pole and the loop is held in place with pipe to wall clips.

When the loop is constructed and the wires are in place, each has to be identified using a multimeter so that they can be connected together to form a

continuous five-turn loop. The sixth turn, the pick up loop, is connected to the receiver coaxial feeder cable.

Initially I used connector blocks to connect the wires together because of the rather experimental nature of the project. I had intended to solder the wires together once the loop was correctly connected and working.

However I decided to leave the connector blocks in place as they give a degree of flexibility. Turns can be disconnected or shorted for experimenting on other bands. The connector blocks are covered with spray-on grease to prevent corrosion.

The main loop is resonated with a variable polyvaricon capacitor of unknown capacity or pedigree culled from an old transistor radio. Normally these capacitors are 350-400pF per section. (*Sometimes the smaller ones are around 200+200pF.* **Editor**)

Total Capacity

The two sections of the polyvaricon I used, were connected in parallel giving a total capacity of around 700-800pF. This type of capacitor is small and light enough to be fixed in place to the plywood base using double-sided (carpet) sticky tape.

In normal use, the wire connections and the tuning capacitor (the whole of the area shown in Fig. 2) are covered with a small piece of plastic sheet, which is fitted to the pipes using plastic electrician's tape. It's also sealed to the antenna support and the mast. Clothes pegs, clipped on rolled over edges, seal up any gaps where the rain might get in.

The method of using a pick-up loop to connect the loop to the antenna preserves the balance of the loop. By this I mean that the polar diagram of the loop is a figure-of-eight with two quite deep nulls. However, with a ratio of five to one turns, (25:1 impedance) means that when the 50Ω load of the receiver input is connected to the loop, its *Q* factor is very much dampened.

I've found, by experiment, that on the 3.5MHz band, a 150pF capacitor in series with the pick-up loop and the receiver seems to give optimum coupling, although it's not at all critical. On the 1.8MHz band I've used 300pF (two 150pF capacitors in parallel).

The effect of a series capacitor, reduces the sharpness of the tuning, which is useful if you don't want to keep retuning the loop as you move up and down the band.

Self Capacitance

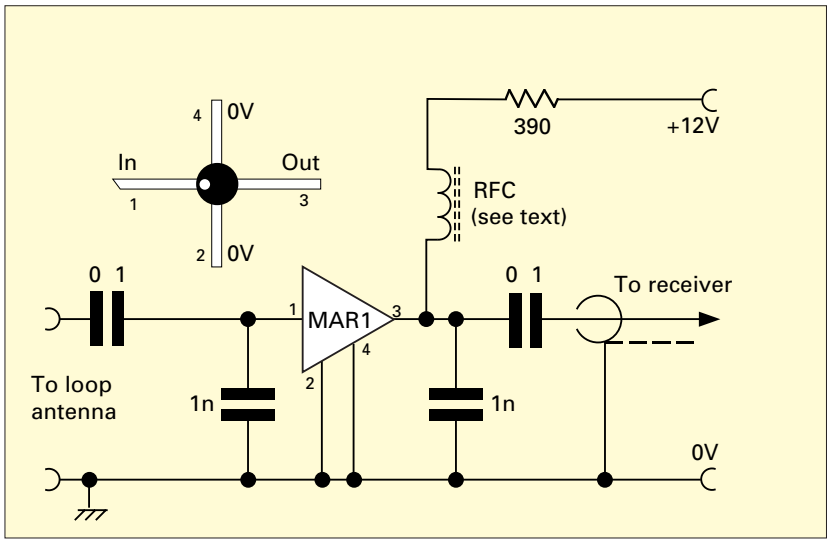
The self-capacitance of the loop prevents it being tuned to the 3.5MHz band when all five turns are used as the main loop. So, I disconnected two of the turns and, the loop then tuned the whole 3.5MHz band with the reduced number of turns in the primary loop.

Because the loop is small it does lack some sensitivity compared with a full size antenna. But generally, there's so much gain on modern receivers that a reduced input signal is not usually a problem.

If the loop is made larger the sensitivity will be greater but fewer turns would be required to resonate on the 1.8 and 3.5MHz bands.

The sensitivity of a small loop can be increased by using an amplifier. And if you need an increased signal, then I can recommend the very simple amplifier designed by **John G4GVC** and shown in **Fig. 3**.

The amplifier was originally designed specifically for the 73 and 136kHz band. However, as the active device used has a design bandwidth suitable for operation up to several hundred megahertz, the amplifier should work on the 1.8 or 3.5MHz bands!



● Fig. 3: Circuit diagram of a suitable amplifier for a small loop antenna (the MAR-1 pinout is shown for information). With some changes to the components, this design will suit most bands.

Surprisingly effective

John notes that the amplifier is a surprisingly effective solution to obtaining additional gain. No attempt was made to tune or match it! The MMIC chosen is very cheap, very simple to use and works splendidly at low frequency. It should however, be 'tamed' by the two 1nF capacitors, soldered as close to the device as possible to prevent instability.

Once the instability precaution is taken, layout is fairly unimportant. John's preamplifier was built "ugly bug" fashion on copper-clad board inside a small metal box. All capacitors should be high grade ceramics and the choke labelled RFC can be any pre-wound type suitable for the frequency.

The unit is stable, has very low noise and produces around 20dB of gain. If it is used only with a very sharply resonant frame-loop and a reasonable main receiver, no strong unwanted signal problems should occur.

So, now you can have your small garden and an effective antenna for the low h.f. bands. Happy listening!

PW

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- 100/100/50/50
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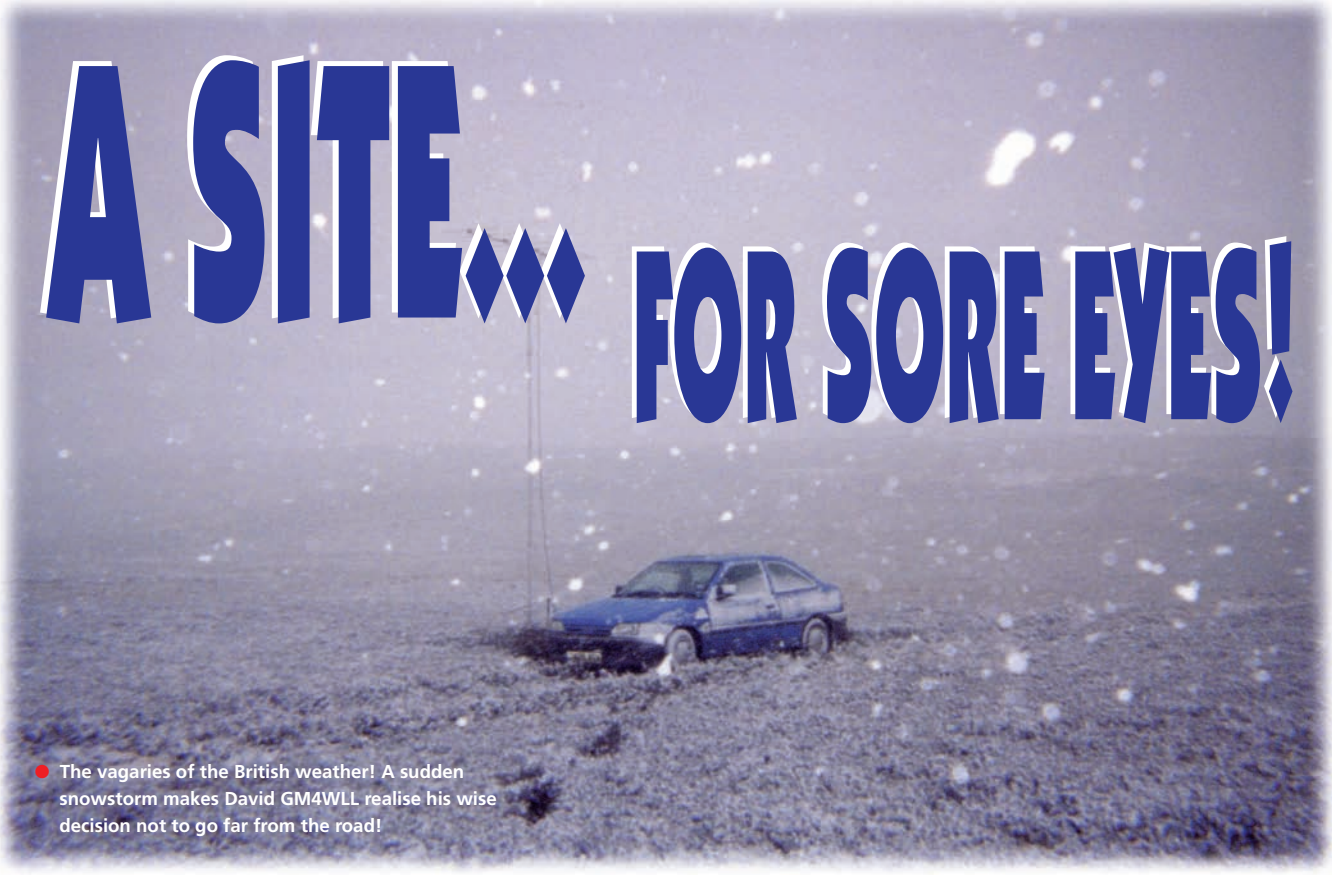


The vagaries of the British weather! A sudden snowstorm makes David GM4WLL realise his wise decision not to go far from the road!

David Dodds GM4WLL describes with infectious enthusiasm how he rejoined the v.h.f. contesting scene after a ten year absence. Setting up the ideal 144MHz station and getting a good site were top priority!

During 1997 I came back into Amateur Radio after a ten year absence. Although I found many changes to the hobby - such as the release of the 50MHz band, the new callsign series and Novice Licensing amongst others, I was delighted to find that v.h.f. contesting was as vibrant and hectic as it was a decade ago. So, encouraged I set to work putting together my ideal 144MHz contest station.

My initial plan to enter contests from my home QTH near Edinburgh soon turned out to be a waste of time. For a start some TVI problems occurred which made me reluctant to operate for long periods and the take-off wasn't exactly brilliant so it was clear to me that portable operating was going to be the way forward.

My interest in contesting is driven by excitement and potential DX rather than by competitiveness. Despite this, a good location would be necessary to catch any DX on offer and to achieve a good QSO rate.

Suitable Rig

A few visits to **Jaycee Electronics** in Glenrothes, Fife, netted a TR-9130 in good condition. Perhaps not a rig designed for portable operation but it's capable of 25W output barefoot and has a sensitive receiver.

Next I added a small car battery, a portable mast and an HB9CV 2-element beam antenna. Then I set off for the local Pentland Hills to enter the first Backpacker's Contest of 1997.

Significant Lessons

I entered two Backpacker's Contests from sites in the Pentland Hills and enjoyed them a great deal, more importantly they taught me a number of significant lessons. The first was that although the Pentland Hills **are high**, there are **much higher hills** (the direction of the majority of contacts) further south. If I was to be successful I had to travel further afield and find a better site.

Secondly, my ability to push through a weak signal would be considerably enhanced by the addition of a speech processor to increase the transmitter duty cycle and also an end-of-transmission tone. These gadgets, I know, can be irritating during normal operating conditions, are useful for beating the effects of fading (QSB) under weak signal conditions - so kits for both were duly ordered.

Thirdly: During the first Backpacker's session I was called by **Ray GM4CXM** and advised that a GW portable station who was on the same frequency but who was inaudible to me. So, if I was going to hear these distant stations, let alone work them, more antenna gain would be necessary.

I decided that an 8-element Yagi would give enough gain yet remain sufficiently portable. A Q-Tek antenna was sufficiently competitive in price to minimise disagreement with my wife who was beginning to notice an additional drain on our resources!

Finally, (and most importantly) I decided that I wanted to move up from Backpacking Contests. To get the excitement of rapid operating techniques and working some DX I needed to create a stronger signal into the south.

Having increased antenna gain the next step would be more power. This in turn mean that not only did I need a better site, but one that was accessible by car. Additionally, the need for a heavier duty power supply and shelter for eight or 24 hours, as opposed to the four hours of a Backpacker's Contest, would make the shelter of the car essential.

Another trip to my local Amateur Radio emporium

resulted in the purchase of a rugged 100W linear amplifier. It also led to a lower profile on my part when the bank statement arrived!

Search Was On!

With everything else ready to go, the search for a really good contest site was on. The starting point was a collection of Ordnance Survey 1:50,000 maps of the Scottish borders.

However, the thorny problem for anyone looking for a good v.h.f. site in a mountainous area like the beautiful Scottish Borders, is that the most promising-looking sites turn out to have an even bigger hill only kilometres to the south. And if it doesn't...it's only accessible to sheep!

An extra problem...something which we should all bear in mind, was that as I was planning to operate solo I did not want to stray too far from the beaten track. Accidents can happen and your safety should come first.

Having set myself some challenging parameters I then went through a period of frustration. Many of the potential sites found on the maps turned out to be another Amateur's pet contest site when I check past contest results. It was either that or they turned out to have access problems when I carried out a ground check.

Success By Accident!

Final success in locating a site came by entirely by accident! I was on my way to an agricultural show in Northumberland and I managed to get lost. A glance at my road atlas showed me a minor road which led in the right direction...so I took it.

The minor road took me up to approximately 335 metres a.s.l. and although I'd already looked at it as a possible location - deemed it unsuitable as there only seemed (on the map) to be a very gradual fall towards the south. However, driving along the road it became clear that although the slope **was gradual**...it continued for along way in exactly the right direction towards the south-east.

Unlike the Pentland Hills near my home the site didn't have a dramatic height drop but it had nothing between it and the South of England. In other words it gave line-of-sight contact with the high population areas. What's more - it was also unfenced common land, so the important issue of obtaining landowner's permission wasn't going to arise. So, I made a mental note to pop back again a few days later.

● **Perhaps not a dramatic hill-top site...but David GM4WLL has proved that his v.h.f./P site has an excellent take-off for working towards the south and the Continent.**

Returning to the site on a weekday afternoon I found that 144MHz s.s.b. very quiet and, with the GB3VHF beacon in Kent out of action it was hard to measure the effectiveness of the site. Despite this it was a pleasure to operate without all the hash and noise.

In an attempt to get a measure of the site's value I tuned to n.b.f.m. And to my astonishment I found almost every repeater channel occupied!

I sat watching the S-meter bounce off the end stop as a couple of stations 200km away in my native North Riding of Yorkshire discussed sheep farming problems. Meanwhile a local inhabitant, a black-faced ewe was giving me a very old-fashioned look!

The site obviously had some real potential so the following Sunday I returned to try it out in earnest and nearly didn't bother erecting the mast due to the thick fog which enveloped the hillside. However, further along the road a motor caravan was parked beside a small mast topped with a CB antenna which encouraged me to change my mind, expecting the odd QSO of a few hundred kilometres.

● The modest antenna system which has proved to be very effective at GM4WLL's site.

How I was! The first QSO resulted in a chat with **Bryn G4ZHI** 450 kilometres away in the Thames Valley. This I put down to Bryn's QRO linear amplifier and large antenna system providing enough gain to overcome the obviously poor conditions.

A further CQ resulted in a change of mind! The call provided a long list of QSOs, all of 400km plus. I received comments such as "You're an incredibly strong signal for a GM" and "You're the first GM I've heard all year". Very encouraging indeed.

Acid Test

The acid test for the site would be of course a full scale contest. And after a false start during a c.w. cumulative contest when I had problems controlling my antenna in a vicious gale, I resolved to try the site properly during the 144MHz Trophy, one of the major 24-hour events in the contest calendar.

I didn't want to operate throughout the 24-hour period. So, instead I opted to join in from first light on the second day to the end of the contest: it was to be an eight hour session.

On the day of the contest I arrived and set-up, full of hope. With the antenna erected - single handed this is not for the faint hearted! - the rig and amplifier switched on, ready to go I started to tune around. My first QSO was with a G3 in the Midlands. Fair enough I thought.

The next signal I came across was very strong and as I resolved it I told myself it would be **GM0CLN/P** who I knew was on a nearby hill. But I was wrong...very wrong!

I sat there stunned as a heavily accented voice said "Tango Mike One Charlie, contest". No, that was wrong, I must have misheard it, it must have been a Golf Mike or Mike-Mike station - and then the call came again. I replied and got a good report from a station over 750km away!

"Must be a fluke" I thought as I tuned to the next signal: "Tango Mike Two Kilo, contest".

"Wow" - this is really happening I said (probably aloud!). I really thought you had to be a big gun contest station with eight antennas and enough kilowatts to put the BC to shame to make QSOs like these under average conditions. I was feeling really pleased with myself.

Final Test

After I'd worked all the stations I could hear I selected a clear frequency and started to call "CQ Contest". This would be the final test of the station. If I got plenty of calls from fixed stations in the south then I would know my signal from this site was a potential winner. Sure enough - I got call after call: "Heaven must be something like this" I said to myself!

I went on to make nearly 80 contacts in that session, the majority of them over 400km and 10% of them on the Continent. I worked six countries and 20 locator squares and went home with my head in a spin. I had truly stumbled on to the sort of contest operating I had thought was way beyond my resources with only a few hundred £s of second-hand equipment.

A few days later I returned to the site to enter another c.w. cumulative session and found myself working a PA0 with 599 signals both ways. It was very reassuring: it wasn't a dream after all!

Now I'm planning a serious entry in a major v.h.f. contest and I would urge anyone who thought, as I did, that serious contesting required even more serious resources, to think again.

We can't expect to beat the big guns at their own game, but we can have a lot of fun giving them a run for their money, without spending too much of our own! So, good luck with your own entries. *PW*

Carrying On The Practical Way

This month the Rev. George Dobbs G3RJV pays tribute to generous PW readers and takes a look at a transceiver design using a single MPF102 field effect transistor, after the usual quotation!

"For every problem there is a solution, which is simple, clean and wrong".
Henry Louis Mencken

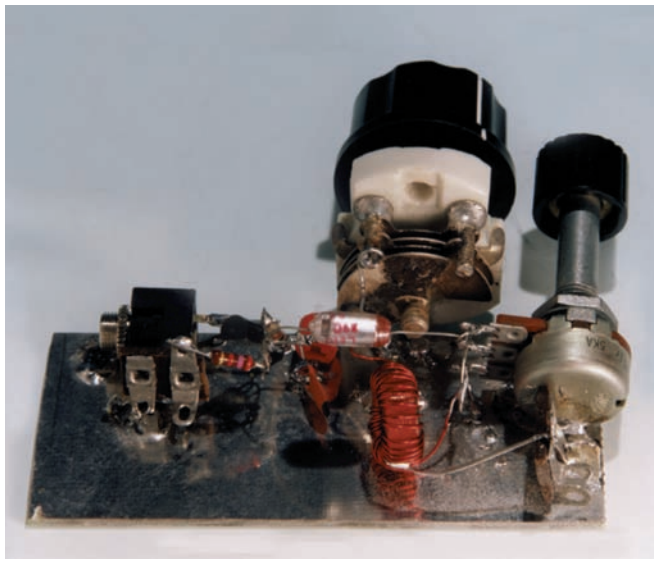
Readers of *Practical Wireless* are a generous lot! From time to time they write to me suggesting ideas and sources of circuits for this column. Keep up the good work – it saves my tired old brain from pondering on what to offer readers month by month.

Some time ago, two readers, within the space a few days, E-mailed me about a very simple circuit. They suggested that I looked at the FET-1 transceiver on the W2UW website.

The circuit in question is of a complete transceiver using only one field effect transistor (f.e.t.). Intrigued, I sought the website and downloaded the information on the FET-1.

The FET-1 is the **F**ield effect transistor **E**xperimental **T**ransceiver (hence FET-1), designed and built by **Glenn Yingling W2UW**. At the time I viewed the website, Glen had worked 17 states on 7MHz with his minimalist transceiver.

Included on the website was a hand-drawn circuit of the transceiver, which is shown in **Fig. 1**. For the purposes of this column I've simplified it slightly and excluded the values for the frequency determining components to give readers an overall view of how it works.



This month's project...maximising the minimal, using a single transistor for transmission and reception.

The Heart

The heart of the transceiver is a single MPF102 f.e.t. mounted on a three-pole change-over switch. With the switch turned to the left, as shown in the circuit, the FET-1 becomes a regenerative receiver.

The receiver uses a Hartley type circuit, with tapped tuned circuit, to provide the feedback. The combination of L1 and C1 tunes the desired band.

On the original, the variable portion of C1 was a single vane capacitor and the rest of the required capacitance was a combination of fixed values and a trimmer. Another variable capacitor, from the drain of the f.e.t. provides the regeneration feedback control. There is no audio amplification and the regenerative detector feeds a pair of high impedance headphones.

When the switch is turned to the right, on the drawing, the f.e.t. becomes a very simple transmitter (well, an r.f. oscillator!). A crystal at the required frequency provides a feedback path between the drain and gate of the f.e.t. and also determines the frequency of oscillation.

The 100kΩ potentiometer adjusts the biasing on the gate of the f.e.t. to the desired voltage. A 100µH r.f. choke is the drain load providing r.f. output for a simple low-pass filter prior to the antenna. Keying is applied at the source of the f.e.t.

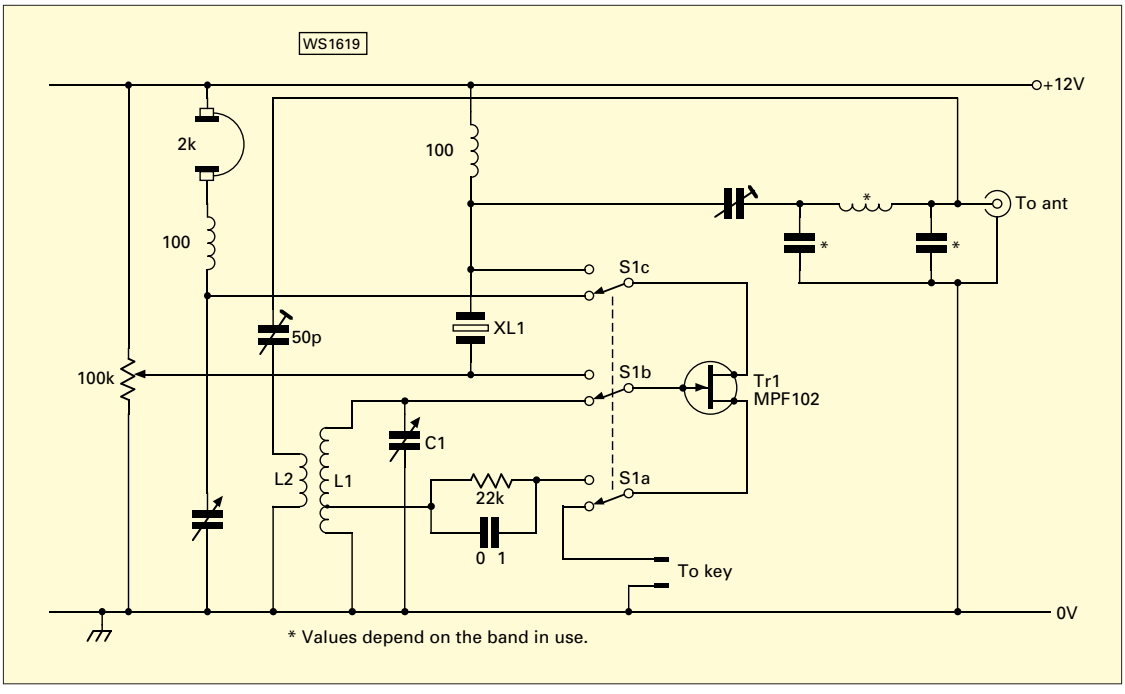


Fig. 1: This month's main project is based on the FET-1 is the Field effect transistor Experimental Transceiver (hence FET-1), designed and built by Glenn Yingling W2UW. For the purposes of this column G3RJV has simplified it slightly and excluded the values for the frequency determining components to provide an overall view of how it works (see text).

Delightfully Simple

I decided to try this delightfully simple circuit. However, I had quite a lot of fiddling to do to hit the 7MHz band with L1 and C1 and some more effort to get a satisfactorily smooth regeneration control.

Although the audio level was decidedly low, I was surprised at how many stations I heard on 7MHz using a few metres of loose wire as an antenna. Very successful!

Like all regenerative receivers, it's easy to overload the detector. And when I connected the receiver to an outside antenna, I only needed a very small value capacitor to couple L2 to the antenna.

The transmitter **was less successful**. All my efforts with the circuit produced no significant output at the low-pass filter. This, coupled with the fact that the receiver requires two good quality variable capacitors to work at all well, suggested this might not be a circuit I could pass on to *PW* readers.

Similar Circuits

The basic idea is novel, so I cast around for other similar circuits that I thought might be easier to reproduce. Several times in the past I have used a potentiometer to control the feedback in simple regenerative receivers. The circuit in **Fig. 2** shows how this can be done. In fact, this is a version of a simple circuit called the SMID-GEN submitted by **John Smith G4KJJ**, to *Sprat*, the journal of the G-QRP Club.

In the Fig. 2 version of G4KJJ's circuit the feedback is provided by a link winding, L2, coupled to the tuned winding, L1 and L2 obtains the fed-back signal via a capacitor (390pF) with a linear potentiometer as the control. The potentiometer is easier to obtain, and cheaper, than an extra variable capacitor and provides good regeneration control.

The values quoted are for the 7MHz amateur band but, depending upon the values in the tuned circuit (L1/C, 1, 2, 3) other frequencies could be covered. The antenna is coupled to the tuned circuit through Cx to a centre tap on L1. Don't forget that the value of Cx will depend upon the antenna, as too much signal from the antenna will damp the regenerative action.

In Fig. 2. I've not included provision for using the audio signal. However, the 10kΩ resistor in the source of the f.e.t. is a good pick-off point for an audio signal.

A pair of high impedance headphones **could be used** but these are no longer common and my results with the FET-1 receiver suggests that the listening level will be low. So, I used my **Amplified Speaker** a former project from this column and fed it from the **audio-out** marked in Fig. 2 and it gave very acceptable results.

If you have not built the Amplified Speaker project, perhaps amplified speakers of the sort used with computers could do the same job for you. **Note:** If the audio output circuit does not include a capacitor in the input circuit add a coupling capacitor (say 100nF) in series with the output.

Regenerative Receivers

As with all regenerative receivers, it takes little time with the tuned circuit to get it onto the required frequency range. Using the values for L1 in Fig. 2, I managed to cover the 7MHz band very well with 120pF for C1, a 60pF trimmer for C2 and a variable capacitor with only one moving vane for C3.

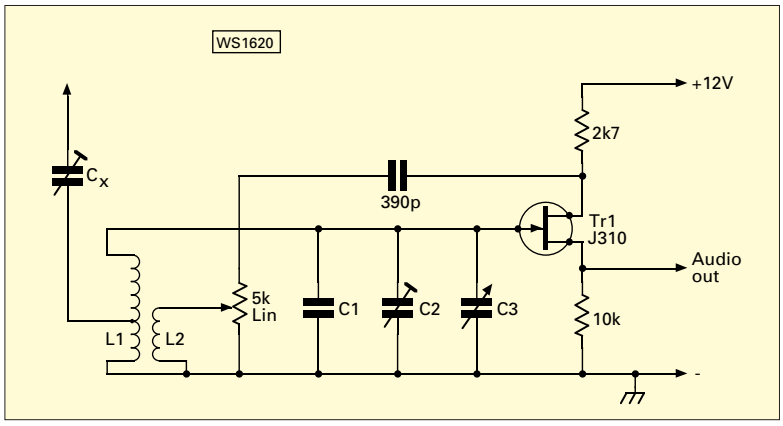


Fig. 2: Using a potentiometer to control the feedback in simple regenerative receivers. The circuit, described by G3RJV, illustrates how this can be done (see text).

Incidentally...that single vaned capacitor is an old campaigner from previous projects. It's an air-spaced variable capacitor that I pulled vanes off with a pair of needle-nosed pliers until only one moving vane remained.

When you set your project up - you can check the frequency of the receiver by sweeping a variable signal generator across the range and listening for the signal. Alternatively it can be done by setting the receiver to oscillate (hissing sound) and listening for the oscillation signal on another receiver.

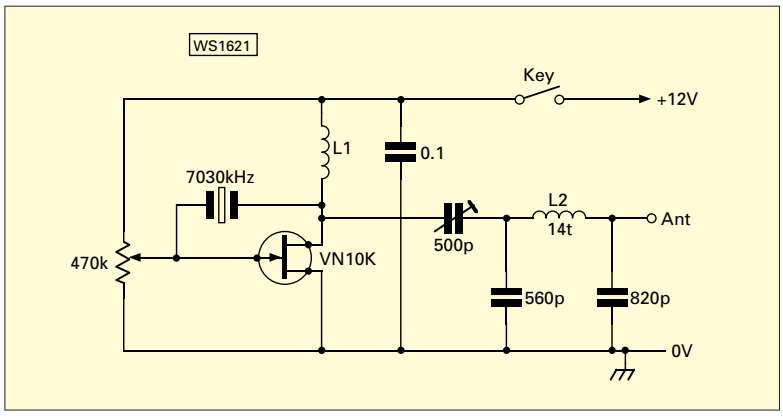


Fig. 3: This single f.e.t. transmitter was originally published as a G-QRP Club Sprat circuit. It was designed by George Burt GM3OXX. George G3RJV says "it's a cunning little circuit"! It uses a m.o.s.f.e.t. device to produce quite a beefy signal (see text).

Circuit From Sprat

The single f.e.t. transmitter I've described reminded me of yet another *Sprat* circuit. It was designed by that doyen of simple ideas, **George Burt GM3OXX**. George once suggested a transmitter called the FTX using a single f.e.t.

George's basic project is shown in **Fig. 3**. and it's a cunning little circuit! It uses a m.o.s.f.e.t. device to produce quite a beefy signal.

The load for the drain of the m.o.s.f.e.t. is the coil of a 5V relay. This not only provides a convenient amount of inductance but also operates the relay so the contacts of the relay can be used as change-over switches from transmit to receive...cunning eh?

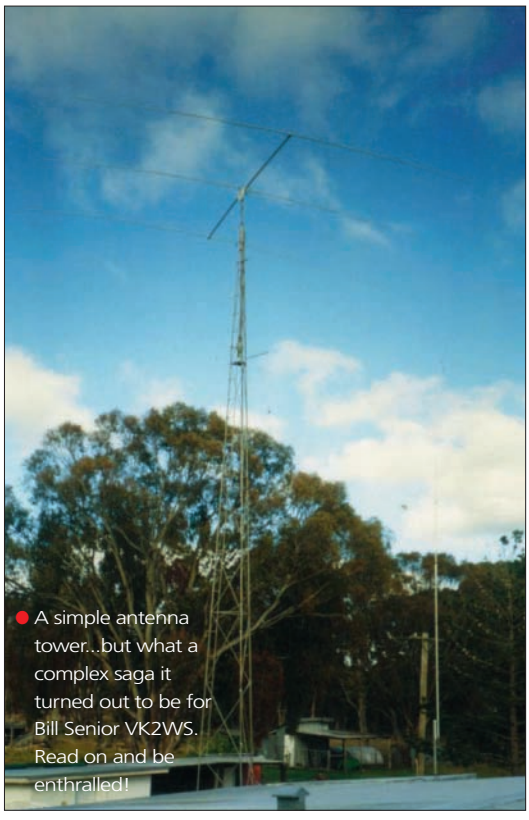
The transmitter is very easy to set up. With no crystal fitted between the drain and gate, you should apply the 12V supply and adjust the 470kΩ pre-set potentiometer until the relay clicks in. Then add the crystal and the transmitter is ready for use.

I lashed up a very ugly version of this circuit and it works well, giving at least 100mW of r.f. output. I leave readers to decide if they want to use the relay to facilitate the transmit-receive changeover or for that matter, if they can devise a novel way to use Fig. 2 and Fig. 3 together as a complete transceiver. Happy minimalising! *PW*

TOWERING DETERMINATION

Australian Antenna Saga

Bill Senior VK2WS describes the fascinating story behind the setting up of his antenna tower in New South Wales. It took time, determination and much effort, but he triumphed in the end!



A simple antenna tower...but what a complex saga it turned out to be for Bill Senior VK2WS. Read on and be enthralled!

About 25 years ago I had a very good radio location but only wire antennas. I then bought a second-hand 3-element tri-bander, and put it on a pole. The antenna was fine for a while, but it was inconvenient to use the 'armstrong' method to change the antenna direction. So I then bought a rotator.

All worked well, but the antenna was only about 2m above the roof. However, height is most important and so I looked around for a tower and my good friend **Don Chatterton G4PLE** (who I regularly work on 14MHz) thought you might like to read the saga of the resultant adventures here in *PW*!

In those days in my region of Australia there were many towers, once used for TV reception. And although many looked neglected, there were none available for sale.

Eventually I found a tower, but it was bent. The reason? - when the tower was being lifted into place using a crane something slipped resulting in a bent house and a bent tower!

I had a look at the tower and found it in very long grass and rather twisted. Being economical I offered less than was asked but made no headway and so was forced to pay the full price of A$30.

Two Sections

The tower was triangular, in two sections tapering from about 1.25m at the base to 150mm at the top. There was a short section of steel pipe welded between the top corner tubes to allow for the addition of a further tube on which to bolt the antenna.

The overall height of the tower was about 17m. It was made of water-pipe in a lattice configuration with a built-on ladder. Having paid for it the next problem arose - how to transport it home about 16km away.

I considered the possibility of towing the tower on some wheels. However I thought that even at around 7am on a Sunday this would be fraught with police possibilities.

A friend suggested a local haulier who was contacted and priced the job at A$20. So, there it was, lying in the grass outside my garden area in two very sad looking sections. Help was required and advice was needed too!

Pipe Bender

The advice soon arrived: "You need a pipe bender", said a friend at work when he heard of my problems. A pipe bender is essentially a robust equilateral triangular frame lying on the ground with two rigid points on the base and a hydraulic jack at the apex pointing inwards. Thus, a piece of pipe placed along the base against the stops could be pushed by the jack into a different alignment.

My friend was able to borrow a pipe bender. We then worked for the afternoon to straighten rather than bend the pipes of which the tower was made.

The process continued until the tower was straight overall but still had some small kinks. Alignment was assured by sighting a rifle through the top tube onto crossed sticks at the base.

The next problem was to provide a base on which to stand the tower. A raising base was easily designed because the bottom of the tower already had very heavy lugs with drilled holes on the three legs.

I had the base made rather like a tripod with heavy steel strips between the lugs at the top and steel rods 1m long bent at the ends to set into deep concrete. More expense - A$26.

Next I made all sorts of calculations, knowing the wind resistance of the antenna to be used. I doubled the result and decided that a block of concrete 1.2m deep and about 1.8m triangular section would hold against the mightiest hurricane even with me at the top.

All I needed was a hole of 1.8m triangular section and 1m deep. And it's amazing how much soil has to be removed to provide a cavity that size!

Ground conditions consisted of about 150mm of

soil and then very heavy (and very solid) clay! I also found it was almost impossible to wield a pick, so considerable spade work was involved. Some very sweaty hours later I had a hole.

Having acquired the hole I next needed enough concrete to re-fill it. My (very helpful) pipe bender loaning friend then provided a concrete mixer with an electric motor which could be connected to the house supply.

It takes a lot of concrete to fill a hole of the size I'd dug. Oh why didn't I get ready-mixed lorry load?

When it was finished I knew enough to leave the base alone for at least two weeks to cure. I did so gratefully, because I also needed a rest from my unaccustomed labours!

Tower & Base

After all the hard work, I then had a tower and a base...about 20m apart and separated by fences and gates, etc. Fortunately the ground was quite level and hard, and with very little grass coverage. So, using a trailer and a car with a tow-bar, I jacked up the bottom end of the tower and pushed the trailer under it.

Next, I lowered the tower onto the trailer and although it seemed to be secured by its own weight, I roped it just in case. I then attached the top of the tower to the tow-bar of the car.

Unfortunately, with our above-ground swimming pool and other obstacles, I had to back this unlikely outfit for most of the way to get it into position near the base.

As I got near, travelling in reverse, moving very slowly, there was a musical twanging noise. I had collected the overhead electricity supply to the house!

Fortunately it was insulated cable and I stopped in time, with no harm done. However, I had to lower the tower from the trailer to get it under the cable.

A 17m triangular tower is very difficult item to manoeuvre when not on wheels. With more sweat and the car removed, I was able to get the tower bolted to the base at two points while it was lying flat on the ground.

So, the tower and the base were united; next I had to attach the rotator and antenna. Obviously it was then necessary to raise the tower far enough to get the important bits in place and that was going to be quite a job!

Fitting The Antenna

I could just lift the tower top off the ground and slide a piece of tubing into place on which to bolt the rotator. With this done I had to get the top of the tower high enough to start fitting the antenna.

The boom of my chosen antenna was almost 4m, which means that the tower had to be at least 2m off the ground. I used a car jack under a lower part of the tower to start the raising process.

Fortunately I had a Ford Falcon jack which operates on the front or rear bumpers of the car. This was ideal to put under a cross strut of the tower and raise the structure off the ground.

At the full height of the jack, the top of the tower was then about 1m above ground level. By wedging a box under the tower, removing the jack and putting another object under that I continued the raising process until the top was high enough.

I'd previously bolted the antenna to a short length of steel tube. By precariously balancing on the top of a rather shaky wooden step-ladder I was able, after several wrist snapping tries, to get the antenna - a TA33 junior - connected to the rotator.

Unfortunately, I then realised that an antenna needs to point in the direction indicated on the remote indicator inside the shack. More problems: the antenna was at an angle to the ground which made it difficult for me to determine where it would point when raised to full height.

In the shack I checked that the indicator was set to North. Then, by looking along the tower and lining up the boom with the N-S side of the tower, I was able to get it nearly correct.

● A sigh of relief! The antenna tower erected and ready for business and many QSOs between VK2WS and G4PLE.

Jack & Drum

By chocking under the tower and using different objects under the jack including a large oil drum I got it to about 30° from the horizontal before hitting the next snag. The electricity supply!

The mains supply to the house at that time was overhead and about 4m above ground where it passed over the partly raised tower. Unfortunately the electricity people were working in the area and were looking very askance at what was going on.

There was no simple method of disconnecting the supply between the pole and the house. However, with all antenna and rotator cables connected the electricity supply had to be removed to allow the tower to be raised.

I had aligned the whole thing so that a tree could be used as an anchor point for a winch. I borrowed a winch called a Tirfor, a marvellous piece of equipment consisting of a flat rectangular steel box through which a steel cable is pulled by a system of levers and pawls. Tremendously strong, the distance which it can be used over is dependent only on the length of the cable available.

I attached the cable to the tower about half way up, and the winch itself to the tree about 3m from the ground. I then disconnected the electricity supply at its entry point at the house roof and taped a short length of hosepipe over the two ends and unhooked the cable anchor to allow me to raise the tower.

The mains cable was very thick, insulated and heavy. So heavy that the attached rope (so that I could haul it back into position) nearly pulled me off the roof when released!

In The Dark!

Incidentally, this part of the process was carried out in the dark (in case on unwanted observers!). But no worry - the tower went up beautifully with no further difficulty and was fixed securely using bolts of around 30mm in diameter.

Then I had to re-attach the electricity supply and this is where the fun really started! I returned to the roof and hauled on the rope to pull the cable up, but found to my dismay that it was too heavy.

After some extra effort the cable was successfully anchored and reconnected. The rest was easy, connecting the antenna cable and the rotator controls internally to complete the installation.

Whether my wife will ever recover from the trauma is a matter of conjecture! She normally goes somewhere out of sight when I am attempting an interesting project but on this occasion had to watch in case I needed help (such as the Royal Flying Doctor Service!).

Worth The Effort?

Was it worth the effort? My answer is most certainly!

Since then there have been very few occasions when my signal has been bettered by other Amateurs in this State. And now the electricity supply is underground there's no longer a need to disconnect the electricity if the tower has to be lowered.

However, whenever I want to take the tower down the winch (and preferably a friend) have to help out because I've cut down the tree! But they do say that a problem shared is a problem solved don't they?

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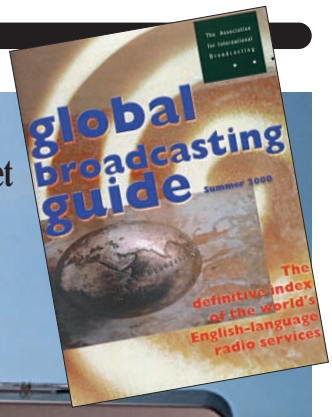

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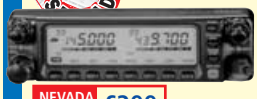

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Valve&Vintage

The sound of his West Midlands accent as he talks to a customer tells us it's Phil Cadman G4JCP on duty in *PW*'s own wireless shop this time. And it appears he's been very busy!

A warm Spring welcome to the *PW* vintage wireless 'shop'. I certainly hope it's warm where you are because here as I write my column in Dudley, west of Birmingham, it's snowing! Give me a moment to put on my thermal brown dust coat and toast myself by some glowing valves.

Firstly...it's red face time. Did you notice the drafting error in my March column? There was a missing connection on Fig. 2, the power supply circuit. ***Note:*** *Our fault Phil. Apologies to you and readers.* ***Editor***.

The lower ends of resistors R17 and R18 should be connected together. In other words, there ought to be a connection between the point marked 'E' and the 0V rail. Also, the electrolytic capacitors should have been marked as 400V types with the exception of C5, the EL84 cathode bypass capacitor, which needs a working voltage of 25V (or more).

Lively Correspondence

I'm pleased to say that my little amplifier circuit in the March V&V resulted in a lively correspondence between myself and **George Fisk** of South Shields. George was concerned at the amount of negative feedback I'd suggested.

George was concerned as too much feedback can cause instability, even oscillation. So, if you do experience any instability, try increasing the value of the feedback resistor R12 to 20kΩ or more. Thanks for your comments, George.

Unfortunately, brief bursts of instability, which are often only present when the amplifier is being driven, can be difficult to hear. It's best to view the output of the amplifier on an oscilloscope if you have access to one.

George wasn't the only person to take an active interest in the amplifier. Shortly after the March *Practical Wireless* was published, I received a very enthusiastic letter from **Ken Draper** of Honley, near Holmfirth, home of the famous BBC transmitter, as well as the long-running *Last of the Summer Wine* programme!

Welcome Ken! Purely by chance, Ken told me he'd picked up a copy of the March issue and was very pleased to see valves still being featured in *PW*. All very appropriate as Ken was in the process of building a **Mullard 3-3** amplifier at the time.

After exchanging a few letters, Ken's 3-3 was making music and I'd got a list of Ken's valve and vintage interests, most of which could be possible topics for future V&V columns. So, like Ken did, why don't **you** write and tell me about your own favourite valved and vintage interests.

Fig. 1: Phil 4JCP says "Take a look at a miniature valve and you'll usually find both a three-character code and a four-character code". The photograph shows the codes on a Mullard ECC81 (see text).

Old Catalogues

Going back to my mention of old electronics catalogues, I must thank **Ken Melton GM3WKM** (another Ken!) for offering me a 1968 *Electroniques Hobbies Manual*. Almost 1,000 pages of fascinating stuff. Not just components but complete equipment as well. Many thanks, Ken.

Another delightful surprise, this time courtesy of **Christopher Mann EI9CZB**, dropped through my letter box in January. It was a photocopy of a *Henry's Radio Price List* from February 1949!

I've never noticed any Henry's Radio advertisements in radio magazines from that period, so I was a little surprised to find Henry's was in business that long ago. The 20-page, A5-size price list is in complete contrast to the comprehensive catalogue published by the company some 20 years later. Sadly, Henry's and many more are now gone. Thank you, Christopher. No wonder we old 'uns get nostalgic!

Battery Valves

Now to the subject of battery valves. Remember those valves which were introduced in the late 1950s for use in car radio sets? They worked from a h.t. supply of just 12V.

Car radios designed in the UK often used the line-up of ECH83, EBF83 and EF98. The audio output stage usually employed one or two low-frequency germanium power transistors.

When I first mentioned them back in June 1999, several people told me that the ECH83 was rumoured to be just a specially selected ECH81. On checking the electrical characteristics of the two valves, I found that the inter-electrode capacitances, useful in comparing the physical dimensions of electrode structures, of both the ECH81 and the ECH83 are the same **but for one tiny discrepancy**.

What's more, the EBF83, and its mains equivalent, the EBF89, have identical inter-electrode capacitances. So, **are they the same?**

In an effort to find the truth, G4JCP finally opened his wallet and bought a set of 12V valves! After checking the manufacturers codes on the valves, he's come to the conclusion that the ECH83 and ECH81, and the EBF83 and EBF89, **are indeed the same**.

Identification Markings

Some time ago I commented that the valve identification markings on most valves were printed with angels' breath. In other words, that the characters rubbed off at the slightest touch.

But there are other markings, located near the pins of many miniature valves, that are far more durable. These are manufacturing codes, which identify the valve type and where and when it was made.

You'll find them on most European valves, particularly those sold by Philips and Mullard. They're often on valves sold by other manufacturers too, simply because no matter whose name is on the box, most valves were made in the same factories.

Take a look at a miniature valve and you'll usually find both a three-character code and a four-character code. The photograph, **Fig. 1,** shows the codes on a Mullard ECC81 (printed upside down).

The first two characters of the three-character code indicate the valve's type: VF = ECC81. The first character of the four-character code indicates the factory in which the valve was made: B = Mullard's factory at Blackburn in the UK. And before you ask - No, I don't know how to interpret the other characters!

The type code on my newly-acquired ECH83 was

YD. On my list, that's the code for an ECH81. Similarly, the **G3** code on my EBF83 is actually the code for an EBF89. Interestingly though, both the ECH83 and EBF83 do have their own codes: **NJ** and **MJ** respectively.

If the two 12V h.t. valves mentioned **really are** standard mains types, then other valves might work satisfactorily at very low voltages too. Maybe those designed for use in televisions and a.c./d.c. radio sets, where the available h.t. is somewhat low in any case, might offer the best chance of success.

Sometimes however, the codes can be contradictory. This was discovered when I also bought an EF98 and a couple of ECC86s when I splashed out!

The EF98 is in a Telefunken box, supposedly made in Germany, yet has a factory code corresponding to Mullard's Blackburn plant! The ECC86s are Siemens, again supposedly made in Germany. But the factory code indicates Philips's Heerlen plant in Holland. Anyone 'in the know' care to tell me what was going on?

There's a copy of the factory codes listing on the Internet at:
http://www.triodeel.com/philipsfactorycodes.jpg
The list of valve type codes is at:
http://www.triodeel.com/images/philipstubecodes.pdf which also includes (albeit at a lower resolution) the factory codes list.

The www.triodeel.com site is maintained by **Ned Carlson** of **Triode Electronics**, an American company based in Chicago. Ned sells valves, valve-related components and valve equipment. His site has loads of links and information, and is well worth a visit.

Ned told me that the original lists were provided by a certain **Herr Dieter Walbart**. Many thanks, Dieter. Your lists are much appreciated.

If you haven't got Internet access, I can supply either a printed copy of the codes, or the two files on 3.5in disk. Just send three second-class (19p) stamps and with your name and address to my address below.

Short Wave Mobile

Way back in September 1962, our sister publication *Short Wave Magazine* published an article by **Jack Spratt G3KWG**. Entitled A Hybrid Receiver For Mobile Operation, the design used ECH83s to perform all functions except for audio driver and audio output. It was based on a commercial set - the marine radiotelephone model A20 by Ajax Electronics.

It seems that one of these sets has turned up in Gozo! That's Malta's companion Island...often referred to as Malta's Garden in case your geography is a little rusty. **Joseph Camilleri 9H5CO** E-mailed me from Gozo a few weeks ago asking if I could identify a 'boat-anchor' he'd been given.

A few E-mails later, Jack had identified the set as one of his A20s and the circuit was on its way to Gozo. Thanks for your help on this one, Jack.

Very Low Voltages

My interest in operating valves at very low voltages has led me to seek an understanding of how a valve's characteristics relate to the physical dimensions of the electrode structure. When I mentioned my interest to George Fisk while we were discussing my audio amplifier, he (good man) found just what I was looking for in a book he owns.

The relationship between the amplification factor and mutual conductance of a valve, and the physical dimensions of its electrode structure, can be found on pages 304 to 309 of the *Radio Engineers' Handbook* by F.E. Terman. It's the 1943 edition published by McGraw-Hill. While I don't expect most people will be the slightest bit interested in this, those of you with an inquisitive nature might find the relationships very interesting.

Be warned, though. The book is not for the mathematically squeamish!

Right, I'd now like a little help...perhaps you may be able to assist? Does anyone have a Mullard PM2DX? Before you all shuffle your feet and shake your heads, let me assure you I don't want to prise it from your sticky little fingers. All I want to know is **how much filament current it draws**.

I'll explain: While rummaging through some old valves I came across a PM2DX - a two-volt battery triode, see **Fig. 2**. Feeling particularly nostalgic, I tried it in my old Hear All Continents (HAC) one-valve receiver. But not before I'd knocked it over! The good news is: it works a treat, but the filament draws 190mA at its rated 2V. I thought..."This is strange".

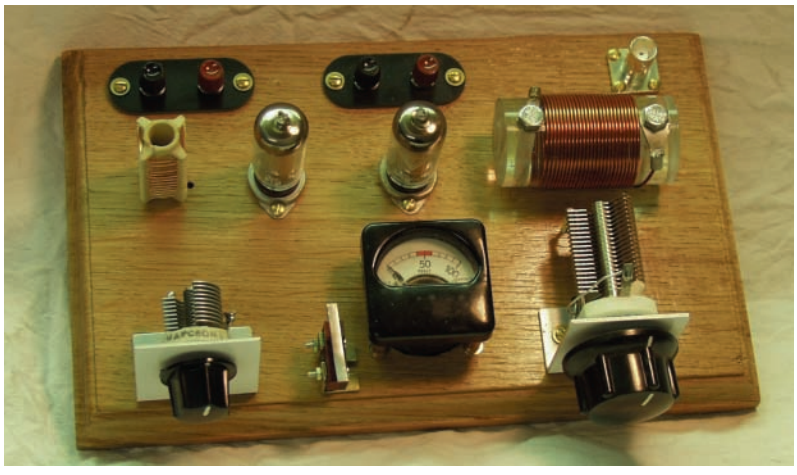
The data for the PM2DX says it should be 100mA. One book I have gives the filament current as 250mA but that may only apply to the first PM2DXs that were made. I'd like to know whether I have one of these early versions, or whether I damaged the filament when I knocked the valve over.

Our Editor's review of the book *The Saga of Marconi-Osram Valve* in the February issue of *PW*, prompted me to get a copy. Even though I've only yet had time for a cursory glance through the pages, I feel more than able to fully endorse Rob G3XFD's opinion that it's **an excellent** book. It should indeed appeal to anyone who's interested in the development of valves in the UK. It was with particular sadness, therefore, that I heard of the death of the book's co-author, **George Jessop G6JP**, not long after receiving my copy.

Finally, with battery valves fresh in mind - **Johnny Apell SM7UCZ** has been busy again, see **Fig. 3**. This time he's built a v.f.o./p.a. 3.5MHz transmitter using two DL93/3A4 battery valves. The output stage draws a total of 24mA (18mA anode, 6mA screen) at 150V to provide an r.f. output of 1.2W. No doubt we'll hear how many QSOs he had on it later!

Time to close now so I'll doff my (now warm) dust coat until the next time it's my turn 'in the shop'. Please send your comments and letters to me either via the *PW* offices, via E-mail to **phil@valveandvintage.co.uk** or direct to: **21 Scotts Green Close, Scotts Green, Dudley, West Midlands DY1 2DX.** *PW*

● Fig. 2: While rummaging through some old valves G4JCP came across a PM2DX - a 2V battery triode. It works a treat, but the filament draws 190mA at its rated 2V rather than the expected 100mA. Can you help solve the mystery (see text).



● Fig. 3: Johnny Apell SM7UCZ's v.f.o./p.a. 3.5MHz transmitter using two DL93/3A4 battery valves. The output stage draws a total of 24mA (18mA anode, 6mA screen) at 150V to provide an r.f. output of 1.2W (see text).

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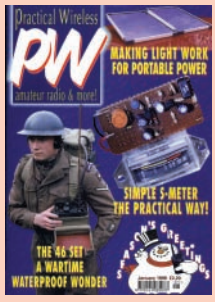
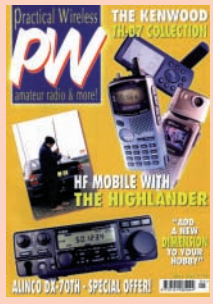


Jan
* International Beacon Project
* The Waterproof Wonder
* Solving Power Problems

Feb
* FT-1000MP Reviewed
* PW Sardine Signal Source
* DSV Simple Loop

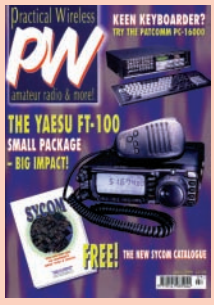
March
* Roberts RC-828 Reviewed
* Alinco DJ-G5 Reviewed
* The PW Panther Project Pt1

April
* Alinco DR-M06TH 50MHz Mobile Reviewed
* Electronics in Action
* Build a Practical Beam

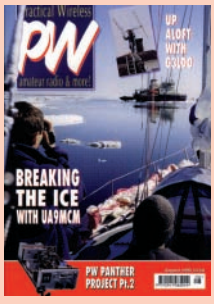


May
* Kenwood TH-D7 Review
* VHF Contests - Getting Started
* Highlander Antenna Review

June
* Dealing with Decibels
* W9GR DSP Filter Kit Reviewed
* Free - MFJ Catalogue

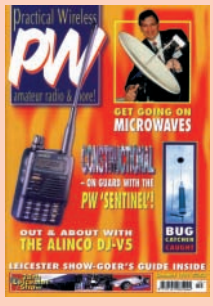


July
* Yaesu FT-100 Reviewed
* Free - Sycom Catalogue
* Patcomm 16000 Reviewed

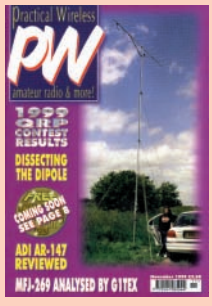


Aug
* The PW Panther Project Pt2
* Installing Solar Power
* Indoor Antennas

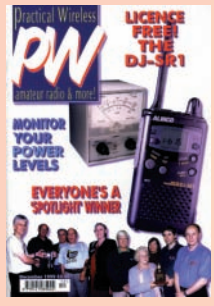
Sept
* Icom IC-706MkIIG Reviewed
* MFJ-9402X Reviewed
* Looking At.... Frequency Synthesisers



Oct
* Get Going On Microwaves
* Alinco DJ-V5 Reviewed
* Build - PW Sentinel Pt1



Nov
* Dissecting The Dipole
* ADI AR-147 Reviewed
* MFJ-269 Reviewed



Dec
* Alinco DJ-SR1 Reviewed
* Monitor Your Power Levels
* Build - PW Sentinel Pt2

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REPORTS & INFORMATION BY THE LAST SATURDAY OF EACH MONTH.

Conditions on the 50MHz band during March was very much like a roller coaster ride. Days of trans-equatorial propagation (t.e.p.) with southerly contacts into Africa were interspersed with periods of auroral propagation in the northerly direction. Following this geomagnetic activity, the band would then collapse with no contacts being reported for a day or so.

Of course if you are located in northern England and Scotland then you only had a one way ticket to the Aurora Borealis! That's because the UK isn't in the main t.e.p. zone and only stations in southern and central England (as a generality) can occasionally enjoy the t.e.p. openings. Stations in northern England and Scotland participate in a far greater number of auroral openings than operators located in the south though.

Propagation on the 144MHz band is very much weather dependant, especially during the winter months. The only ionospheric events that normally reach this frequency band in early Spring are auroral back-scatter openings.

There were a number of ionospheric events in the latter half of the period and one enormous event that I will tell you about later. Tropospheric propagation settled down to its normal listless self with c.w. and s.s.b. contacts being made over paths of up to 600km or so with occasional enhancements enabling c.w. and s.s.b. contacts of around 1000km to be made.

Turning first to t.e.p. contacts on the 50MHz band and I've had reports that the band was open on at least 16 days during March. Openings however were generally spasmodic with events lasting maybe an hour or so on favourable days.

Many contacts were made with stations such as TR8KPJ (Gabon), Z22JE (Zimbabwe), ZS3C, ZS4S, ZS5WI, ZS6BTE (South Africa), V51KC and V5/DM5TI (Namibia). Most of these being over paths of around 9000km. Other c.w.. and s.s.b. contacts included the stations of C56/DL2OE and C56/DL7CM (an expedition to Gambia), 5U2K (a similar expedition to Niger), ET3VSC (Ethiopia) and 3C5I (Equatorial Guinea). Strictly speaking these contacts were not trans-equatorial as all stations are located north of the equator. The F-layer mechanism is very similar though.

Operators on the 50MHz band know you don't need much power to make DX contacts, only patience! Novice station **James Roff 2E1EMK**, Hampshire - IO91, is restricted to 10W output and runs this power into a 5-element Yagi at 10M above ground. On March 21 he worked a new country and two new squares when he made s.s.b. contacts with ZS6AVP (KG44), ZS6PJS (KG46) and ZS6WB (KG44). Excellent stuff!

CQ AURORA!

Auroral back-scatter openings were reported on March 19, 20, 23, 28 and 31st with all of these events reaching up as high as the 144MHz band. There were also some less intensive openings on other days during the period which created a small flurry of activity on the 50MHz band.

An opening on March 19 was quite interesting as Auroral-E propagation developed during the event. The auroral opening on the 50MHz band commenced around 1700UTC with stations exhibiting the characteristic 'growling' noise.

At 1920UTC some stations noted that Scandinavian stations were being heard with a pure note without the roughness associated with auroral back-scatter. This was auroral-E, a mechanism very similar to Sporadic-E (Sp-E) usually noted in the summer months. Among the stations worked at this time from central England were OH1LPK (KP01) and OH5LK (KP30).

Later in the evening from 2145UTC the stations of GM0EWX and GM4WJA heard the Greenland beacons OX3SIX and OX3VHF with signals peaking 539 for an hour or so. The auroral opening was also detected on the 144MHz band between 1830-2300UTC. The event was relatively weak with only stations in the UK call regions, Germany and the Netherlands being worked from central England.

At the QTH of **Dave Edwards G7RAU**, Isle of Wight - IO90, c.w. contacts were made with DL1EJA (JO31), DL5LBQ (JO44), DL9MS (JO54), PA1VW, PA2DWH, PA5DD (all in JO22) and a handful of G and GM stations. Dave runs 400W into a pair of OZ5HF 9-element Yagis and reports that for most of his contacts he was having to beam at 50° towards the auroral curtain.

A much more intense event on the 144MHz band occurred on the following day, March 20, between 1330-1830UTC. It was also noted at 1015UTC on the 50MHz band with reception of GB3LER, the Lerwick beacon on the Shetland Islands.

Contacts on the 144MHz band in the afternoon were made into the nearer parts of the Continent (DL, F, ON, PA) although some stations did manage to work considerably further. The station of GM0BQM (IO85) for example contacted YL3AG (KO26) in Latvia over a path of 1730km.

At my QTH, Herefordshire - IO81, the first signals heard were GB3LER and MM0AMW at 1315UTC on the 50MHz band. The station of GM4VVX popped up at 1330UTC on the 144MHz band but I had to wait until 1420UTC before this band really got going.

A total of 28 c.w. contacts were made here with 18 of them being located in Germany. Amongst the DX worked were Czechoslovakian stations OK1AMI (1326km), OK2BDS (1360km), OK2STK (1511km) and HA8CE (1789km) in Hungary.

Colin Smith GM0CLN, Midlothian - IO85, got home late from work and therefore missed much of the opening. Nevertheless he still made some very good c.w. contacts with 35 QSOs being made with stations in nine countries.

Colin's equipment line-up is a Trio TR-9130 transceiver, a 100W amplifier and a 14-element Yagi only 2.5m above ground level. Amongst his DX contacts were the stations of OZ9PP (780km), LA2AB (940km), DL8GP (1000km) and SM6ENG (1020km). Colin also participated in the an event on March 23 contacting, amongst others, DL9MS (JO54), LA4CQ (JP20), OZ2TF (JO46) and SM7ALC (JO65).

The big event of the month (indeed, of the decade!) occurred on Saturday March 31. There were in fact four periods of auroral back-scatter on the v.h.f. bands.

THIS MONTH DAVID BUTLER G4ASR HAS DETAILED REPORTS OF THE LARGEST AURORAL BACK-SCATTER EVENT SO FAR IN THIS CURRENT SOLAR CYCLE.

The first (very intense) was early in the morning before most operators were awake, the second (weak) just after midday, the third phase (very strong) in the late afternoon lasting through to the middle of the evening and a final session (strong) late in the evening until after midnight. In total there was in excess of twelve hours in the UK when the v.h.f. bands were open for long distance contacts.

Mike Tubby G8TIC, Worcestershire - IO82, reports that according to some Scottish stations the first event commenced around 0200UTC, peaked at 0730UTC and stopped abruptly at 0830UTC. He was active on the 50MHz band from 0645UTC and spent his time looking for new squares and other interesting stations. A total of 12 contacts were made with stations in Belgium, France, Ireland, England and Scotland.

The early morning event was quite spectacular especially on the 144MHz band. **Tim Kirby G4VXE** (IO91) reports that his station is very small, just an HB9CV antenna on the balcony of the apartment. Turning on the DX Cluster at 0720UTC he saw many auroral spots and of the type that made him think that it was a large event. With the 2-element HB9CV pointing to the north he heard G4HGI (IO83) working HA8CE (KN06).

Many UK stations were heard as were c.w. signals from DL1EJA, DF1IAZ, PA2DWI and PA5DD. Tim mentions that it was fascinating to receive 144MHz auroral signals on such a small station.

John Lemay G4ZTR, Essex - JO01, was active between 0658-0817UTC and made 21 contacts on the 144MHz band with stations located in the Czech Republic (OK), Estonia (ES), Finland (OH), France (F), Germany (DL), Norway (LA), Scotland (GM), Sweden (SM) and Switzerland (HB9).

John runs 400W into a pair of 9-element Yagis and was able to reap the benefit of running high power with what is essentially a weak-signal propagation mode. Some of the DX worked from his QTH included HB9QQ (JN47), LA4YGA (JO48), OK1DIG (JO60) and SM3UZS (JP92). The longest distances worked were ES2DF (KO29) at 1685km, OH2BNH (KP20) at 1747km, OH5LK (KP30) at 1875km and SM2CEW (KP15) at 1949km.

The station of G7RAU must have some kind of auroral warning system as he was active on the 144MHz band at 0545UTC. Dave worked an inordinate number of stations in this first phase, a total of 40 located in 10 countries! His best DX was LY2BAW (KO25) at 1810km, LY2IC (KO14) at 1746km, both stations being located in Lithuania, OK2STK (JN99) at 1400km, OK1VT (JN79) at 1137km and SM7OVK (JO65) at 1086km and all this before breakfast!

Alerted by events earlier in the day many v.h.f. operators were waiting in anticipation for the next phase to occur later in the afternoon. **Jamie Ashford GW7SMV**, Monmouthshire - IO81, uses an Icom IC-275H transceiver on the 144MHz band and a 10-element Eagle (DJ9BV) Yagi. Recently he obtained a 400W amplifier running a pair of 4CX250R tetrodes and this was the first occasion it had been used in anger!

Fig. 1: Well known v.h.f. DX'ers active in the recent auroras. Left to right - DF7VX, F6ETI, F5FLN, OZ7IS, OH5LK

Jamie reports that the aurora was the best he had ever heard on the 144MHz band and at times it was more like 14MHz! Sometimes the pile-up was so big that he couldn't make out a single callsign. Between 1545-1645UTC he made 31 s.s.b. QSO's with stations in Belgium, France, Germany and the Netherlands.

Jamie also heard the stations of IK2YXK and IZ4BEH but they couldn't make out his callsign. This is the penalty of using s.s.b. (at 144MHz) during auroral openings. The use of c.w. is much more effective in this type of opening. Having said that though some very good DX can still be worked on s.s.b. provided you have the patience.

Reg Woolley G8VHI, Warwickshire - IO92, is another operator who prefers to use s.s.b. rather than Morse. Running 50W into a pair of Yagis he made 76 QSOs in the afternoon session. His best contacts included the stations of 9A4VM (Croatia), SP9ADC and SP9LCV (Poland) and F5LRL in south-east France. His 'gotaways' included OH5LK, who was heard on c.w. and Italian stations IV3GBO and IW1DW.

Having missed the early morning session I was determined to make amends later in the day! From 1515UTC I made a total of 70 c.w. contacts and one s.s.b. QSO on the 144MHz band. Fifteen countries were contacted including Austria, Croatia, Czech Republic, Hungary, Italy, Latvia, Poland, Slovakia, Slovenia and Switzerland.

The top five distances worked were YL3AG (KO26) at 1816km, HA8CE (KN06) 1787km, 9A2SB (JN95) 1724km, OM3NA (JN98) 1651km and 9A3PA (JN85) at 1600km. Conditions were tremendous with 40 stations worked that were over 1000km away. Other DX contacts included ten Czech (OK) stations, HB9DKM, IK4DRY, OE3UXL, OE5VRL/5, SP3FLR, S51TE, S51UE, S53J, S57TW, 9A1CMS, 9A1EZA and 9A2RD.

I must be losing my touch because G7RAU made a grand total of 107 contacts! Apart from working virtually everything I found Dave also contacted twelve Czech stations, nine Italian, seven Croatian stations including 9A1CAL and 9A4FW, seven Slovenian stations including S51DI, S51MQ and S51ZO and other DX such as HA6PX, HA6NQ, HA8CE, HB9DFG, LY2SA (Lithuania), OE2UKL, RK2FWA (Kaliningrad) and much, much more! Yep, we're talking about the 144MHz band!

DEADLINES

That's it again for another month but before I go **Neill Taylor G4HLX** passes on the regrettable news that the *Practical Wireless* 144 MHz QRP Contest scheduled for June 2001 has been cancelled. This is due to the ongoing restrictions related to the outbreak of foot and mouth disease. For more information see **http://www.contest.org.uk**.

If you have any reports, news, comments or photographs please forward them to the address and by the date given at the top of the column. Thanks for your letters and good luck with the DX. See you again next month.

73, David G4ASR

Trader's Table

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Rexon RL-102 2m hand held wide RX/TX £69
Icom IC275H 100watt multimode 2 meter £599
Icom IC2800H colour display and remote kit £299

HF TRANSCEIVERS
Yaesu FT890 auto ATU 0-30mhz all mode £599
Icom IC746 HF+6+2m 100 watt auto ATU £999
Yaesu FT747GX budget priced HF rig 0-30mhz £299
Yaesu FT100 HF+6M+2M+70CM DSP new £799
Yaesu FT920 HF+50mhz auto ATU DSP etc £899
President Lincoln 10m Amateur transceiver new £199
Kenwood TS50S 100watt all mode mobile HF rig £399
Kenwood TS570D DSP auto ATU £599
Kenwood TS850SAT auto tuner filters etc £799
Icom IC756 HF+6m 100watt auto ATU £999
Icom IC738 auto ATU 100watt all mode mint £699
Icom IC728 0-30mhz all mode mint £399
Icom IC725 0-30mhz boxed and mint £399

SHORTWAVE RECEIVERS
AOR 7030 0-30mhz remote control £499
Yaesu FRG100 0-30mhz boxed and mint £299
Sony SW77 top of the range RX batt/mains £249
Target HF-3 shortwave RX 0-30mhz AM,SSB £109
JRC NRD545 with VHF converter 0-2000mhz £999
JRC NVA 319 matching speaker for NRD545 ..... £119
Realistic DX394 base shortwave receiver all mode.. £109
Hitachi worldspace satellite RX for radio stations £99
Lowe HF225 0-30mhz boxed PSU mint £249
Lowe HF150 0-30mhz all mode and mint £229
JRC NRD345 0-30mhz all mode new £399

SCANNERS BASE/MOBILES
AOR 8000A 0-1900mhz all mode RX £199
Icom IC9000 cost new today £7000 plus, a bargain £2999
Realistic Pro2014 66-512mhz 50mems base/mobile ... £79
Realistic Pro2006 25-1300mhz £149
AOR5000 0-2600mhz all mode boxed and mint £799

All prices in Sterling

WATERS & STANTON
01702 206835

HF Transceivers

Icom	IC-730	Base Transceiver with Gen.Cov. 100W 12V £449.00
Icom	IC-746	HF,6m,2m All Mode Base with Gen.Cov. ... £999.00
Kenwood	TS-430S	Base Transceiver with Gen.Cov. 12V + MC-60. £399.00
Ten-Tec	Scout 555	Mobile CW,SSB 50W with 10,20,40,80m ... £399.00
Ten-Tec	Scout 555	Mobile CW,SSB 50W with 10,15,20,40,80,160m £349.00

VHF/UHF Base/Mobile Transceiver

ADI	AR-146	2m FM Mobile 50W CTCSS 40Ch. ... £145.00
ADI	AR-446	70cm FM Mobile 35W ... £199.00
AKD	2001	2m FM Mobile Channelised 25W ... £145.00
Alinco	DR-430E	70cm FM Mobile 35W ... £169.00
Azden	PCS-5000	2M FM Mobile 25W with 20Ch. ... £99.00
Icom	IC-207H	2m,70cm FM Mobile 50W,35W (Remote Head) £199.00
Kenwood	TM-241E	2m FM Mobile 50, 10, 5W ... £195.00
Kenwood	TR-751E	2m All Mode Mobile/Base 25W ... £349.00
Yaesu	FT-290R x4	2m All Mode Portable 2.5W ... £159.00
Yaesu	FT-290RII x3	2m All Mode Portable 2.5W ... £249.00
Yaesu	FT-790R	70cm All Mode Portable 1W Batt.or 12V ... £179.00
Yaesu	FT-3000M	2m FM Mobile 70W ... £249.00

VHF/UHF Hand Held Transceiver

ADI	AT-400	70cm FM Battery box 420-465MHz RX ... £99.00
Alinco	DJ-191	2m FM H/Held ... £119.00
Alinco	DJ-480	70cm FM H/Held ... £99.00
Alinco	DJ-G5	2m/70cm FM with wide RX ... £169.00
Icom	IC-02E	2m FM H/Held with sp. mic. ... £69.00
Icom	IC-2GXET	2m FM H/Held ... £119.00
Icom	IC-2SET x2	2m FM H/Held ... £99.00
Icom	IC-P4E	70cm FM H/Held ... £99.00
Icom	IC-T7E	2m/70cm FM with wide RX ... £199.00
Icom	IC-U16T x2	70cm H/Held, 16 Channels ... £59.00
Icom	IC-W31E	2m,70cm FM H/Held,Wide RX,Full Duplex £145.00
Kenwood	TH-46E	70cm FM H/Held ... £99.00
Kenwood	TH-78E	2m/70cm FM H/Held with Full Duplex ... £149.00
Kenwood	TH-79E	2m/70cm FM H/Held ... £175.00
Kenwood	TH-D7E	2m,70cm FM Palm Held with Wide RX and TNC £249.00
Trio	TH-41E	70cm FM H/Held ... £85.00

Shortwave Receivers

AKD	HF-3E	30kHz-30MHz AM,SSB 12V with Interface and PSU £149.00
Icom	IC-R75	30kHz-60MHz All Mode with NSSB & UT-106 £499.00
JRC	NRD-525	90kHz-34MHz All Mode Receiver 200Ch. Mains £529.00
Lowe	HF-150	30kHz-30MHz All Mode + PR-150 & AP-150 £299.00
Lowe	HF-250 x2	30kHz-30MHz Receiver 12V PC Compatable . £325.00
Matsui	MR-4099	Portable Receiver with FM stereo and SSB.... £59.00
MFJ	MFJ-8100K	3.5-22MHz AM,CW,SSB Regenerative Receiver £45.00
Sangean	ATS-818	Portable Receiver with FM stereo and SSB.... £99.00
Sony	ICF-SW77	Portable Receiver with FM stereo and SSB.. £199.00
Tatung	TMR-7602	Portable Receiver with FM stereo and SSB.... £59.00
Yaesu	FRG-100	50kHz-30MHz AM,CW,SSB 12V with PSU £325.00
Yaesu	FRG-7000	250kHz-30MHz AM,SSB,CW Mains..... £199.00

Scanners Mobile/Base

AOR	AR-3000A	100kHz-2036MHz All Mode 400Ch. 12V with PSU . £459.00
JIL	SX-400	26-520MHz AM,FM,WFM 20Ch. 12V £225.00
Realistic	Pro-2004	25-520,760-1300MHz AM,FM,WFM 300Ch. £175.00
Yupiteru	MVT-8000	800kHz-1300MHz AM,FM,WFM 200Ch. 12V £215.00

Scanners Hand Held

AOR	AR-8000	500kHz-1300MHz All Mode 1000Ch..... £199.00
Yaesu	VR-500	100kHz-1300MHz All Mode Receiver 1000Ch. £179.00

Station Accessories

AKD	WA-2	50-210MHz VHF Wavemeter ... £25.00
Bremi	BRS-31	13.8V 5A Regulated PSU ... £15.00
Datong	ANF	CW Automatic Notch Filter ... £69.00
Datong	FL-2	Multimode Noise Filter ... £49.00
ICS	FAX-1	Weather Fax , NAVTEX , RTTY Decoder.. £125.00
Jim	M-100	24-2150MHz Low Noise GaAs FET Preamp £69.00
JPS	NTR-1 x2	DSP Noise Reducer ... £99.00
Kantronics	KPC-3+	Packet TNC + WEFAX ... £109.00
MFJ	MFJ-462B	RTTY,ASCII,CW,AMTOR Reader with Display £119.00
MFJ	MFJ-498	Deluxe Morse Keyboard Keyer ... £129.00
MFJ	MFJ-752C	All Mode Dual Tuneable Audio Filter ... £79.00
MFJ	MFJ-1020B	0-30MHz Indoor Active SWL Antenna ... £65.00
MFJ	MFJ-1278BDSP	Multimode 10 mode Data Controller + DSP £269.00
MFJ	MFJ-1610	Theory Tutor (Novice) ... £4.00
MModules	MML-144-30-LS	2m 1-3W in, 30W out Linear with Preamp £69.00
Opto	2600HA	1MHz-2.6GHz Frequency Counter ... £79.00
Opto	CD-100	10MHz-1GHz Multi-Counter + Tone Decoder £299.00
Opto	Micro-RF	Pager sized micro RF Detector ... £69.00
Ramsey	W9GR	DSP Audio Filter ... £119.00
Yaesu	FL-2025	2m clip-on 25W Linear (for FT-290R II) ... £99.00
Yaesu	FL-7025	70cm clip-on 25W Linear (for FT-790R II) . £119.00

Miscellaneous

Academy	WT-2C	Pair of 2Ch. FM CB Hand Held Transceivers £30.00
Albrecht	AE-2850	40ch 4w CEPT Hand Held ... £50.00
Albrecht	AE-5280	40Ch. 4W FM CEPT CB Mobile ... £45.00

ICOM

IC-910H

Destined for Stardom

The IC-910H Sets Even Higher Standards in Amateur Radio Satellite Communications

- *Are you serious about VHF/UHF/SHF operation?*
- *Do you want to take full advantage of the new Phase 3D satellite?*
- *Are you looking for a powerful base-station that has the facility to grow with you and your hobby?*

If you are, then the new IC-910H all-mode transceiver from Icom is just right for you. The IC-910H is ideal for contest or field day operations. This compact multi-band transceiver has been designed with a wide range of impressive functions including tri-band capability, a powerful 100W transmit power and DSP facilities. And there's more! Just look at the following fantastic features:

- *VHF / UHF all mode, high power base-station transceiver*
- *Incredible receive sensitivity (0.11uV)*
- *100W/75W output power*
- *Optional tri-band capability*
- *Simultaneously works 2 bands*
- *Compact , measuring 24x9x24cms*
- *Easy to read 3.5inch LCD display*
- *Easy to use 10 key entry pad*
- *Easy satellite communication mode*
- *9600bps PACKET operation*
- *Optional DSP capability (UT-106)*
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- *FM-narrow mode as standard*
- *One-touch repeater mode*

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HF HIGHLIGHTS

CARL MASON GW0VSW

12 LLWYN-Y-BRYN
CRYMLYN PARC
SKEWEN
WEST GLAMORGAN SA10 6DZ

Tel: (01792) 817321
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REPORTS, INFORMATION AND PHOTOGRAPHS TO ME PLEASE BY THE 15TH OF EACH MONTH.

CARL MASON GW0VSW ROUNDS-UP THE MONTH'S ACTIVITIES ON THE HF BANDS WITH THE HELP OF YOUR REPORTS AND LOGS.

Following on from my recent reference to holiday operations, I received a letter from **Len Boston M0BOS,** Newbrighton, Merseyside, telling me about activity a little closer to home. The small island of Hilbre 'EU-120' lies in the Dee estuary and is not only a nature reserve but also an area of Special Scientific Interest.

Last year a team of operators consisting of Paul G0VAX, Tony G0VBD, Terry G0WAB and Brian G0VAX, activated the island using the call GB0HI between May 26 to 29th. The rig was a FT-990 with G5RV and GAP vertical antennas. During their stay the group managed over 3000 contacts. After this success, it was decided to activate the island once again.

The team this year will be Paul G0WRE (Team Leader/QSL manager), John G4WXO (Antennas), Terry G0WAB and Paul G0XBI (s.s.b.) with Tony G0VBD and Len M0BOS (c.w.). Equipment will be an FT-990, FT-767GX and TS-850S with a FL7000 linear and various antennas built by G4WXO. With two stations running 24 hours a day, the team hopes to give as many people as possible the chance to work them. Operation is planned on all bands 3.5 to 28MHz between 25 and 28th May using the same callsign, GB0HI.

DX NEWS

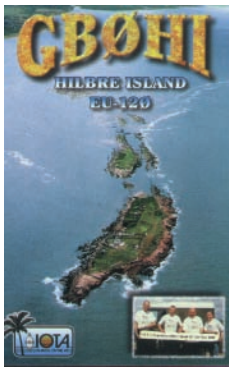
Communications technician **Joe Musachia W5FJG** is currently working for the US State Department assigned to the American Consulate in Jeddah, Saudi Arabia. He has recently had permission from the Saudi Government to operate from the consulate using the callsign 7Z1AC. Joe will be active over the next two years and QSLs should go to WA4JTK.

Some of you may have worked Ali EP2MKO who went QRT in February after several years of activity. Ali will be living in Uzbekistan (UK) and will be trying to get a licence soon and resume operating.

If you need a EP2MKO QSL it should be sent direct to his manager **Igor Kovalev RU6FZ/UA6HCW, Box 59, Pyatigorsk, 357500 RUSSIA.**

YOUR REPORTS

On to your reports now and the logbook of **Sean Gilbert G4UCJ**, Milton Keynes shows he spent most of this month building a new computer. However, he did find some time to operate on 3.5MHz. Using his IC-746 and 50W of c.w. into a vertical antenna Sean worked K1ZM (U.S.A.), RZ9SP (Asiatic Russia), UP6P (Kazakhstan), OH0/OZ3GF (Aaland Island), EA8/DJ1OJ (Canary Islands), JW3FL (Svalbard) and finally 9K2/SP5INQ (Kuwait) between 2330 and 0100UTC.



● Hilbre 'EU-120' will be activated again this year (see text).

THE 7, 10 & 14MHZ BANDS

The 7MHz band was where **Ted Trowell G2HKU** on the Isle of Sheppy, worked VU2TS (India) and HL1DH (South Korea) around 2000UTC using a Ten-Tec Omni 5 and 70W of c.w. into a G5RV. Moving up to 10MHz, Ted logged FM/F2JD (Martinique) at 2000 followed by PJ2/W6KK (Netherland Antilles) at 2200UTC.

Also active on 7MHz was keen QRP operator **Roy Walker G0TAK**, Cleveleys near Blackpool. Roy's logbook lists contacts with SM0AZC (Sweden) 0909, LA9QJA (Norway) 0935, DF1IAL (Germany) 1056, ON5EX/QRP (Belgium) 1114 and 9A3GU/QRP (Croatia) a little later at 1802UTC. The rig was a QRP Plus running 5W of c.w. into a G5RV.

Most of our reporters this month spent some time on the 14MHz band. One of these was **Mike Baker G3SUK**, Stowmarket, Suffolfk, who decided to take his IC-746 and magnetic mount whip antenna out into the country and operate mobile. A large s.s.b. log includes contacts with HB9DGS (Switzerland), OZ4NA (Denmark), 3V8BB (Tunisia), OK1JKO (Czech Republic), IK/G0BJI (Italy) also operating mobile from Florence and K2DZM (U.S.A.). All contacts were made between 1000 and 1300UTC.

It was good to meet up with our next reporter, **Robin Trebilcock GW3ZCF** at the Swansea Amateur Radio Rally. Robin was demonstrating PSK31 and had rigged a horizontal loop antenna on the roof of Swansea Leisure Centre. It was obviously working well judging by the logbook.

Stations from Asia, South America and Europe had all been worked by Robin. Amongst these were VK2AWD (Australia) 0946, JE4CIL (Japan) 1047 and KL7J (Alaska) at 1023UTC using an IC-706 MkII and 50W.

THE 18 & 21MHZ BANDS

On the 18MHz band, **Don McLean G3NOF**, Yeovil found h.f. conditions "patchy" but still managed to work OY4TN (Faroe Islands) at 1216UTC. This was followed by BQ9P (Taiwan) on Pratas Island AS-110, HI9/DL7AFS (Dominican Republic), ZL2AIA/M (New Zealand), YU8/G0TQJ (Yugoslavia), 5R8FU (Madagascar) and 3A2MW (Monaco) between 1300 and 1700UTC. All contacts were s.s.b. using a TS-950 and trapped dipole antenna.

Willian Sampson M5WNS, Chudleigh, South Devon, used a FT-1000MP/AC with 100W of s.s.b. into a G5RV on 21MHz to work VP2MDY (Montserrat) 1919, PJ5/UA1ACX (St. Martin) 2039 and EM1HO (Antarctica) at 2155UTC

THE 28 MHZ BAND

On now to the 28MHz band and warm welcome to new reporter **Peter Lowrie MI5JYK** (ex GI7JYK) who lives in Newtownabbey, Northern Ireland. Peter got his A/B call in February and has spent a good deal of time on this band since.

Using a FT-101ZD, dipole antenna and 5W of s.s.b he worked W5PR (U.S.A.) in Texas, VE3OI (Canada), TA2EY (Turkey), 9K2/KM5FY (Kuwait), 9H4GRS (Malta), EY8MM (Tajikistan), EX2T (Kyrgyzstan) and 7X4AN (Algeria) between 1200 and 1700UTC. Peter was especially pleased with the American contact as his dipole was lying on the floor of his shack at the time!

SIGNING OFF

Well that about wraps it up for another month. Many thanks for all your logs, E-mails and letters. I hope I managed to squeeze you all in! Thanks also to **Bernie McClenny W3UR** and the *Weekly DX* for the DX information.

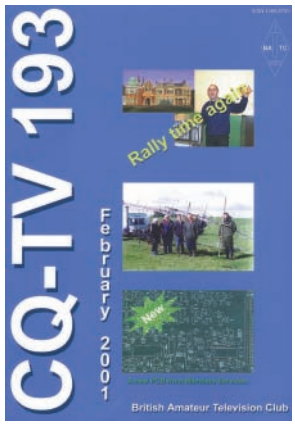
73 Carl GW0VSW

IN VISION

BY GRAHAM HANKINS G8EMX

17 COTTESBROOK ROAD
ACOCKS GREEN
BIRMINGHAM
B27 6LE

E-MAIL: graham@ghank.demon.uk



GRAHAM HANKINS G8EMX REPORTS ON A NEW PROJECT FROM THE BATC, REPEATERS BACK ON AIR AND MUCH MORE!

The **British Amateur Television Club** (BATC) committee is considering producing a CD video about Amateur Television (ATV). At first sight this may seem a very obvious project for the BATC to do, but making a video which will portray ATV and the BATC is not as straightforward as it seems.

Today's viewing public expects high production and editorial standards, also the contents of a film about ATV needs very careful planning. But it's the final format that may be the deciding factor if this venture, which is only at the suggestion and discussion stage within the BATC committee at the moment, is to be successful.

The huge advantage of producing a film on CD video would be its ease of multiple duplication, both in terms of speed and freedom from loss of precious picture quality. A CD video could also be played via a computer or DVD player. I will keep you informed on future developments with this project.

COVENTRY BACK ON AIR

Dave Murray G1GPE is keeper of Coventry's 1.3GHz (24cm) ATV repeater **GB3RT**, which has been off-air for a while for repairs and a re-build. Fortunately, Dave is now able to report:

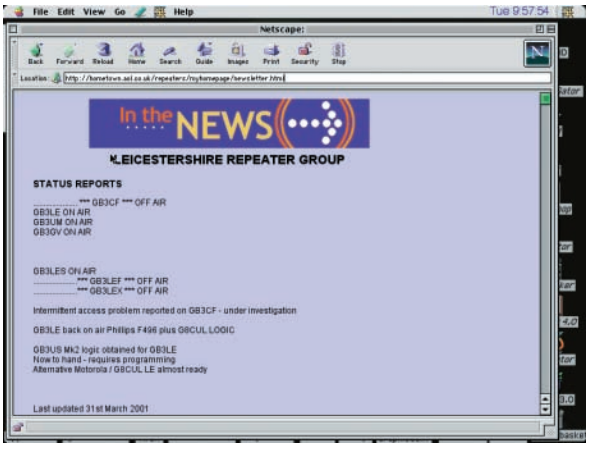
"GB3RT came back on air with full power on 15 February after having a new power amplifier, feeder and antennas. We have also fitted a larger heatsink and a fan, so the transmitter is now very stable indeed". Dave would welcome reception reports, E-mail: d_murray@midnet.com Last known site was Tile Hill College, Coventry.

Coventry may be back on the ATV scene, but Birmingham is still desperately seeking some Closedown names so that the **Beacons Repeater Group** can get a 1.3GHz unit started! If you live within half an hour travelling distance of Erdington and are happy for the RadioCommunications Agency (RA) to have your address and phone so they can call on you in an emergency to switch a repeater off, then please E-mail me.

Phil Smith G1HIA mounted an ATV expedition to the Isle of Man and worked into Northern Ireland on the 1.3GHz (24cm) and 10GHz (3cm) bands. Phil says:

"We managed a first ever from this location with a P5 picture on 3cms from Angus GI7RGM, this was also the first ATV on 3cms out of Northern Ireland, with only 250mW of transmit power too"! Phil later went to the north west side of the island and transmitted another first - a P2 picture into Northern Ireland on 2.3GHz (13cms) with 800 mW of transmit power.

Phil concludes: "I think that if there was an ATV repeater on the Isle of Man it would be a tremendous signal over a wide area. I hope to run some tests from Snaefell in the summer when the weather can be guaranteed! My thanks to **Stan GD3LSF** and the **Isle Of Man Repeater Group**, who permitted the test to go ahead".



LEICESTER AGM

The **Leicester Repeater Group** (LRG) will be holding its Annual General Meeting on 24 May. The LRG manages the upkeep for several repeaters, 50, 144, 430MHz and GB3GV, its 1.3GHz ATV repeater and will depend on a successful AGM for election of a Chairman, Secretary, Treasurer and other committee members to keep the Group operational. Depending on a club's constitution, it's quite common that current post-holders stand for re-election. This can make an AGM quite easy as a committee can be re-elected en-bloc!

Problems start if a replacement has to be found when a committee member wishes to retire. Because many members always seem reluctant to become involved in the direct running of their club, here is a brief overview of the respective duties.

The Chairman is responsible for the overall operation of the club and for arranging, conducting and controlling formal committee meetings and the AGM. If an AGM elects a new chairman, the outgoing chair controls that meeting until it closes. During the year, the chairman should help and advise the other committee members, as and when necessary.

The Club Secretary is usually the person in the most direct and frequent contact with members and would normally be the committee member with whom any outside persons or organisations would correspond. Membership Secretary and Treasurer will have records to keep with accuracy, the Treasurer should also advise the Club on any potential overspend, or surplus! Remember, all jobs are voluntary but some commitment is expected while they are being done!

More information on the LRG can be found on their web site at **http://homepages.stayfree.co.uk/lrg** and for status reports, meeting dates and engineering updates go to **http://hometown.aol.co.uk/repeaters/myhomepage/newsletter.html**

ROGER JONES G3YMK

Finally, it is with sadness that I report the death of **Roger Jones G3YMK**, after a short illness. Roger was a member of the RSGB's Repeater Management Committee and had been compiling the bi-monthly ATV column for *RadCom*.

I had met and spoken to Roger at various rallies and exhibitions, where he attended the RMC display, his knowledge and enthusiasm for Amateur Radio and ATV were always clear to anyone who knew him. He will be greatly missed.

Graham G8EMX

KEYBOARD COMMS

BY ROGER COOKE G3LDI TEL: (01508) 570278 E-MAIL: RCOOKE@G3LDI.FREESERVE.CO.UK PACKET: G3LDI @ GB7LDI

ROGER COOKE HAS NEWS ON WHY HIS BBS WAS OFF LINE, TAKES A LOOK AT NEWSLETTERS AND THE PENTIUM PROCESSOR WAR.

Since involving myself with working D68C on RTTY, the bug bit once again and I received several 'phone calls asking why my BBS was off-line. This may sound strange, but the BBS computer has my h.f. port for forwarding, so to operate RTTY, I have to close down the BBS.

I have been using the BBS machine for early morning RTTY DXing. Hopefully I shall be upgrading the machine soon and should be able to have the BBS running and use my FT-1000MP for DXing under my call.

I also came across some RTTY that I could not decode immediately. At first I thought it was yet another commercial intruder, there are several on 14MHz, but listening around, I came across several of these transmissions. The rhythm sounded faster than the normal 45baud, so I changed speed and found that it was the High Speed Sprint (HSS) contest.

I became hooked for a while and worked a few dozen. Then, along came the BARTG Spring contest. This was a weekend affair and I was going to look for a few new ones, as I did not have much time but in the few hours I did have, I managed 120 contacts. I was quite pleased with that, not enough for an entry, but I might just send a summary sheet via E-mail.

Contesting these days has taken on a new form. As usual, most stations will send 599 as the report, regardless of the 'actual' report.

It was quite interesting to see reactions when I refused to stick to that system! I was asked for repeats on a few occasions, as the contact really wanted a 599.

I used a manual method of exchange. This entails typing everything in at the keyboard and entering every QSO into the log with a pen, real old-fashioned stuff! It was interesting to see that when I asked for a repeat, instead of the full-speed fire of 599 1902 73 QRZ, there was a delay while the other station was actually typing it in!

I would query the idea of sending the time as an exchange. These days, it's relatively easy to maintain a computer with accurate time, with programs such as D4 that automatically update when you connect to the Internet, so this would seem to be a redundant exchange.

I found very few that differed in time to mine. I would like to see a more meaningful exchange, perhaps as much as name and QTH, or locator, NGR reference or something similar. Scores over 1000 can be achieved in a weekend and I saw a few of these, so it might be a good idea to make it a little user-friendlier.

In the early days of RTTY contesting (here goes that old G3 again!) in the 1960s, most of the RTTY gang world-wide knew each other. I would not like to see Digital contesting degenerate to what can be heard in some of the other shouting matches.

Scoring and sending the list into the adjudicators is preferred in *Cabrillo* format these days. On the RTTY reflector, I have seen so much difficulty in using this method that I have not obtained a copy yet. I have not even installed my copy of WF1B, although I should if I am going to run a contest again! Hopefully, all the problems will be ironed out soon and then I shall obtain a copy of Cabrillo.

In the N2HOS Newsletter, mention was made of this problem, and a suggestion that looking at the following URL would answer most people's queries at **http://www.kkn.net/~trey/cabrillo/faq.txt** This is an outstanding source for all the answers. This is Jim's comment, not mine!

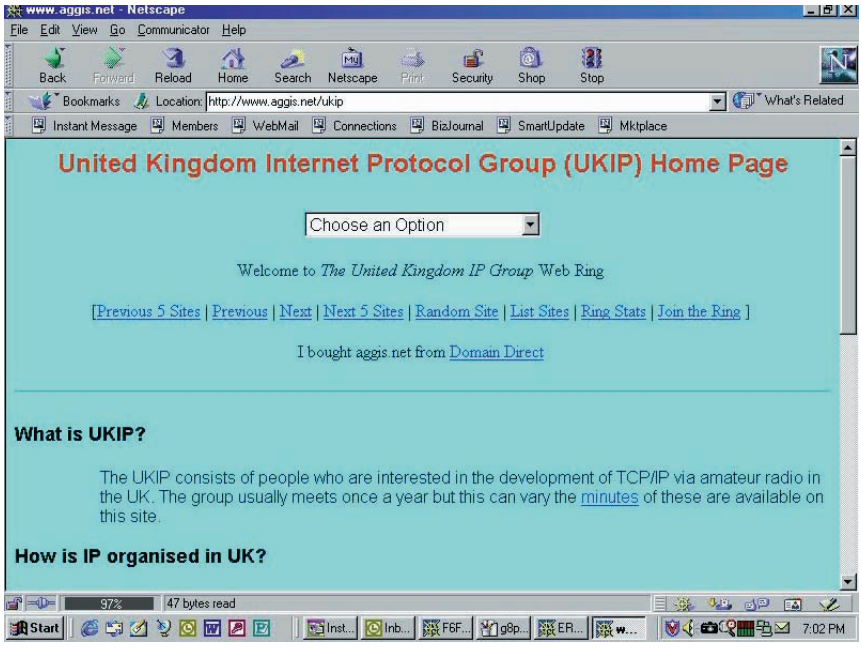
However, it's worth a look and might be worth book marking. I said I was going to use the contest as a way of increasing my country score. Well, Jim, N2HOS, runs a list of stations country scores. I thought I was doing well with about 150 confirmed.

Admittedly it has remained thus for about 25-30 years as I have not been too active since the end of the 1960s, but some of the scores now are amazing. The following is a short extract from Jim's Gazette:

"The new DXCC postings on the Gazette reflect a crowding around the 300 country level. The top 25 now contains 22 stations at or above that high-altitude number. Either knocking off those countries is getting easier or the mail service is working better, or both!

Making the top ten is an uphill job. All of them are now at 322 or above, with three tied for 8th place at that level".

As you see, the digital modes are competing for the all-time scores, something



unheard of some years ago. I would be interested to hear your comments on contesting, exchanges, DXing or whatever. Let me know what you think.

NEWSLETTERS

I have recently received two newsletters. The first, from the Gloucestershire Repeater Group (GRG), reports on the very worrying situation regarding the closure of GB7XJC. This BBS, run by **Jon Colley G4XJC**, was closed down following a very unfortunate incident in late October during which two messages containing undesirable material, in the form of 7plus encoded images, were inadvertently imported and released onto the UK Packet Network.

All of Jon's computer and radio equipment was taken away for examination, following which both the NOV for operating the BBS and his normal licence have been suspended until the ongoing investigations by the RA and the police have been completed. Although this has been reported in the Newsletter, Jon is not a member of the GRG.

However, this does seem to be a warning to the rest of us. There has been an on-going hassle regarding the use of 7plus on the system. I have seen several such imported messages just lately.

I am of the same opinion as a number of other sysops. In order to check these messages, most of which are quite innocuous I might add, I have to find the imported JPG file, convert message to a GIF and then check it to see what it contains. Whilst I can see that some people like sending them, I do not like my time to be taken in checking them. I have enough to do besides this chore.

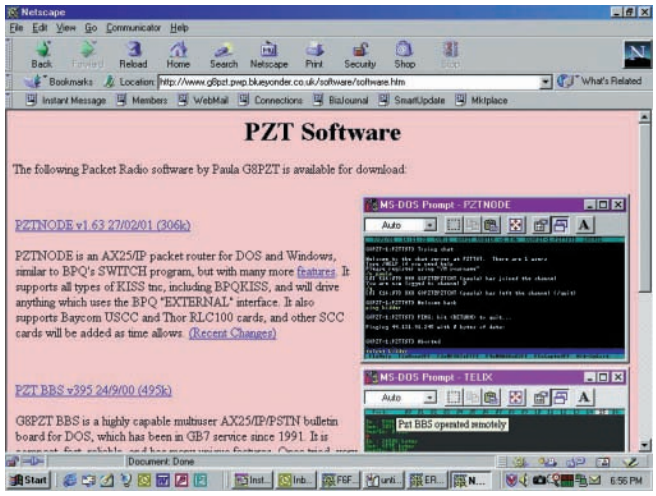
As a result of the fate that has befallen Jon, several sysops have refused to accept 7plus, regardless of content. I have not taken this attitude as yet, but looking in the Auto7p directory, there are loads of parts of files that have never made it complete anyway. I have deleted the lot and will check this on a regular basis. It's a shame that 7plus has been derided in this way, as it is a very useful utility, used sensibly.

Reports on the GB7GH and GB7GC nodes show that both have had new software installed. This is the G8PZT Node/Router, the latest version of which can be found at Paula's website at **www.g8pzt.pwp.blueyonder.co.uk/software/software.htm** (Other software written by Paula can also be found on this site).

The second Newsletter is from the Suffolk Data Group, who really go to town with a very respectable 11 pages packet with information. There is the usual report from the Chairman, **Andy G3ZYP**, covering the progress with the 9k6 links and node improvements, with some comments on *Ui-View*, which is gaining popularity around the area.

There is a two page tutorial on *Ui-View*, a very detailed report on the refurbishment of the GB7OX node, which has undergone major surgery that amounts almost to a re-build, and some improvements to the GB7DXM Cluster, giving good 9k6 coverage for more users.

I receive other Newsletters by post and one of the more interesting is from the Australian Amateur Packet Radio Association Newsletter (AAPRA), called Digipeat. In the latest, fair comment is made by **Barry VK2AAB**, the Vice-President, that a similar move toward Internet use has caused several u.h.f. node links to close, and several h.f. Pactor forwarding BBS to do likewise.



Barry looks at the enormous German network, linked by high-speed 23cms systems, one of the best networks in the world, and then states the answer. They are not allowed to connect their packet system to the Internet.

Aunt Harriet's page is always worth a read, and there are always several pages of useful technical information, this issue covers the new MFSK16 digital mode. If you want to have a look at their extensive software library, take a look at the web site: **http://www.aapra.org.au/shareware.html** The site is worth a look anyway and membership is open to anybody.

PROCESSOR SPEED WAR

Intel have introduced their newest processor, the Pentium 4, bringing a new set of enhancements that will make a 2GHz Pentium 4 nearly twice as powerful as a 1GHz Pentium 3. The Pentium 4 comes in 1.4 and 1.5GHz versions at present, although the goal is for a 2GHz version by the latter part of the year.

Pentium 4 is built around a new micro-architecture called NetBurst. This supercedes the Pentium 3's P6 architecture, itself derived from the Pentium Pro. Alongside NetBurst, the 42 million transistor Pentium 4 also includes a new instruction set and a 400MHz system bus.

It should be possible to produce the 2GHz speed once the chip moves to Intel's latest 0.13 micron process, which uses copper interconnects instead of aluminium. At launch, the Pentium 4 will only support single-processor use.

The Pentium 4 uses a deeper instruction pipeline, which allows the chip to run at higher frequencies. But the deeper pipeline also results in a performance penalty since more instructions are wasted if a branch prediction proves incorrect or the cache runs out of instructions.

The result is that, on average, the Pentium 4 actually executes 10 to 20% fewer instructions per clock cycle than the Pentium 3. Fortunately, the clock speeds possible with the architecture are 40 to 50% higher, so overall performance increases.

New instructions include 144 more single instruction multiple data operations. These are aimed at reducing the instruction count for games, multimedia, and encryption and simulation software. Initially, the only Pentium 4 chipset available is the 850 set, which requires Rambus RDRam, but Intel is discussing licensing to a third-party, which intends to develop a Pentium 3 chipset to support the rival double data rate memory format.

Not wishing to be outdone, AMD have issued its 760 chipset, along with three new high-end Athlon processors, running at 1, 1.13 and 1.2GHz. AMD claims that machines with the 760 chipsets will match the performance of those with the Pentium 4 processor. The AMD 760 chipset increases the front-side bus from 200 to 266MHz, which allows for an increased data throughput. The front-side bus, or system bus, provides a data pathway between the processor and system components. This allows more data to be fed into the processor more quickly.

The AMD 760 can also support a 200MHz front-side bus. The chipset can support double-data rate synchronous dynamic RAM (DDR SDRAM). This memory can more than double the peak bandwidth available from today's 133MHz synchronous dynamic RAM or from PC133 memory.

The DDR SDRAM will initially come in two flavours: fast and not so fast. The faster of the two, PC2100, will run at 266MHz and offer 2.1GBps of peak data bandwidth.

This will be paired with the new 266MHz front-side bus. The other, slower flavour, PC1600, will run at 200MHz and deliver 1.6GBps of peak bandwidth. It will be paired with a 200MHz bus and will probably ship in PCs in the mid-range of the market.

The AMD are now revising their Athlon processors. The revision, codenamed Palomino, will debut at 1.2GHz with 1.33GHz versions following shortly after. By the middle of this year, 1.5 and 1.7GHz Palomino ships will be available. Plans to take AMD into 2002 are for the Thoroughbred, which will lead to the smaller and faster 0.13 micron production process. As ever, you pays your money and you takes your choice!

As usual please keep your news, views and topics for discussion coming. Cheerio for now.

Roger G3LDI

TUNE-IN

BY TOM WALTERS

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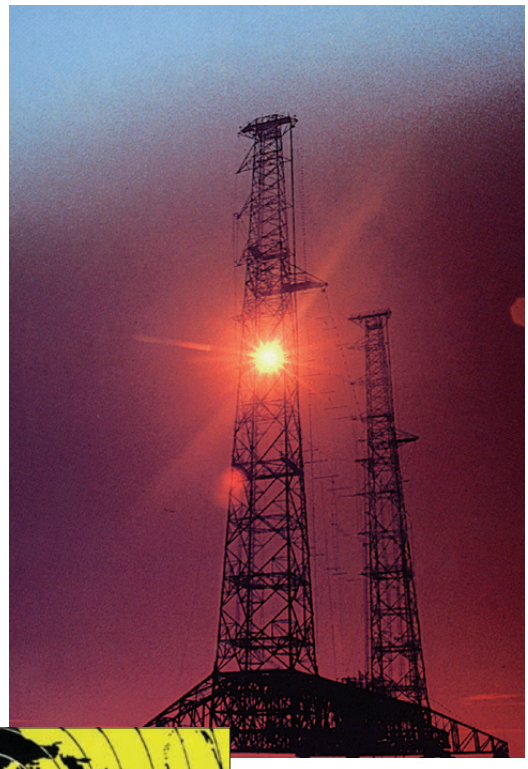
WALTON
ESSEX
CO14 8BX

E-MAIL: tom.walters@aib.org.uk



The Pope's Radio, Vatican Radio boasts broadcasts in 40 different languages, shown here are its 500kW shortwave transmitters at Santa Maria.

Vatican Radio got itself into a spot of bother back in March. This is because 50 years ago, the Vatican set up a 440 hectare transmitter site in the sparsely-populated Santa Maria di Galeria area north of Rome. Now 100,000 people live close by.

There has been much talk of serious health hazards from electromagnetic radiation, of electric lights and washing machines in homes switching on by themselves and Vatican Radio emanating from refrigerators. The Italian government told the Vatican to reduce the electromagnetic radiation levels.

The Vatican said that not only did it not have to comply with Italian law, but that it has always followed the standards laid down by the International Commission on Non-Ionising Radiation Protection (ICNIRP) and that the Italian government had moved the goalposts by bringing in new, lower, standards. The Vatican denied any link between electromagnetic waves and illness.

The Italians threatened to cut off the power supply, while the Vatican said it would do what it could to adjust its transmissions. A high-profile court case was postponed until September, when the Vatican queried the legality of such a confrontation.

At the time of writing (April) that was how things stood. Is there somewhere else in the world where this sort of challenge could take place? Short and medium wave transmitters do belt out a huge amount of power. Meanwhile 'The Pope's Radio', as it's called these days, continues to broadcast in more than 40 different languages, on its three medium wave transmitters, the 11 short wave transmitters on the Santa Maria site (including four 500kW) and relays on satellite and internet (see World Radio Network).

Frequencies to try for broadcasts in English are: 0500-0520 on 1530 m.w., 4005, 5880, 7250; 0600-0610 527m.w., 4005, 5880, 7250, 9045, 11740, 15595; 0900-1000 527m.w., 5880; 1600-1630 1530m.w., 4005, 5880, 7250; 1950-2010 527 and 1530m.w., 4005, 5880, 7250, 9645MHz.

While the Vatican's idea of multi-media still strongly features short wave, over the Italian border in Switzerland **Swiss Radio International** is well on the way to giving up s.w. altogether, in fact the plan is to phase it out by the end of 2004! Some broadcasts in English and other languages to North and Central America have already ended and will end for the rest of the Americas, Europe and Asia in October. Even satellite is being cut back, with the whole emphasis going on expanded internet webcasting.

Perhaps the Vatican realises that a huge number of its audience do not and probably never will have such sophisticated devices, while the Swiss reckon that the majority of their listeners are well-heeled enough to plug into the internet or buy the satellite gear. All right, it is very expensive to run short wave, but the Swiss government surely has the money?

To do away with s.w. altogether does seem very elitist and exclusive, not to say short-sighted. You can take your radio anywhere and the cost is very small.

KERBANGO RADIO

For opponents of internet radio, it's three cheers for the death of the **Kerbango**. This prototype Internet radio proved to be uneconomical to produce.

However, **Ericsson** have announced the H100 which they describe as "The world's first cordless internet radio", which will pick up audio from the internet, wirelessly. So the Swiss may have a point, but even this new radio still requires you to be very near a broadband connection, and at the moment that cuts most people out.

So don't throw your 'real radio' away just yet. Because in the background, tests continue apace for the **DRM** concept - digital a.m. radio. At the time of writing long-term DRM tests from **Radio Netherland's** transmitters were being scheduled. Maybe if this concept really results in cheap radios picking up digital signals all around the world, radio will see the renaissance that it surely deserves.

BACK TO ITALY

Let's finish with some truly real radio and back to Italy, but this time the Italian nation, not the Vatican City State. The **RAI International** station is still going great guns, and they have a pretty huge array of transmitters - 10 in the Rome area alone, with relays via Ascension and Singapore.

The RAI station broadcasts in 25 languages every day, covering just about the whole world. Here's their schedule for Western Europe alone: 1530-1555 French on 7.240, 9.670; 1555-1625 Italian on 7.240, 9670; 1805-1825 German on 5.990, 7.135, 9.805; 1935-1955 English on 5.970, 7.285, 9.760; 2000-2020 Swedish, Danish or Esperanto on 5.955, and 7.290MHz.

This is just the evening portion of the service to Eastern Europe: 6.110 and 7.240 1815-1830 Czech, 1830-1845 Slovak, 1845-1905 Polish; 6.115 and 7.240 1910-1930 Serbian, 1935-1955 Hungarian; 6.110 and 7.125MHz 2115-2135 Romanian, 2135-2155 Czech, 2155-2210 Slovak, 2210-225 Polish.

You'll need to brush up your Italian if you visit the RAI website, because there doesn't seem to be anything in other languages, but there is masses of information at **http://www.international.rai.it/radio/index.htm**

Well, that's a real classic short wave schedule for you. Remember **RAI** also puts its programmes out on other radio outlets, by satellite and on the internet. But there is still a huge concentration of short wave output, and the Italians are certainly not leaving it all to the internet. Radio still has great power.

Tom

TOM WALTERS TAKES US ON HIS MONTHLY TOUR OF THE HF BROADCAST BANDS.

DOWN UNDER

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CHRIS EDMONDSON VK3CE LOOKS AT THE RISING COST OF RADIO PRODUCTS IN AUSTRALIA AND GIVES HIS VIEWS ON THE FT-817.

G'Day, and welcome once again to the mutterings from that bloke Down under So what's been happening in Australia?

Actually, that's a jolly good question! What the devil is happening to our poor beleaguered currency? Its worth has gone down faster than the popularity polls for our Prime Minister. Clearly, while a devaluation of a national currency generally improves a nation's ability to sell its export goods overseas (because, following a devaluation, items cost less in real terms to overseas customers), the impact on imports can be devastating.

All of the major Amateur Radio products sold in this country are imported. Most of the imports are purchased in US Dollars, a currency widely regarded as the international currency for trading.

Only a few months ago, Australia's dollar bought about 60 US cents. Now it's busted the psychological 50 US cent barrier, trading as I write at around 48 US cents, and is probably heading for the basement. So what's happened here and what impact does it have on us?

The impact side of things is easier to answer. Our dollar has crashed in recent weeks by an even 20%. If you're an importer, you now have to shell out an additional 20% to buy in your goods.

So you're going to have to pass that unexpected and unwelcome cost on to the customer or hold prices and face lower margins or even sustain a loss! In other words, last month's 1000 dollar transceiver will now need to sell for $1200 if the importer is to make the same margin on the product.

We've been watching the dollar slide against other currencies for years. When I took over as Editor of Australia's commercial Amateur Radio magazine some 14 years ago, one Aussie Dollar bought about ¥140 (Japanese Yen). Right now it's down to ¥58.74 - yep, that's a lot less than **half.**

What about good old Pommy Pounds? The news is good for you, bad for us. A few weeks ago the rate was 38p for one of our dollars. Now it's less than 33p if you want to buy a lousy Aussie Peso. If I'm headed there for a foot **in mouth** holiday I'll have to dig deeper to the tune of 15% per cent. But you'll spend 15% **less** coming now than you would have a few weeks ago. Better book the flights now!

HEADED FOR DAYTON

As it happens, I'm headed for Dayton this year. (I've wanted to go for years, and when I **finally** get my chance the dollar takes a dive! So I'll have to double every price sticker I see before pulling out the plastic…).

Mind you, some things are still relatively cheap here, like petrol for instance. I filled my BMW M5's tank last night with 98 RON unleaded for 77.9 cents per litre. If I've worked it right, that's about 25p per litre, or **£1.17 per Imperial gallon.**

Okay, now let's turn the whole thing on its head for a moment. My new publication - *Radiomag* just reviewed the Yaesu FT-1500M 144MHz 50W transceiver. It's a great little radio at the budget end of things. Its price in Australia is a pretty handsome $399. That's about £130. Hang on! How can it be so cheap given the currency movements? Well, that's a good question!

Over the past few years I've written a number of 'Buy It Now Before The Price Explodes' Editorials in the magazine and each and every time I've wound up with lashings of the proverbial egg on the editorial mug. Each time I've written one of these doom and gloom forecasts it's been as a result of yet another monster slide in the Aussie dollar relative to everything up to and including the Ringgit, the Peso and very probably, the Martian Moonducket.

Each and every time I've said these things, the blasted prices haven't moved for months. I then get a sheaf of letters from people who rushed out and saved the promised fortune, only to find the same item three months later at the same price, either demanding my resignation or, better still, my scalp.

So what gives? Simple. Most importers will set their sell price based on what they actually pay for a product. If you imported 100 units of Item X and the currency suddenly moved one way or the other, would you then adjust your sell price? Would you need to?

If you'd already paid for the items, there would probably be little need to adjust prices. In fact, this country has some pretty specific trade laws which more or less say that you cannot profit in such a way. I must wonder in passing if anyone has ever pointed that out to our petrol stations or banks?

So, while we know what **must** eventually happen to domestic prices as a result of the diving dollar, we cannot tell when it will happen. One thing's for sure: business is nervous, but airline ticketing agencies selling holiday packages to this country must be cock-a-hoop!

● *Radiomag* has been recently launched by Chris VK3CE.

RADIOMAG LAUNCH

As I've previously mentioned I've recently launched a new magazine. I'd been putting the one title together for 14 years when its publisher decided to pursue other area, which was hardly good news for me!

We chose this country's largest Amateur Radio show to launch the new title at the end of February and barely a month later had purchased the former title as well! We hope

the move is a good one for amateurs in Australia and New Zealand, which is where *Radiomag* hits the news stands.

The best friend of a magazine publisher must surely be the long-term subscriber, who shows his or her faith in you and your product by paying for many months' discounted reading in advance. Of course, the subscriber gets the best deal going, is protected from future price rises, and gets the title before it's on sale on the news stands.

As an additional incentive, we decided to offer six radios as prizes for lucky randomly-drawn subscribers. The deal is still open on our web site, at **http://www.radiomag.com**!

One of the prizes we are offering is the remarkable new Yaesu FT-817. Let me tell you a little about this landmark radio by delving into recent history.

The FT-817 is a real hit as far as VK3CE is concerned - read his enthusiastic comments.

I remember the shock and amazement which greeted Yaesu's release some 20 years ago of the world's first commercially-manufactured 144MHz band all-mode portable, the Yaesu FT-290R. The radio was a complete revelation. It was small, portable, had synthesised tuning, repeater offsets, dual v.f.o.s - the lot. You could run it from standard batteries or an external d.c. supply.

I went portable using a 290R on, of all things, a pushbike and anyone who knows me would just scream with uncontrollable laughter at the thought of such a ridiculous sight. I had a ball, working s.s.b. from one hard-won mountain top site way out to the west of the state somewhere, a good 200km away or more.

Mind you, I was using a quality Diamond telescopic whip at the time. It was a good five feet or so long. Such was the popularity of that radio, in this country at least, that there are doubtless thousands of them still in everyday use.

Okay, so if you were designing that radio today, what would you do differently? Well, I guess it would have to be a bit smaller and the FT-817 is indeed smaller than the FT-290 in every dimension. It would also need to be a bit lighter, I suppose and even with the optional battery pack it is that, too. Of course, you'd want it to be far more sensitive, with overall better receiver performance.

Then you'd try to make it a bit more versatile. That probably accounts for the special packet radio connector and the remote control buttons on the microphone.

So, what else could you do? How about adding 430MHz to it? Hey, there's a good idea! In the Mark II version of the FT-290R, you actually needed a second radio, the FT-790R, to get 430MHz in all modes and, of course, there was also the FT-690R for the 50MHz 'magic band' proponents. Well, chuck out that third radio, too, as the FT-817 gets 50MHz as well, also in all modes. This keeps getting better, doesn't it?

So as well as the mode change buttons above the main frequency display, there's also the band change toggles as well. Now, what else can we chuck in?

Well, seeing we're now just dreaming, how about we also chuck in the h.f. bands, optional Collins filters, air band reception, the a.m. and f.m. broadcast bands, a genuinely good c.w. keyer and a surprising slather of general coverage receive as well? In fact, why not throw in **every** feature of the modern h.f. transceiver? Well? Why not?!

A year ago people scoffed at the ridiculous thought. A pipe dream, they said. Well, people, that was last Century, and the FT-817 is here, now. Mine doesn't mow the grass, nor does it wash the dishes. It can't even drive, yet. Like HAL (from 2001), I think it may be learning.

I've told you that I live on the top of a mountain, so the first thing I did after charging that optional battery pack on the FT-817 was chuck the supplied dummy load rubber antenna to one side, find a nice, long, gainy Diamond dual-band telescopic whip, crank it all the way up to 430MHz, wander outside onto the patio, hold the rig on its side for horizontal polarisation, and call CQ DX on 432.1MHz u.s.b.! Blow me down if I didn't get a reply, first call, from a station more than 300km to the North!

Poor blighter probably got a hernia running for the microphone, though. After all, it's not all that often you'd hear a VK3 calling CQ DX on 430MHz way up in VK4! I suppose one day I should get that VK4 call I've been promising. We polished off the QSO on 144MHz u.s.b., on the call channel 144.1MHz, where copy was a good bit stronger.

Way down on 14MHz there's a pretty active bunch of blokes who chase DX. My missus reckons they're something like a pack of dogs after the alley cat and I decided that night **I** would be the cat.

Bang on midnight I wandered out to the car, which has a monster 12ft Terlin Outreach antenna on it. I had plumbed a coaxial switch into the cable between my current mobile, an FT-100D, which has a suspiciously-similar frequency coverage to the FT-817. There's just more of everything on the FT-100D, including the expected 100W output.

I stoked this thing up on 14.226.5MHz for the Southern Cross DX Net, where a bunch of night owl Aussies collect each night around midnight to surf the 14MHz DX. It's early morning in the States about then, and you can often hear the yawns as the Yanks reach over the corn flakes for the coffee, doughnuts and microphones.

The yawns were quickly stifled when this idiot Aussie bloke announced to all and sundry that he was about to switch from the 'big rig' to run a silly 2.5W of speech. So I asked for a bit of quiet, and flicked the coaxial switch. You could just about hear the noisy kids demanding breakfast getting the old clip around the ears as Dad shouted for a bit of quiet.

"**Hey, I can hear you!**" came the first of many incredulous voices. "I got you 5 x 7." One after another they lined up to work this maniac sitting in his driveway on the other side of the world, running just 2.5W into a mobile antenna.

But then came the real fun. I asked the net controller to listen for me one more time, but this time I had switched the appropriate toggle to allow the h.f. herbs to come out the BNC antenna socket on the top of the radio, instead of the SO239 at the bottom of it. I connected an old MFJ 144MHz band half-wave telescopic whip on the top of the set (no loading coil, you see) and, ignoring the impossible s.w.r. and all common sense, stepped out of the car and called him as I walked around the vacant block next door.

This time it was my turn to be surprised. Not only could I be heard around the country, but I got two more 'just' reports from the USA!

Whoops, done it again. You know, one day I really **will** get around to telling you what we get up to on radio in this country! One day…

In the meantime, please feel free to drop in on our website at **http://www.radiomag.com** Alternatively E-mail or write to me at the address at the top of the column. I really love hearing from you all, but sadly I rarely have the time to reply. I'm not trying to be rude, but I have a national magazine to put together, and I do it on my own.

Oh, and I really **do** look forward to the regular cards I get from one particular chap in Wales. Special thanks to you! I'm sure he'll know who I mean. Thank you all, and see you again next time!

73 Chris VK3CE

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6m Transverter (RN Electronics), £100. Yaesu 100W s.s.b. transmitter (excellent), £65. Eddystone Receiver, £80. Yaesu receiver excellent, £60. Various 2m (144MHz) linears and many more h.f./v.h.f./u.h.f. shack clearance bargains. Tel: (07866) 077249 or E-mail howardwalton@thersgb.net for lists.

950SD workshop manual, £15. Bremi p/supply, 13.8V, 5A/7A surge, £15. Marconi valves, unused, a/c spec., CV131/140/138, £2 each, crystals B7G-base, m.f./h.f. frequencies, 322 to 8965kHz, £2 each, P&P at cost. Max G3WMB, Ware. Tel: (01920) 463564.

Aluminium scaffold poles, 21ft, h/duty, £25. Yaesu FT-290 MkII, case, charger, flexi whip, MML 144/25 linear for above, £250 o.n.o. Dave G1XWX, Suffolk. Tel: (01502) 578105.

AR7030 general coverage RX, pristine condition, complete with p.s.u., i.r. remote, manual, £450. G3ATI on (01394) 412161.

Cigarette cards, complete sets, 'How To Build A 2 Valve Set', £35. 'Famous Inventors', (1915), £45. 'Engineering Wonders' (1927), £35. Incomplete set - 'Famous Inventions', £10. Pascal on 0287-135 2804 after 1800 please.

Complete station, perfect w.o., £1650. Separately: Icom 746, £825. Kenwood p.s.u., £65. Ameritron 811, 600W, £495. Spare valves, £15. MFJ 962C 0.5kW tuner, £175. Butternut 48X vertical, £175. Ill health forces reluctant sale, collect (1/2 mile to M2, J4) or carriage extra. Tel: Gillingham (01634) 379140.

FT-736R transceiver with 2-6-70 bands, plus Yaesu MD-1 desk mic., pristine condition, £700. Navico 2m mobile, pristine condition, £90 - could deliver up to 100 miles. Alan, Herts. Tel: (01763) 262443, E-mail: alan.florence@tinyonline.co.uk

HRO 5T with 9 coils and power unit, lovely condition, £395. HRO MX, complete, excellent, £195, both really good, also quantity spare HRO coils, all overhauled and aligned, very clean. Tel: (01872) 862291.

Icom IC-746, £825. Ameritron 811, 600W, £495. MFJ-962C, 1.5kW tuner, £175. Codar ATS TX plus T28 RX, £25. Butternut H8X vertical, £175. All v.g.c., o.n.o. Tel: (01634) 379140.

JRC NRD-345 receiver, pristine condition, serial RG04413, manual, original packing, bought new 2/10/2000 from Lowe, £280 - share carriage. Reason for sale (ill health), 84 turns on coil. Tel: 0191-526 7902 evenings.

Kenwood 850 plus 930 filter, tip top condition, £575. Tel: (01306) 887057.

Kenwood R1000 h.f. RX good condition with Active antenna bargain at only £120. Also for sale Garmin 48, BNC antenna fitting, boxed as new - yours for £150 o.v.n.o. Tel: Richard on (07968) 026033 or E-mail: g0rsn@iparc.com

One valve l.w./m.w. radio, £60. Howes 80m, 40m option RX including filter and p.s.u., £60. MFJ-401C Econo keyer, £30. Lake p.s.u., 13.8V at 1.5A, £26. All excellent condition, o.n.o. Phil, West Midlands. Tel: (01902) 843447.

Philips ex-p.m.r. hand-held TX, 70cm f.m., £15. Ron on (01905) 355381 after 1800 - plus postage.

Q-Tek penetrator, easy portable vertical, £60. Tel: Southampton (01489) 790934.

Realistic PRO-26 scanner, 25-1300MHz, no gaps, coverage with extra antenna, case, book, excellent condition, genuine reason for sale, bargain at £95. Chris, Leicester. Tel: (01455) 888390.

Selling test gear: Television Waveform generator scope, digital Hewlett Packard frequency meter, signal generators, f.m., a.m. meters, s.a.e. for detailed list. L.A. Scrase, 39 Green Ridge, Brighton BN1 5LT.

Shack Clearance: Yaesu FT-736R, 50/144/432/1200MHz base TX/RX, all options fitted, boxed, £750 + P&P. Icom SM8 2-rig base mic., faulty p.t.t. switch, so, £20 + P&P to clear. Richard G8ITB, Kent. Tel: (01689) 602948.

Silent Key Sale, G3ENL: Trio TS-520S, £200. Trio R-1000, £100. KW 107 super match, £100. Tel: 0161-483 5129.

Smart auto tuner SGC230, brand new, never used, still boxed, cost £319, will accept, £275 o.v.n.o. Also 3-ele Sirio 10m (28MHz) beam, excellent condition, £45. Tel: Simon on (01793) 870811.

Sony 2001D receiver, £120. Commtel COM215 scanner, £100, with discone. Alinco ER-2000, 20A, p.s.u., £60. Maplin a.t.u./active antenna, £20. Zetagi SWR202, M27 a.t.u., £25. Wanted Kenwood SP-430. Tel: Derbyshire (01298) 78268.

Sony 2001D RX near mint condx with all supplied accessories, official Service Manual and Steve Whitt book, in original packing. Only light use as holiday RX. £150 plus carriage. Tel: (01394) 448878.

Taylor valve tester with handbook function generator with handbook all in v.g.c., £offers. Send A4 s.a.e. for list of radio books and magazines etc. Tel: 0141-649 9160 or E-mail: dm.76@virginnet.co.uk

Tectronic 'scope T547 spectrum analyser, 10-2400MHz, manuals, working, £100. Racal RA17 receiver, 500kHz to 30MHz, calibrator film scale, 145 feet, 6in of scale per 100kc, manual, working, £75. Maurice, Surrey. Tel: 0208-669 1480.

Trio R-600 receiver, 0-30MHz, excellent clean condition, £100. Wanted Hallicrafters v.h.f. set 536 or 537. Tel: Northumberland (01434) 681469.

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Valves, GEC 6JB6A, quantity 4. All used for very few hours £15 each or £50 the lot Tel. Steve on (01886) 832711 or E-mail: g1kwf@ntlworld.com

Yaesu FT-1000 MP, MkV, unused, still in box, under full warranty, never been out of box, open to realistic offers. Tel: (01226) 756326 or 0775-159 7446 anytime.

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Yaesu FT-102 Good working order, fitted f.m. Board, £200 'phone for details. Eddystone EB37 not working, £offers. Mike G4JXX. Tel: 0121-241 3986 after 6pm.

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EXCHANGE

Eddystone communication receiver, model 940, mint condition with matching speaker, 480kHz, 30MHz, will exchange for 144MHz f.m. mobile or amateur bands h.f. receiver. Tel: (01254) 832350.

Kenwood TS-430S h.f. TX/RX 1-8-30MHz s.s.b., c.w., f..m. mint condition, p.w.o. swap for FT-650 10m and 50MHz transceiver or AOR SDU5500 Pan adapter must be in mint and in p.w.o. G0CEP, QTHR, Fareham, Hants. Tel: (01329) 511718 evenings.

WANTED

Any information on Philips 834A receiver, c. 1930/2. Also need details probes for HP 431/c power meter, anything - circuit specs. Want *RadCom* March, April 1999, December 1996, December 1997, also October 1989 plus old valve data. Jack McDonald, 13b Alsford Road, Purbrook, Waterlooville, Hants PO7 5NE, Tel: (02392) 233245.

CTCSS for FT-290. How can it be done? What are FTS-32 and FTS-32AE boards? Where can they be obtained? Have you any boards, devices or ideas to sell me? Godfrey G4GLM, 63 The Drive, Edgware, Middlesex HA8 8PS, Tel: 0208-958 5113.

Eddystone EC958/7 or 7E, would consider other variants, also required Drake RV7 and RV75. Tony, Chesham. Tel: (01494) 778352 evenings please.

Ex-military B70 parts, e.g. antennas, handset alarm, connection leads, valves or any other hardware related to it, also in need of any tech. data. Tel: (01782) 537092 - after 1800 please.

G2DYM half-size (54') trap dipole with 75Ω twin feed, also G2DYM 1:1 balun, both must be v.g.c., sensible price please. Mike, Durham. Tel: 0191-389 2822 or mobile on (07980) 137617.

Original or photocopy of manual for Trio TR7200G transceiver, costs reimbursed. Bill, Looe, Cornwall. Tel: (01503) 263495.

Racal RA17L and RA117 wanted, also accessories, including s.s.b. adapter, l.f. adapter, panadapter, multicoupler, MA79 driver, etc., also want RA1784-MA1072 receiver and a Racal h.f. linear. All considered. Tel: (01482) 887938.

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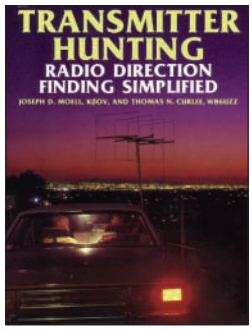

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topical talk

The PW team bring you topical chat, notable events and take you back in time to radio days gone by.

Radio shows remembered

With the recent RSGB Spring Show and VHF Convention in Bletchley on 7 & 8th April, and the London Amateur Radio & Computer Show on 21 and 22nd April at Alexandra Palace, the *PW* team started thinking about the old Radio Show - mostly held at Earl's Court/Olympia in London. Did you attend one of these events?

One of the 'senior' members of the team (he tends to go into reminiscent moods very easily!) has told us that these shows were always very interesting. Generally there was very little Amateur Radio content of course, but Eddystone were usually involved and of course those were the days when an enormous amount of domestic radio equipment was actually made within these Islands!

Despite the low key presence of Amateur Radio at the mainly broadcast centred Radio Show, it was with great interest that when looking through the *PW* archives the Editorial team noticed that Daystrom, the Gloucester based Heathkit Agents/Importers for many years in the UK, were featured in the news report on page 500 of the October 1960 issue of *PW* and reproduced here as **Fig. 1**.

Have you got any memories of the old Radio Shows? If so why not drop us a line for the *PW* readers' Letters page? There must be many readers who enjoyed those old shows....and there's at least one member of the Editorial team who would agree on that point!


PRACTICAL WIRELESS 1/6
JANUARY 1961
COMBINED RADIO AND TABLE LAMP

RADIO SHOW 1960
A review of some of the products shown at Earls Court this year

● Fig. 1: Did you attend the 1960 Radio Show - as reported in the October 1960 issue of *PW*. Have you got some memories of the old Radio Shows?

Film Shows

Looking through the office archives to find a suitable news report page to illustrate Topical Talk the Editorial Team came across the advert, **Fig. 2**, for the *PW* Film Show to be held on 13 January 1961 at Caxton Hall in Westminster, London. Presented in co-operation with **Mullard Ltd**. Judging by the report and photograph in a subsequent issue, the film show was a great success.

Films shown on 13 January 1961 included *Conquest of the Atom*, *The Invisible Force* and *Particles Count*. And although the reproduced photographs published in the news after the event weren't clear enough for reproduction they indicate that several hundred readers attended. Did you go? The film shows were a popular attraction for a number of years, so we'd very much like to hear from anyone who attended.


FRIDAY, JANUARY 13th, 1961
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The demand for tickets is great; order yours NOW.

● Fig. 2: The *Practical Wireless* annual film show (presented in co-operation with Mullard Ltd.) was a popular event. Did you get one of the free tickets? If you did, *PW* would like to hear from you.

Welcome Bob!

This month the Editorial Team would like to welcome **Bob Kemp**, a new member of the Art Department team where *PW*, *Short Wave Magazine* and *Radio Active* are designed. Bob is 28 years old, comes from Bournemouth and gained a Degree in Design Technology and Business Studies at Plymouth University.

Bob's own interests include classic cars and Formula 1 motor racing. He's even got his eyes on a classic Frog-eyed Sprite sports car! Even though *PW* is an Amateur Radio magazine, in its own way it will be just as competitive as a motor race, trying to beat the deadline challenge each month with only three pit stops between each magazine's production schedules! So, good luck Bob from everyone on the *PW* Editorial team.

next month

Looking forward to the next issue of *Practical Wireless?* Take a look at what's on offer!

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Carl Mason GW0VSW gets to grips with the Yaesu FT-1000 Mk V h.f. all-mode transceiver.

RADIO HOLIDAY

Jack Drake GM4MOX has some useful tips and suggestions for taking your hobby on holiday with you.

FEATURE

Take a trip back in time with **Dick Pascoe G0BPS** as he remembers Thomas Edison and his inventions.

BUILD

Build a 3-band c.w. QRP transmittter - **Carmel Fenech 9H1AQ** shows you how.

LOOKING AT .....

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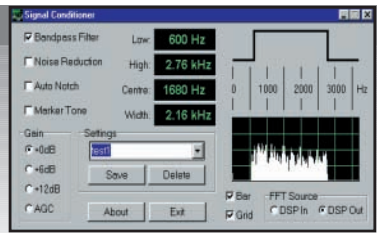
5. Squelch-controlled AF Recorder
6. DTMF, CTSS decode and analyse

The DSP applet provided with the WR3100i spectrum monitor ISA card (£995+VAT) allows continuous control of audio bandwidth and other signal conditioning functions.

ONLY £81.07 inc vat

(requires SoundBlaster 16 compatible sound card)



WiNADiO™ PC RECEIVERS

Available as either an internal ISA card that slips inside your PC, or as an external (portable) unit. WiNRADiO combines the power of your PC with the very latest, and greatest, synthesised receivers.

YOU CAN USE WiNRADiO™ SCANNiNG PC COMMUNiCATION RECEiVERS FOR:

Broadcast, media monitoring, professional & amateur radio communications, scanning, spot frequency, whole spectrum monitoring, instrumentation surveillance and recording.

If you're after the ultimate receiver-in-a-PC with full DSP then smile and say, "Hello" to the new **WR-3150i DSP** with its hardware for real-time recording, signal conditioning and decoding applications. It's all you need.

NEW EXTERNAL MODEL

EXTERNAL WiNRADiO™

We are now able to offer you a complete range of stand-alone WiNRADiO comms systems:

- **WR1550e - £429 INC VAT**
- **WR3150e - £1169 INC VAT**
- **WR3500e - £1589.78 INC VAT**
- **WR3700e - £1808.33 INC VAT**

Each stand-alone unit connects to your PC through either the basic RS232, or through an optional PCMCIA adapter (for high speed control).

The units are powered through either your existing 12v supply, or through an (entirely optional) NiMH rechargeable 12v battery pack.

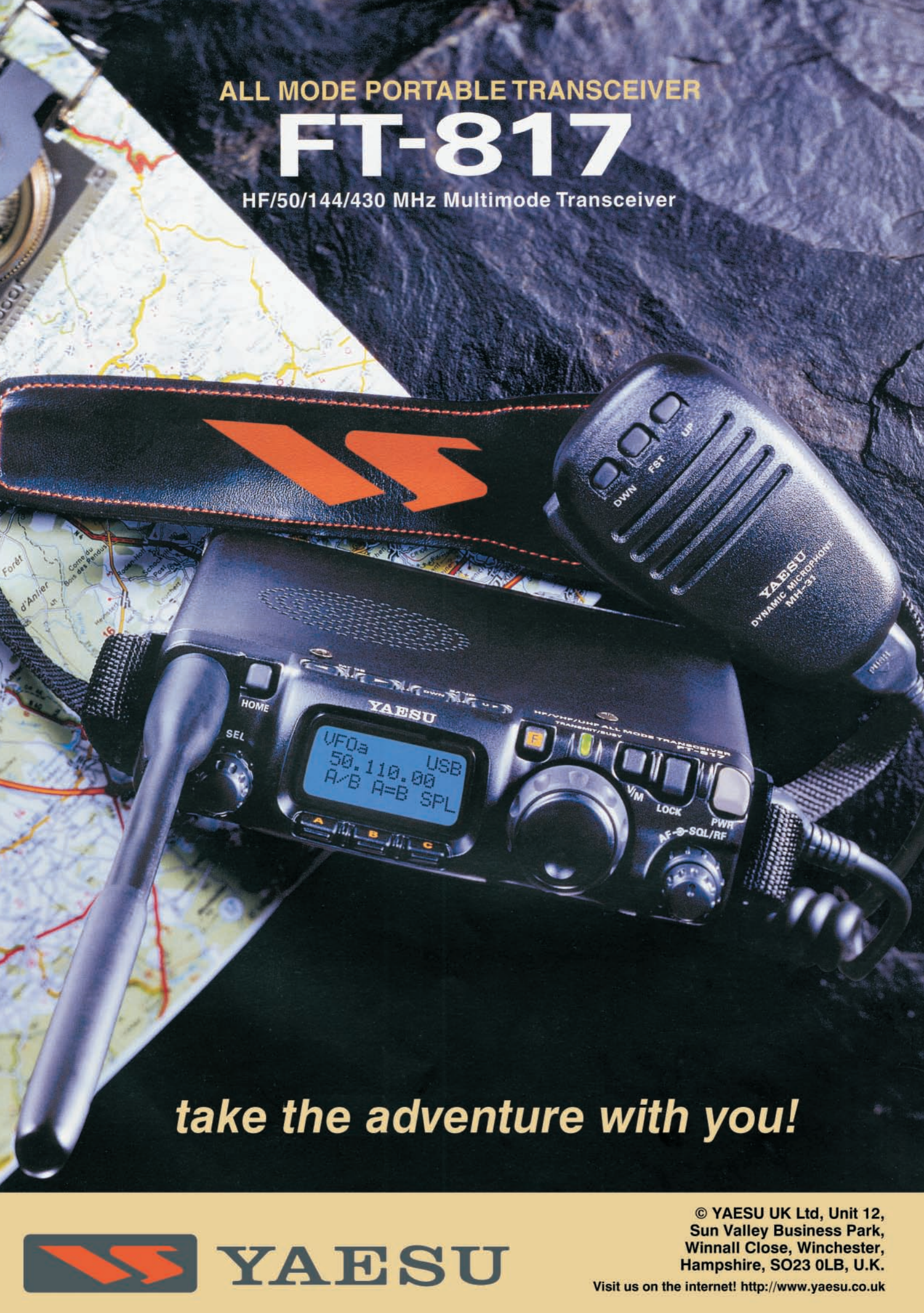
NEW UNIVERSAL FSK DECODER (SOFTWARE PLUG-IN) ONLY £303.03 INC VAT

Model Name/Number	WR-1550	WR-3150	WR-3500
Construction of internals	WR-1550i/WR-3150i-3500i/WR-3700iDSP- Internal full length ISA cards		
Construction of externals	WR-1550e/WR-3150e/3500e/3700e - external RS232/PCMCIA (optional)		
Frequency range	0.15-1500 MHz	0.15-1500 MHz	0.15-2.5GHz
Modes	AM,LSB,USB,CW,FM-N,FM-W	AM,LSB,USB,CW,FM-N,FM-W	AM,LSB,USB,CW,FM-N,FM-W
Tuning step size	100 Hz (1 Hz for SSB and CW)	100 Hz (1 Hz for SSB and CW)	100 Hz (1 Hz for SSB and CW)
IF bandwidths	2.5 kHz(SSB/CW), 9 kHz (AM) 17 kHz (FM-N), 230 kHz (W)	2.5 kHz(SSB/CW), 9 kHz (AM) 17 kHz (FM-N), 230 kHz (W)	2.5 kHz(SSB/CW), 9 kHz (AM) 17 kHz (FM-N), 230 kHz (W)
Receiver type	PLL-based triple-conv. superhet		
Scanning speed	10 ch/sec (AM), 50 ch/sec (FM)		
Audio output on card	200mW	200mW	200mW
Max on one motherboard	8 cards	8 cards	3-8 cards (pse ask)
Dynamic range	65 dB	65 dB	85dB
IF shift (passband tuning)	±2 kHz	±2 kHz	±2 kHz
DSP in hardware	no - use optional DS software	YES (ISA card ONLY)	YES (ISA card ONLY)
IRQ required	no	no	yes (for ISA card)
Spectrum Scope	yes	yes	yes
Visitune	yes	yes	yes
Published software API	yes	yes	yes (also DSP)
Internal ISA cards	£369 inc vat	£1169.13 inc	£1589.78 inc vat
External units	£429 inc vat	£1169.13 inc	£1589.78 inc vat

PCMCIA Adapter (external):	£69.00 inc when bought with 'e' series unit (otherwise: £99 inc)
PPS NiMH 12v Battery Pack and Charger:	£99 inc when purchased with 'e' series unit (otherwise: £139 inc)
The WiNRADiO Digital Suite:	£74.99 inc when purchased with a WiNRADiO receiver (otherwise: £81.05 inc)

To receive your completely free (no obligation) info pack and WiNRADiO software emulation demo disk all you have to do is get on the internet and go to our website at http://www.broadercasting.com. If you don't yet have easy access to the internet then by all means feel free to telephone us or send a fax.

Please send all your enquiries to: info@broadercasting.com or Telephone: 0800 0746 263 or +44 (0)1245 348000 - Fax: +44 (0)1245 287057
Broadercasting Communication Systems, Unit B, Chelford Court, Robjohns Road, Chelmsford, Essex, CM1 3AG, United Kingdom



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