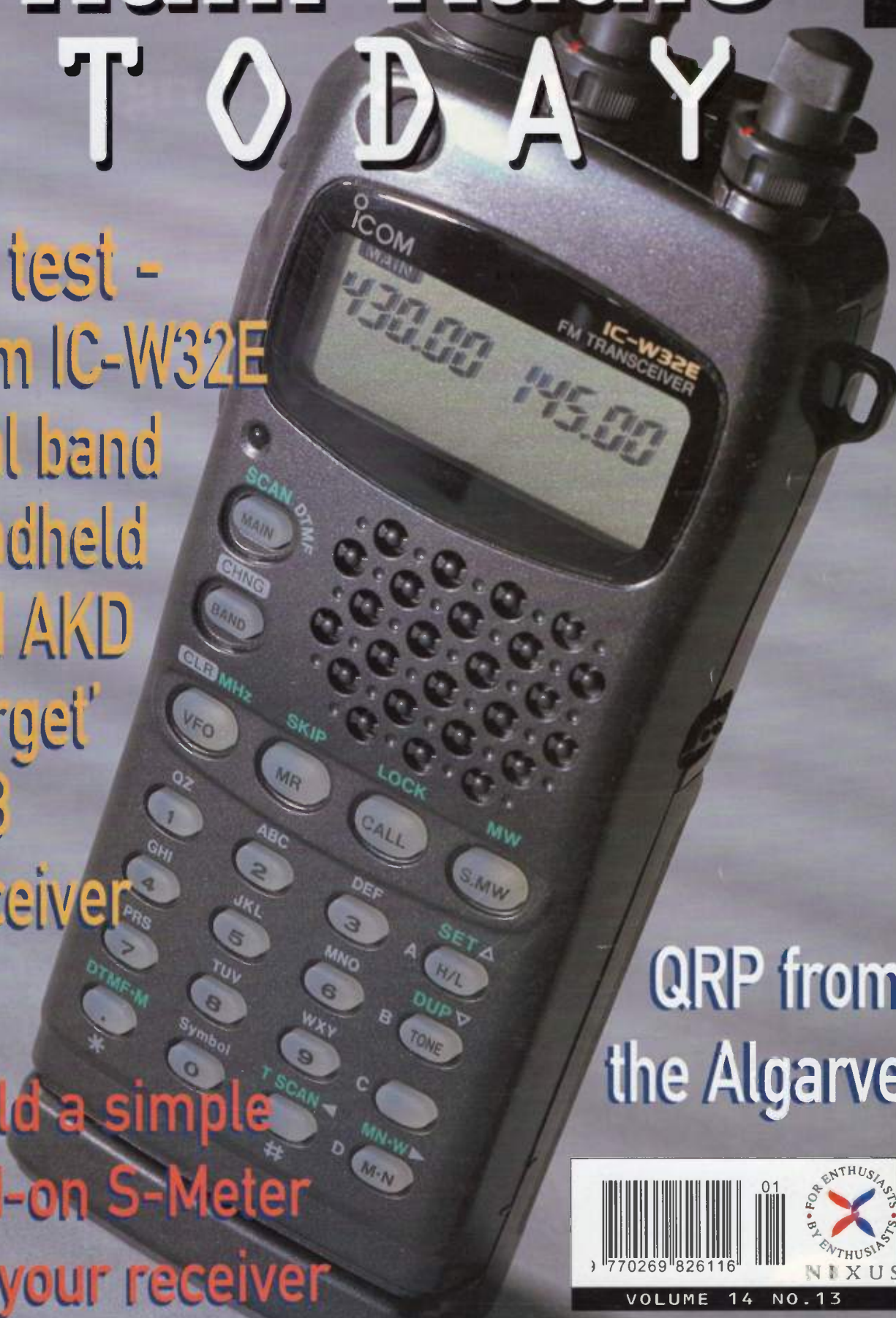


Ham Radio T O D A Y

On test -
Icom IC-W32E
dual band
handheld
and AKD
'Target'
HF3
Receiver

Build a simple
add-on S-Meter
for your receiver



QRP from
the Algarve



VOLUME 14 NO.13

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KENWOOD

Ham Radio TODAY

HAM RADIO TODAY VOLUME 14 NO.13

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On Test: AKD 'Target' receiver



All reasonable care is taken in the preparation of the magazine contents, but the publishers, nor the Editor, cannot be held legally responsible for errors in the contents of this magazine, or for any loss arising from such errors, including loss resulting from negligence of our staff. Reliance is placed upon the contents of this magazine at readers' own risk.

radio



RSGB operating loss while investing in the future of Amateur Radio

The Radio Society of Great Britain recently released their financial results for the year ended 30th June 1996. This is what they say:

"For the first time since 1991 the accounts show an operating loss, which is mainly the result of a heavy financial commitment to the future of amateur radio. The Society reported an operating loss of £138,547.00 compared to a profit in 1994/95 of £19,391.00. The reasons for this are that there was a 2.9% fall in total income, amounting to £47,147.00. A substantial part of this - £32,000 - relates to the way in which subscriptions are accounted for and is merely a timing difference: this is an effect of members changing to payment by quarterly Direct Debit. This method of payment is convenient for members and is likely to lead to a higher percentage of renewed subscriptions - is therefore to the Society's long-term advantage. The balance of £15,147.00 reflects the

continued pressure on membership levels, advertising volumes and book sales.

Total expenditure rose by 6.8% (£110,701.00). This is largely a consequence of a deliberate strategy to maintain services at their present levels to maximise advertising and subscription income. The Society has also invested in a number of long-term projects and activities aimed at securing a firm base for amateur radio and the Society for the future. These include the encouragement of newcomers, particularly young people, ensuring that the keenest overseas amateurs seek RSGB membership, and surveying the membership on future international licensing regulations".

Commenting on the financial results, Honorary Treasurer Richard Horton, G4AOJ, said: "In spite of the small decline in income, we have concluded that we cannot and should not make substantial cuts in the Society's service levels, as these would almost certainly lead to further and larger reductions in the key income categories of subscriptions and advertising income. Our present view is that we should maintain our services to members, promote the Society's activities to non-members, and to support initiatives to develop the Amateur Service".

If you would like to read the full report, this has been included on the RSGB Internet site; <http://www.rsgb.org>

UKRS Morse opinion survey

The United Kingdom Radio Society have been asked to clarify their position with regard to the Morse Code issue - should it or should it not be retained as a requirement of the class 'A' licence? We're told the Society's position is simply that it will represent to the best of its ability the views of its members and, if the Society can be said to have an opinion of its own, then that opinion will always be the opinion expressed by the majority of its members.

In practice, the UKRS say they would hope to be more specific than simply adopting a position 'for' or 'against' any given issue and, in respect of the Morse Code question, can report as follows: All members of UKRS are asked upon joining to indicate their personal preference. Affiliated societies, clubs and

groups are excluded from the count. Only UK residents or holders of UK issued licences who are UKRS members have been counted. This yields a total of 401 members who are eligible under those criteria to have their views counted. In its simplest form, analysis of UKRS members in October reveals that:

38.31% voted "no preference"	30.85% voted "remove it"
25.87% voted "retain it"	4.73% failed to vote

We're told that new members continue to be asked to record their preference and the above data may therefore be regarded as accurate only at that date. The pattern shown is broadly representative of the pattern which has been maintained since UKRS was founded, there have been no major 'swings' one way or another.



Bill Gordon GM8ZLI, Alex Wilson GM6VIU/GMOWSN, Bob Glasgow GM4UYZ and Ron Fraser GM0NTL of the Cockenzie and Port Seton ARC present Heather Gregory, Local Area Organiser of the British Heart Foundation, with a cheque for £727.00.

Cockenzie and Port Seton ARC Presentation

The Cockenzie and Port Seton Amateur Radio Club recently presented a cheque for £727.00 to the British Heart Foundation, which is the money raised by the club this year. When one of the club members died suddenly from a heart problem three years ago, the club decided to raise money for the charity each year, the total raised to date being £1,470. The bulk of the money is raised at their now annual junk night, with the rest coming from raffles at club nights, money left over after paying for the hire of the club room for talks, 10 pin bowling nights, etc. They say what makes the club unique is that as a club they have no funds at all, and it is one of their aims to stay that way, but at the same time try and raise money through various club events for their adopted charity, the British Heart Foundation.

today

Hornsea ARC 25th Anniversary

In October the Hornsea Amateur Radio Club arranged a night to remember for the 25th Anniversary of the foundation of their club.

Over a hundred members, past and present, and friends had a very pleasant evening including an excellent buffet

at the Hornsea Floral Hall. Among the guests were three of the six founder members, Duncan Heathershaw G3TLI, his wife Joan G4CHH and Norman Shields the club's first chairman. Two RSGB Presidents were present, Joan Heathershaw G4CHH who



Norman Shields, Joan Heathershaw G4CHH and Duncan Heathershaw G3TLI, three of the founder members of the Hornsea Club

held the position twice, and Peter Sheppard G4EJP the current President. Also present was Percy Winsford G4DC an ex-Council Member and the present club's Chairman Mr. C. Reynolds G8EQZ, who is also the local RLO.

Many activities of the club include the major HF, VHF and TV contests, and regular successful Hornsea Ham Radio Rallies. Two of the main activities of the club are the running of the RAE and Novice scheme, which have produced many of the local hams.



John 2E1DLE (now passed RAE), Tom 2E1DMS and Steve Plant (RAE student), some of the club's Novice and RAE students

50MHz repeaters

The RSGB say that the IARU have agreed to their alternative proposal for repeater input frequencies in the MoD part of the sub band 51.210 - 51.350MHz. Using repeater outputs in 50.710 - 50.850MHz and an offset of 500kHz, will give 15 channels. They say the Repeater Management Group are in the process of finalising the 50MHz 10kHz specification.

The RMG say there are 13 definite 50MHz repeater proposals with one other group showing interest. Ten proposals are totally complete but all are subject to final vetting, i.e., allocation of frequencies. The RMG ask any group with applications having outstanding information to please contact their Zonal Representative as soon as possible.

Iran to issue Ham Radio Licenses

The Iranian Ministry of Post, Telephone and Telegraph is to start issuing ham radio licenses to the Iranians. The Tehran-based English-language newspaper 'Iran Times', quoted by BBC Monitoring, reported that the Iranian PTT has invited amateur radio enthusiasts aged 16 and over to undergo training in order to receive an amateur radio permit.

50MHz archives on CD-ROM

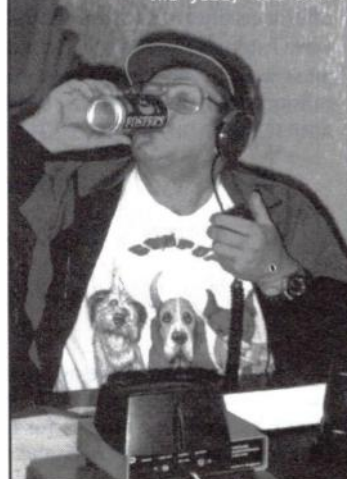
Geoff GJ4ICD has informed us of a new CD-ROM he is developing. He says the CD will contain 50MHz archives going back to the 1930's. It will also have hundreds of audio clips, pictures of 6m operators, aerials, stations, details of a Nag 144MHz amplifier conversion to 50MHz, a 4CX250B amplifier, aerial construction, beacons, 'Six News' back copies, solar information, 50MHz Emails, plus articles from around the World, expedition reports, filters, F2 USA frequencies (30 to 50MHz) so you can determine what area you are hearing! Internet Six News, QRA/Prefix maps, DXCC News/updates, reports, software, Sporadic E information, TV frequencies, lots of utilities for viewing etc, and the complete ZS6WB cycle 22 reports. Geoff says "There are at least 26 directories and no installation will be required, everything is viewable from the CD. Audio files are saved in .WAV and .RA form with software provided, pictures are stored in .JPG or .GIF and again Freeware is provided for viewing. There will be a limited run of 100 made and sold at the cost price of the CD's and equipment. The CD will be limited to 300Mb, 240Mb has so far been achieved, so upgrading can be added later at the cost of postage. (The approx cost is £12 including post). You can contact Geoff Brown GJ4ICD (details in 'VHF/UHF Message each month) for further information.

Amateur Radio Marathon

On September 22nd, the Barry Amateur Radio Society held a 24 hour radio marathon to raise money to buy specially-built radio cassettes for use by the blind in South Wales. The object of the marathon was to contact as many people and countries around the world on ham radio in 24 hours using 100W.

Marathon team members Glyn Jones GW0ANA, Brian Brown GW0PUP, Alf Cornick MOAML and Clive Tombs GW4MOM managed to make 260 radio contacts in 44 countries. The most distant was Thailand (HS1GUW) 6,047 miles from Barry, and the most interesting was Baghdad in Iraq (Y196BIF), 2688 miles from Barry. This station was celebrating 1000 years of the founding of Babylon in Iraq. Despite the troubles in Iraq, this man passed on his good wishes to the people of Wales and to the blind in particular, he said if it was possible he would send a contribution to the appeal, but it was not. He sent his kind thoughts as he fully understands the tragedy of blindness. Due to the generosity of their sponsors, the team raised £700 and this money will buy 10 specially built radio cassettes.

Brian Brown GW0PUP refreshing the vocal parts at 4.30am, spot the jazzy tee shirt



Gisborne 2000 Award

The Amateur fraternity is fast heading into a new century, with the year 2000 rapidly approaching. To acknowledge this event, the Gisborne Amateur Radio Club, (Branch 11. NZART) have instigated an annual award until the year 2000, using the call sign ZL2000. The Award, to be known as the 'Gisborne 2000 Award', acknowledges the fact that Gisborne, New Zealand is unique in being the first city in the world to see the sunrise on a new day, and the new year. As this is an international award, it is open to all amateur radio operators and SWL's. To achieve an annual award, only one contact is required with a ZL2000 station during the month of January each year, until the year 2000.

A special complimentary award will be issued to all stations that contact a ZL2000 station for four out of the possible five years, up to and including the year 2000. One of these complimentary award recipients will receive a very special Award in the year 2000, the details of which are to be released at a later date. The cost of the annual Award in New Zealand is \$5.00. For Australia \$5.00 and the rest of the world: US\$10.00. Any valid amateur frequency may be used by either Phone or CW. The contact can only be made during the month of January each year, commencing 0001 (N.Z. Time) 1st. January 1997. (1101 UTC 31st December 1996 and concluding at 2400 (N.Z. Time) 31st January 1997. (1100 UTC 31st January 1997) each year including the year 2000. All correspondence and award applications should be sent to 'Gisborne 2000 Award'. PO Box 1017, Gisborne, 3815. New Zealand.

New 2m and 70cm repeaters

Ham Radio Today have been informed of two new repeaters which are due to come into operation. They are GB3WM on channel R2, run by the East Birmingham Repeater Group. This repeater will be located very close to the NEC, covering the M42 and surrounding area. Contact G4KQV for further details.

The second one is the GB3GB 70cm repeater located on Barr Beacon. Contact Noel Thompson G8NDT for further details.

Congratulations Doreen and Roger!

Doreen Stone 2E1DPG, has become the first Novice to receive two 50MHz awards from the RSGB. These are the DX 25 countries certificate and the 50 squares certificate. She also qualified for the 30 countries 2-way certificate. Roger Piper G3MEH, has been awarded the Society's Supreme Award. This award reflects many years of keen 'on air' activity. His 1296MHz senior award took six years of hard work, although he achieved his 432MHz senior award in only just over two years.

Beacon news

A new 50MHz propagation beacon is now operational. Chris Deacon G4IFX of Darlington, County Durham, has been granted permission by the Radiocommunications Agency to use the callsign GB3IFX for his 50MHz tropospheric tests, as part of an experiment by the RSGB Propagation Studies Committee. The beacon transmits on 50.275MHz, on the hour, every hour, in 30 second bursts during which the callsign and time are sent twice.

The worldwide five-band HF beacon network has been further expanded. The Madeira beacon has a new callsign, CS3B, and can be heard on 14100, 18110, 21150, 24930 and 28200kHz. It transmits for 10 seconds on each frequency in turn in a three-minute cycle. Also on the air is KH6WO in Hawaii on the 14, 21 and 28MHz frequencies only and JA2IGY on 14100kHz only.


The GB3MCB 70 centimetre beacon at St Austell in Cornwall, is now undergoing repair work and is off the air due to an aerial fault. The aerial is on a mast belonging to one of the utility services and an early return to service is not anticipated. For further details please contact Brian Body Chairman of the Mid Cornwall Beacon and Repeater Group, Tel. 01872 78020

The DADARS Award

Darlington & District Amateur Radio Society is pleased to offer a certificate award to both licensed amateurs and short wave listeners. In order to claim the award the operator/listener must work or have heard 40 stations whose last letter of their callsign make up the words 'DARLINGTON AND DISTRICT AMATEUR RADIO SOCIETY'. The make-up is as follows:

A x 5	C x 2	D x 4	E x 2	G x 1
I x 5	L x 1	M x 1	N x 3	O x 3
R x 4	S x 2	T x 5	U x 1	Y x 1

In order to claim the award a copy of the log must be sent, marked clearly as being a claim for the SWL award or the worked award, along with a cheque for £4.00 made payable to the Darlington and District ARS and an attractive certificate will be



**DARLINGTON & DISTRICT
AMATEUR RADIO SOCIETY**

"DADARS AWARD"

THIS CERTIFIES THAT

*Has this day submitted satisfactory evidence of having heard/worked
40 stations whose last letter of the callsign make up the words
'Darlington And District Amateur Radio Society'
and this certificate is issued in recognition of this achievement.*

DATE _____

CLUB STATION G4ZVH

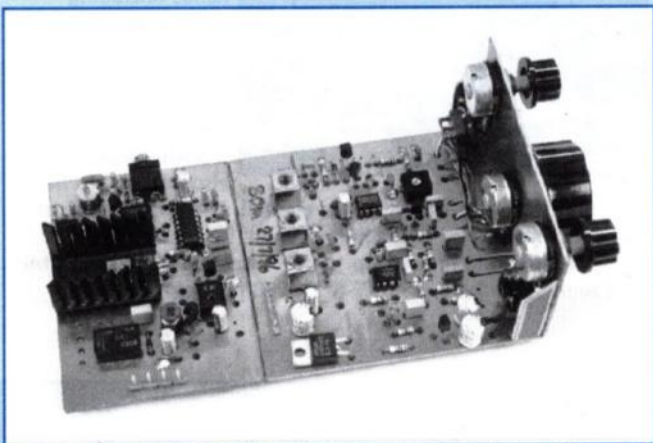
issued upon receipt. Logs from 1st January 1996 onwards will be accepted in any mode and in any amateur band. Write to;
Darlington and District ARS, The Grange, Hurworth, Darlington,
Co. Durham DL2 2BN

trade topics

Note that the following information is based upon submissions by suppliers, and is not necessarily endorsed by Ham Radio Today. We cannot be responsible for false or misleading claims by suppliers. Were indicated however, full and unbiased reviews of products are planned for a forthcoming issue of Ham Radio Today.

Drayton added to Walford's 'Somerset' Range

The Drayton is a broadband crystal controlled 1.5W CW transmitter capable of working anywhere in the range 1.8MHz to 15MHz. It is supplied with a 3.582MHz ceramic resonator for 80m. The on-board trimmer allows 40kHz swing with this particular ceramic resonator thus covering all of the 80m QRP and Novice sections. Walford say that changing the crystal is all that has to be done for use on other bands (although a change to your low pass filter will obviously also be needed - Tech Ed). The Drayton also includes a sidetone oscillator, RX muting, aerial changeover relay with one set of spare contacts, semi or full break-in control with netting facilities. The Drayton is supplied with all hardware for use with the Martock or Pitney receivers from Walford, but can also be used with any other make. It is ideal for Novices as very full instructions are included. The normal price is £24 for the transmitter plus £1 p/p, but when ordered with a Martlock receiver (state band required, 160m to 20m) the pair cost £60 post paid. Further details from Walford Electronics, Tel. 01458 241224.



The Drayton and Martock receiver from Walford Electronics

Latest UK Callbook on Disk

From G0LOV and G4LUE comes the Spring 1997 UK Callbook on Disk. Released on the 10th October, this is the DOS version of this highly successful callbook for PC users, supplied on three 1.44Mb 3.5in disks to install to your hard drive. Containing details from the Radiocommunications Agency up to 1st October 1996, as well as 'standard' callsign searches plus WAB book number information for amateurs, including multiple book numbers, it offers name and address combination searches as well as repeater and packet mailbox information. Further details from Ernie G4LUE on 01226 716339.

Standard now in the UK again

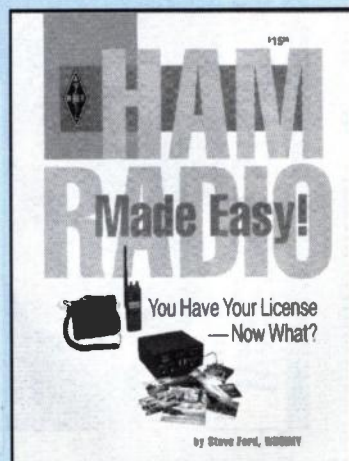
Martin Lynch and Son launched their new range of Standard VHF/UHF handheld transceivers at the 1996 Leicester Show. These included the tiny C508 2m/70cm dual bander, the equally tiny C108 2m and C408 70cm transceivers, the fully featured C156E 2m handheld, and the C568 2m/70cm dualbander with 23cm receiver and 35mW 23cm transmit power. A forthcoming mobile rig, the C- 5908D triple-band 6m/2m/70cm, is just around the corner. You'll see a number of these sets reviewed in Ham Radio Today, starting with a review in the very next issue.



Standard handhelds from Martin Lynch and Son, launched at the recent Leicester Show, watch out for a number of reviews in Ham Radio Today, commencing with the very next issue!

Ham Radio Made Easy

This book by Steve Ford WB8IMY is described as "your one-stop source for everything you need to get started in amateur radio". You will learn what kind of equipment to buy, how much it will cost, and how to use it. This book covers everything from FM voice to HF sideband, and even includes satellites, packet, television and much more. Best of all, Ham Radio Made Easy is not only easy to understand, it's fun to read. 202 pages, 185mm x 230mm, ISBN 0-87259-537-4, £14.50. published by the ARRL and available from your local specialist radio dealer or bookshop, distributed in the UK by Gazelle.



Specialist CD-ROM for Aerial Users

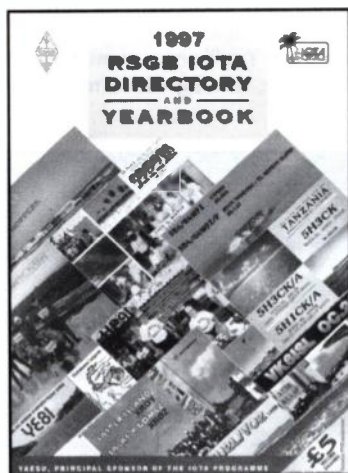
The Public Domain and Shareware Library (PDSL) tell us this unique new CD-ROM is mainly intended for telecommunications, radar and broadcast engineers, radio amateurs or others involved in the design, maintenance or use of radio, TV or other aerials and communications equipment.

It carries over 2000 files on 50 different types of aerials, including all the common dipole, vertical, yagi and quad

variations. Less common types such as horns, parabolas and corner reflectors are also covered. Many of the articles and programs are available exclusively on this CD-ROM.

Programs are varied and mostly concerned with design to secure desired performance at specified frequencies. Most also include source code in BASIC or FORTRAN, so allowing the user to modify them to suit his own needs. Licensed amateur Rod Smith, who has run the PDSL for 12 years, tells us "With the programs and data files on this disc, the radio amateur or professional should be able to extend his expertise on antennas considerably". The CD-ROM is available from the PDSL (Tel. 01892 663298) at £24.00 by mail order.

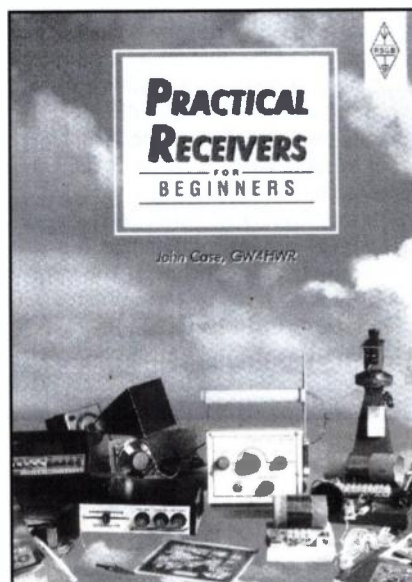
As this magazine was being prepared for press, we received details of a number of new books from the RSGB, these are planned for brief review in a forthcoming issue:



1997 RSGB IOTA Directory and Yearbook

Edited by Roger Balister G3KMA, this is the first combined Directory and Yearbook and incorporates all the information traditionally included in the IOTA Directory as well as features appearing in the Anniversary Booklet, IOTA - 30 Years On. The Directory and Yearbook will be published annually each September, so as to include the year's Honour Roll and

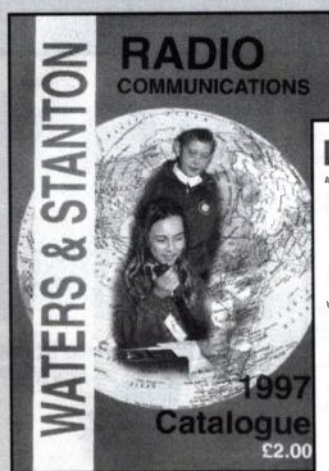
Annual Listing, the results of the previous year's IOTA Contest and the rules for the following year. The RSGB say this book will prove invaluable to all HF DXers as the IOTA Programme is now one of the World's most popular amateur radio award programmes and to participate it is important to have all the information currently available. 96 pages, 297mm x 210mm. Priced at £9.95, US\$15 or 25 IRCs UK and Europe (Add US\$3 or 4 IRCs for airmail outside Europe).



Practical Receivers for Beginners

Written by John Case GW4HWR, this book contains a selection of easy-to-build receiver designs suitable for amateur bands (including microwaves), together with simple 'fun' projects and test equipment. The theory and practice of receiving techniques is also outlined to help

with understanding the circuits presented. The book will be of value to anyone who is building receivers for the first time, or who is considering moving up to microwaves. 165 pages, 244mm x 183mm, ISBN 1-872309-35-6, £12.50 plus p/p.



Two publications from Waters and Stanton

Waters and Stanton Electronics have launched their 1997 Radio Communications Catalogue, containing 144 pages of information on ham radio products and accessories. Priced at £2.00, contact them direct on 01702 206835 for your copy. Waters and Stanton have also just produced their first Watson radio accessory brochure, which is a four page colour production illustrating and briefly describing each product. Ham Radio Today readers may request a free copy of the Watson brochure by sending their name and address to Waters and Stanton Electronics.

An extra issue each year now!

As I write this, the Ham Radio Today team have just returned from the Leicester Radio Show. Our stand at the show (stand 12 in the Sales Hall) attracted a large number of visitors who came and said "hello", with both Editorial and Sales staff, together with a couple of our regular contributors, on hand to chat with readers. It was great to chat with you.

Our free competition to win a Radio Shack HF receiver, worth over £300 and kindly supplied by SRP Trading, brought in a large number of entries. The winner will be announced in the next issue, because we didn't make you fill in all the answers at the show (many visitors wanted to look around!) hence the 'Freepost' address as an option for completed entries.

Did you miss out? Ham Radio Today will again be at the London Show in the spring of 1997 with a stand. As well as this, Chris has again had his 'arm twisted' to give a talk each day in the lecture room. His ex-PMR conversion talk at the 1996 London Show was 'standing room only' with over 150 attendees, even with some give-away 'freebies' to the first-comers.

New products

A number of dealers took the opportunity to launch new amateur radio products at the Leicester Show. You'll see one of these reviewed in this issue, the new Icom IC-W32E 2m/70cm handheld. Others you'll see detailed elsewhere in this month's magazine, both in the regular columns and in the 'Radio Today' section. How about the reviews? Well I've no less than five further new products arriving this week, so there's quite a choice for the next issue! To give you a hint, at least one of the sets reviewed will be a tiny Standard handheld.

Chatting away

One of the benefits of being able to meet and chat with readers, as well as receiving completed questionnaire results regarding interests etc., is of course making sure this magazine gives you, the reader, actually what you want to read.



Sheila, Chris, and Andy at the Ham Radio Today stand at this year's Leicester Show.

There are also many specialist interests in our hobby, and in future issues I hope to be able to cover some of these, with articles written by leaders in each particular field. Also, the regular columnists would love to hear from you, either with contributions of what you've worked for example, or indeed your interests so they can include these in their columns. You can contact them either directly, or via myself by either letter, fax, Email or a phone message.

Have you noticed a change?

Starting this month, Ham Radio Today is no longer a magazine which appears each calendar month. Instead, you'll be able to read a new issue every four weeks, in other words, thirteen issues each year.

If you take advantage of our direct subscription offers to the magazine, it won't cost you a penny more than twelve

issues did - you get a 'freebie', which can't be bad! At the last audited count, our circulation had increased by exactly 10%, and from what we can see the trend is quite likely to continue. Also, from your comments it seems that you'd like to know exactly when the next magazine is coming out.

As it's no longer a

'January 1997', or 'February 1997' issue or whatever, you'll instead see the volume and issue number on the magazine cover. For example this issue is Number 13 of Volume 14, the next issue will be Number 1 of Volume 15. The publishers hope you'll prefer this, but please do pass on your comments, whether you like the idea or not. Maybe you'd consider sending a letter for publication, on this or any other topic? Remember, the best each month receives a £10.00 cheque (or the equivalent for overseas).

With the growing use of remote mail facilities, do also remember that you're welcome to contact the Editorial Office by Email, the address is hrt@netlink.co.uk

Readily available information

If you've a query on the magazine, the 24 hour Ham Radio Today telephone voicebank (01703 263429) answers many commonly

asked questions, straight away. Just use a DTMF (touch-tone) phone to select between the many available options. If it doesn't and you'd prefer to talk to a real human, then Lyn Bugden at the Nexus Head Office (01442 66551) will be pleased to help with questions such as "What issue did such-and-such a review appear in". Of course, all this is available in printed list form, your's for just an SAE to the HRT Editor. Just say whether you want details of transceiver, scanner/receiver, or aerial reviews, ex-PMR conversions and updates, construction projects and updates, or whatever (or even the whole lot!). We had plenty of these at our stand for readers to take away, and we were pleasantly surprised to find that many readers didn't know we offered such a 'free list' service! If you've a fax machine, you can also receive these instantly, by calling the 24hr voicebank from your fax machine. Besides the features lists there's also amateur satellite Keplers, amateur radio news and updates, and an up-to-date national stolen equipment register list on this system, a Ham Radio Today service for all amateurs.

Filling the magazine up with reviews lists and the like is another option, but my feeling is that you'd like to read articles rather than having several pages of the magazine each month filled with such lists and 'in-house adverts' such as book lists. Yes, Nexus do have an in-house book division - just drop them a line or give them a ring (01442 66551) for a free hobby book catalogue.

Next month

Right, with the shorter 'deadline' I now need to get cracking with next month's issue, and a packed magazine it's going to be!

See you again in just a few weeks time, bye for now.

Icom IC-W32E Reviewed

Chris Lorek goes portable in two frequency modes with Icom's latest dual band handheld



Separate rotary controls are used for each band

One of the perceived problems with today's dual band handhelds, as they become smaller and smaller, is that they're difficult to control. Manufacturers lately have seemed to favour a 'menu' system of changing between bands and the like, coupled with the use of up/down volume buttons, and usually a 'second function' squelch level set which uses multiple button pushes. This suits some people, but not others.

The IC-W32E is a little different. Yes, it does have plenty of 'bells and whistles', including CTCSS (sub-tone) encode/decode and DTMF encode facilities built in. But it's also reasonably user friendly. It has separate click-step controls for frequency and channel change on each band, plus separate concentric volume controls again for each band. Besides having a variable squelch it has an automatic squelch level setting facility, just leave it and forget it! Also, to prevent fumbling around and possibly forgetting which frequency is which channel, the IC-W32E can let you use the rotary knobs

to switch between your suitably-programmed memory channels, with the display then showing you, in the case of repeater channels; 'GB7SN', 'GB3PC', 'GB3SC' and so on, complete with the correct CTCSS tone being selected for repeater access each time when needed. An 'alphanumeric tag' like this for memory channels isn't new, but it's very handy on a portable set! You can substitute 'CALLING' for S20, 'PACKET' for your local packet BBS channel, and so on, and then just leave it in this mode for general use.

There's also an alphanumeric 'guide' menu that takes you through the set's operation step by step, useful when you're out and about without the instruction manual.

Down to basics

The 'hard facts' of the set's features, besides the above, include simultaneous twin band receive, as well as VHF/VHF and UHF/UHF receive, with full duplex transmit/receive on cross-band operation if you wish. The set covers the usual 144-146 and 430-440MHz, and export versions of the



A clip-on 7.2V nicad is supplied which gives 3.5W transmit power output



The set fits comfortably in the hand

set can also receive VHF airband together with extended tuning ranges on VHF (136-174MHz) and UHF (400-470MHz).

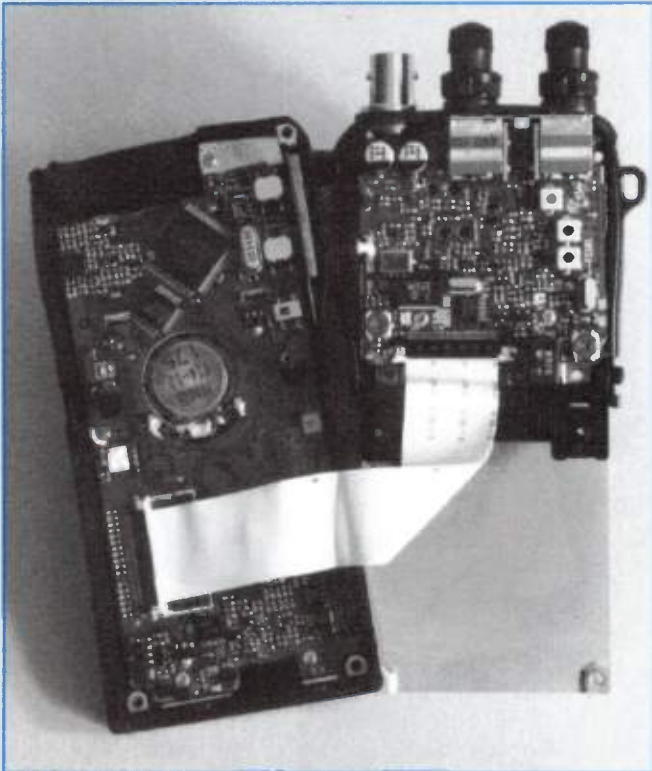
Power

The transceiver comes supplied in the UK with a BP-180 7.2V 600mAh nicad and a plug-in wall charger. With this, the transmitter provides around 3.5W output on each band, plugging in an external 12V DC supply increases this to 5W, a low power level of around 500mW is available in either case. The alphanumeric LCD panel can also be used to give an



An alphanumeric channel readout can be programmed

indication of the supply voltage to the nearest 0.5V. A receiver 'power saver' is fitted for use when monitoring a quiet channel. This has selectable 'automatic', 1:4, and 1:16 on/off ratios as well as an 'off' function. An auto power-off can switch the set off automatically after a given period of no buttons being pushed, to save your nicad being flattened if you forget to switch the set off.



Surface mount components are used extensively inside the set

Memories

100 memory channels, plus five pairs of scan-edge channels, and a quick-access 'call' channel, are available on each band for memory storage. Each can store frequency, any programmed transmit shift, CTCSS mode and frequency, and scan 'skip' status. Besides having all the usual memory scan modes, you can also scan in 'VFO' mode across any of the five sub-bands you've programmed. A 'frequency skip' function also lets you enter frequencies which the set shouldn't halt on, these use the standard memory channels in 'reverse order', from channel 99 down to channel 10.

Tones

The IC-W32E comes fitted with a CTCSS (sub-tone) encoder and decoder as standard, which besides providing a facility for UK repeater access in encode mode, also lets you quietly monitor a channel for similarly equipped stations in encode/decode mode. In the latter case, a 'pocket bell'

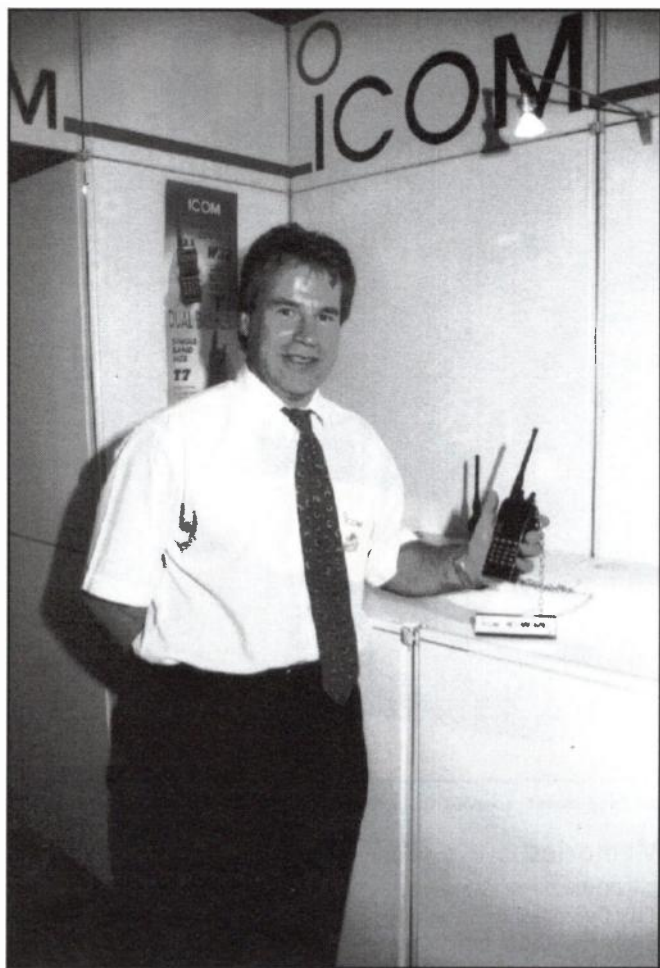
paging facility is also available, which lets you know if you've been called in your absence. A 'tone scan' facility can also show you the CTCSS frequency in use on a given channel. A DTMF (touch-tone) encoder is also fitted, together with four DTMF auto-dialler memories should you want to use them.

The set comes supplied with carrying aids of a belt clip and wrist strap. A variety of optional accessories, such as plug-in speaker/mics (one having a simple 'remote control' facility), battery packs, and a mobile mounting bracket for the handheld are available.

With the supplied battery, the set measures 57mm (W) x 137mm (H) x 33mm (D) and weighs 450g.

Controls

No sooner had the parcel containing the set arrived at the 'HCL residence, was it unpacked, and the supplied 12V DC charger promptly plugged in, the set initially operated in this 'charging up' mode so that I could get



Dennis Goodwin G4SOT of Icom UK proudly launched the IC-W32E at this year's Leicester Show

a feel of the controls. I soon found that I could alter the identical rotary set-top VHF/UHF band controls to my liking, with the control for the 'main' band I operate on the right hand side (away from the aerial), the lesser-used band on the left hand side, to give my fingers a little more 'elbow room'.

Although I'm usually OK with memory programming 'blind', I found that I needed to refer to the manual a few times until I'd mastered this, particularly for 'memory naming'. However after about a 20 minute programming spell I'd nicely filled the set's memory channels up with all the simplex and repeater channels used on 2m and 70cm, together with memory names for my locally-used channels. One slight 'grumble' was that the 70cm repeater split

came programmed as 7.6MHz, and not 1.6MHz. I needed to go into the transceiver's 'set' mode to alter this.

With this in mind, I also quickly learned that a press of the small backlight button at the side, which doubled as the 'guide' facility, when used with a push of a further button gave me a scrolling text information sentence on the button's primary and secondary functions. For example, the 'MAIN' button's information told me "Changes main/sub. Push and hold for scan start". Very handy! A small side-mounted 'SQL' push button acted as a 'monitor' facility, this automatically switching to the repeater input on a repeater-programmed channel. Also, when used together with the set-top rotary controls, it

acted as the squelch level control, selecting between either 'off', 'auto' (which uses a noise pulse-count system), or one of eight preset levels of 1-8.

Out and about

The review period coincided with some very dark, wet, and windy evenings, which certainly let me give the set's operation a good test. Out portable, the transceiver fitted in my hand comfortably, and I was pleased to find the LCD backlight illumination worked extremely well - this also illuminating the translucent rubber keys. The scrolling 'guide' here was superb!

What I also found superb was the excellent sensitivity of the set's receiver on both 2m and 70cm with the set-top aerial, together with the ample level of audio output from the built-in speaker. The designers have done a good job here.

Using the set mobile, with it coupled to the car's externally mounted 2m/70cm whip aerial, gave similarly good results. I found I could happily listen without the need for an extension speaker when travelling around town with the set in the car. Using the supplied belt-clip together with a car vent-mounted clip holder allowed me to position the set almost at eye level, i.e. just below the windscreen, giving a clear display of the set's LCD. A plug-in mobile speaker/mic then gave me an instant temporary mobile rig.

Back at home, with the IC-W32E connected to my rooftop 2m/70cm colinear, I unfortunately found a the 2m receive side suffered from the many strong signals in my location. Often even strong repeaters would suddenly become intermittently 'noisy' due to background signals. I found the set also suffered from the dreaded 'pager breakthrough', although not quite to the extent of that of

one or two other 2m/70cm handhelds that I've tested in the past. Even so, listening and scanning on 2m was a trying experience in my location, which admittedly is in rather an RF congested area. One must bear in mind that the set is designed as a handheld, but this should be borne in mind if you're thinking of extending it's use as a base station rig as well.

Laboratory tests

The receiver measurements do indeed show the set to have a potentially sensitive front end, and although the unwanted signal rejection was reasonable in many respects for a handheld, some limitations were apparent. The intermodulation rejection (where two off-channel signals combine to cause an on-frequency mixing product signal) wasn't too good, this together with the 'half IF' pager pickup probably giving the effects I found on air.

Conclusions

Despite it's initial sophisticated appearance, I found the IC-W32E easy to use when out and about. The individual rotary controls for each band, coupled with the alphanumeric memory display facility, helped make what would otherwise have been a complicated handheld quite easy to use in 'memory' mode. The scrolling text 'guide' was a novel feature, this acting as a handy 'memory jogger' when out portable.

The set's receiver, although being very sensitive, did suffer somewhat from strong signals when used in an RF congested area as a 'base set' with a rooftop aerial attached, thus its role as being primarily a portable set should be remembered.

My thanks go to Icom UK for the loan of the review transceiver.

LABORATORY RESULTS:

All measurements taken with set powered from fully charged BP180 nicad as supplied, high power TX, otherwise stated.

RECEIVER

Intermodulation Rejection;

Increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product;

	145MHz	435MHz
25/50kHz spacing;	55.8dB	51.8dB
50/100kHz spacing;	55.4dB	58.5dB

Maximum Audio Output;

Measured at 1kHz on the onset of clipping, 8 ohm load;

145MHz	435MHz
195mW RMS	198mW RMS

S-Meter Linearity;

145MHz		435MHz	
Sig Level	Rel. Level	Sig. Level	Rel. level
S1 Sq open	-	Sq. open	-
S3 0.51μV pd	-6.7dB	0.49μV pd	-6.3dB
S5 0.58μV pd	-5.7dB	0.58μV pd	-4.8dB
S7 0.78μV pd	-3.1dB	0.73μV pd	-2.8dB
S9 1.12μV pd	0dB ref.	1.01μV pd	0dB ref.
S9+ 1.57μV pd	+2.9dB	1.50μV pd	+3.4dB

Squelch Sensitivity;

	145MHz	435MHz
Auto;	0.11μV pd (11dB SINAD)	0.12μV pd (10dB SINAD)
Min (1);	0.20μV pd (23dB SINAD)	0.19μV pd (21dB SINAD)
Max (8);	0.31μV pd (27dB SINAD)	0.31μV pd (26dB SINAD)

Adjacent Channel Selectivity;

Measured as increase in level of interfering signal, modulated with 400Hz at 1.5kHz deviation, above 12dB SINAD ref. level to cause 6dB degradation in 12dB on-channel signal;

	145MHz	435MHz
+12.5kHz;	26.1dB	12.5dB
-12.5kHz;	33.6dB	45.8dB
+25kHz;	66.4dB	60.1dB
-25kHz;	66.6dB	61.2dB

Blocking;

Increase over 12dB SINAD level of interfering signal modulated with 400Hz at 1.5kHz deviation to cause 6dB degradation in 12dB SINAD on-channel signal;

	145MHz	435MHz
+100kHz;	78.1dB	69.4dB
+1MHz;	88.0dB	79.9dB
+10MHz;	90.0dB	88.0dB

Image Rejection;

Increase in level of signal at 1st and 2nd IF image frequencies, and half 1st IF, over level of on-channel signal, to give identical 12dB SINAD signal;

	145MHz	435MHz
Half 1st IF	63.2dB (+15.425MHz)	76.2dB (-23.025MHz)
1st Image	81.8dB (+61.7MHz)	63.9dB (-92.1MHz)
2nd Image	64.7dB(+900kHz)	74.1dB (-900kHz)

TRANSMITTER

Harmonics;

	145MHz	435MHz
2nd Harmonic;	-79dBc	-82dBc
3rd Harmonic;	-78dBc	-81dBc
4th Harmonic;	-86dBc	-74dBc
5th Harmonic;	< -90dBc	-
6th Harmonic;	< -90dBc	-
7th Harmonic;	< -90dBc	-

Peak Deviation

145MHz	435MHz
5.24kHz	5.21kHz

Toneburst Deviation

145MHz	435MHz
3.53kHz	3.43kHz

TX Power Output;

Measured with set powered from fully charged BP180 nicad as supplied

Freq.	Power	
144MHz	High	3.57W
	Low	510mW
145MHz	High	3.62W
	Low	510mW
146MHz	High	3.59W
	Low	520mW
430MHz	High	3.52W
	Low	570mW
435MHz	High	3.34W
	Low	580mW
440MHz	High	3.11W
	Low	600mW

Sensitivity;

Input level required to give 12dB SINAD;

144MHz;	0.12μV pd
145MHz;	0.12μV pd
146MHz;	0.11μV pd
430MHz;	0.13μV pd
435MHz;	0.13μV pd
440MHz;	0.14μV pd



Frequency Accuracy;

145MHz	435MHz
-43Hz	-71Hz

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On Test

- AKD 'Target' HF3 Receiver

Chris Lorek G4HCL takes a close look at this British made receiver designed as a low cost 'starter' set



AKD's new Target HF3 short wave receiver. In keeping with the 'ease of use' approach, the receiver has a simple line-up of controls.



The set is housed in a smart looking grey plastic outer case, measuring 185mm (W) x 172mm (D) x 60mm (H).

Right now, if you're after a new VHF/UHF FM transceiver you have the bewildering choice of sets to select from. But as well as the many oriental models available, you could also choose from a British-designed and British-made range, from the firm of AKD. In fact, to my knowledge they're the only company who can supply you with a synthesized ready-to-go rig for 4m, from their range of 6m, 4m, 2m and 70cm FM transceivers.

Whilst at the 1996 London Show, I was pleased to see, and to 'play' with, an early prototype version of AKD's new Target HF3 short wave receiver, with the promise of one of the first production models to test. Time went by, and the promise came true. The promised eventual low retail price was also kept true, at just £159.95, a real 'breakthrough' in my opinion. For your money, you get a self-contained HF USB/LSB/AM receiver, a mains to 12V DC power supply, a plug-in wire aerial, and an easy-to-read operating manual which also gives helpful

listening advice. The set also comes with a two year warranty, with options of one and two years extended warranty.

The set is housed in a smart looking grey plastic outer case, measuring 185mm (W) x 172mm (D) x 60mm (H).

Features

In keeping with the 'ease of use' approach, the receiver has a simple line-up of controls. The main tuning knob steps the receiver in 1kHz increments, the smaller clarifier knob providing +/-800Hz interpolation for SSB tuning. Spinning the main tuning knob automatically speeds up

the tuning rate, to let you get from one part of a band to another quickly and to switch across the range of the receiver. The overall tuning range is 30kHz to 30MHz, with the large front panel LCD giving you a frequency readout down to a 1kHz resolution. Below the frequency display is a ten section S-meter bargraph, giving a relative signal strength reading. Finally, at the left hand side of the LCD is an USB/AM/LSB mode indicator, mode change being performed by the up/down buttons on the front panel. A single memory channel is available, which upon a press of the 'MEM' button stores the displayed frequency and mode

into memory - a press of the 'RCL' button recalling this.

Connections

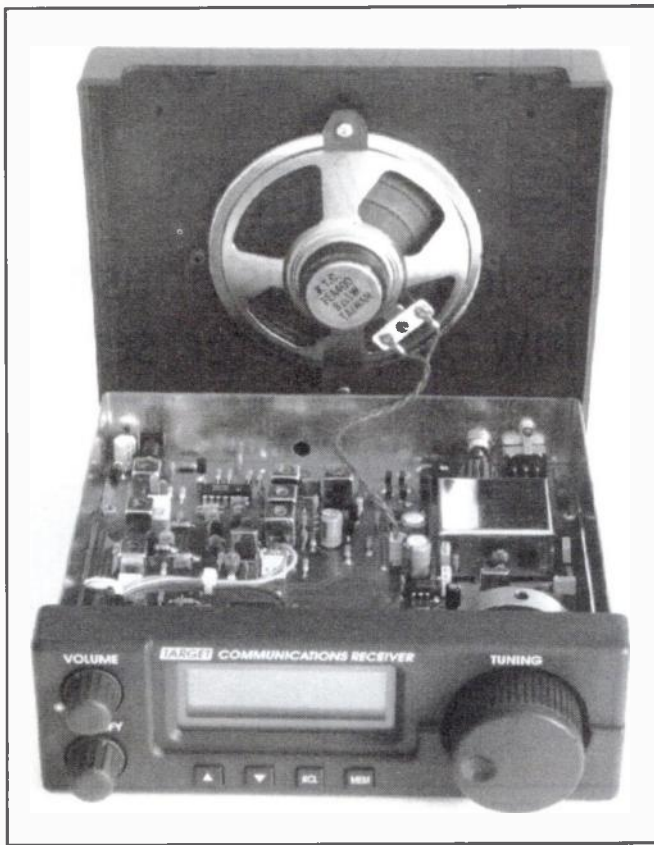
On the receiver's rear panel are sockets for 12V DC power and a 70 ohm impedance aerial, the DC connector being a coaxial power type, with a phono socket for the aerial. An aerial attenuator switch is also fitted, to help guard against overloading on strong signals. A plug-in wire aerial is supplied, which is a 10m long insulated wire aerial terminated in the correct type of phono plug, a further shorter insulated wire is also connected to the outer of this for your ground connection. An internal speaker is fitted to the top panel lid, and although the review model didn't have the facility of an external speaker connector, I'm told by the manufacturers that all production units leaving the factory will have a headphone socket fitted.

On the air

On switch-on, the receiver initially came up on a

On the receiver's rear panel are sockets for 12V DC power and a 70 ohm impedance aerial, the DC connector being a coaxial power type, with a phono socket for the aerial.



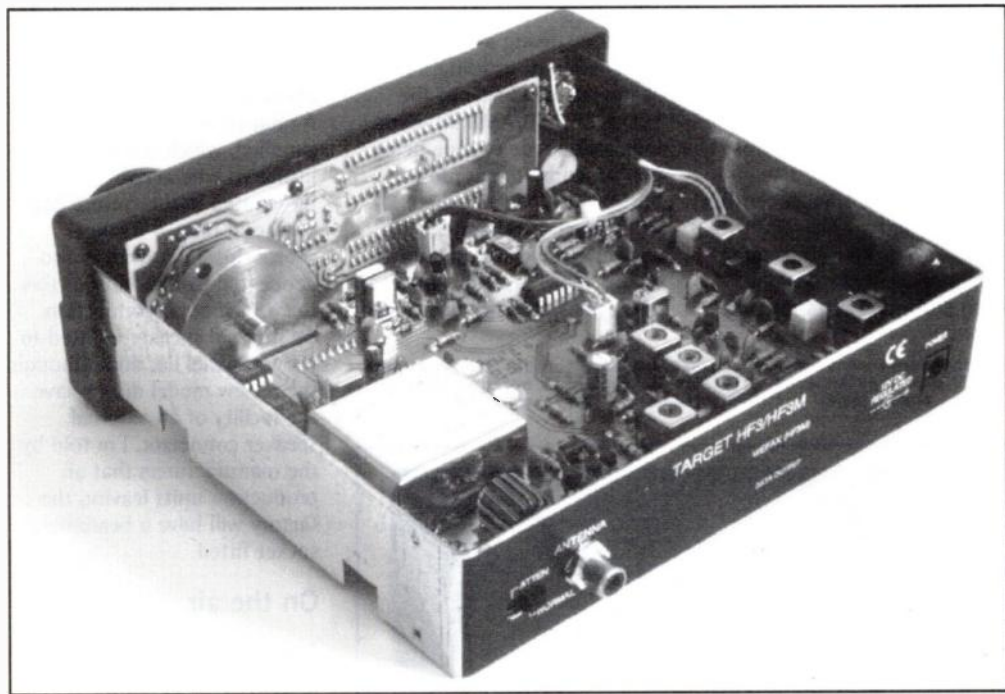


An internal speaker is fitted to the top panel lid

displayed frequency of 4.717MHz USB, and attaching my outdoor trap dipole aerial gave me 'spot on' reception of RAF VOLMET (weather information for aeronautical

use) on this - a useful 'starter'! I found that, after I'd stored a frequency and mode in the set's memory, this subsequently came up as the switch-on frequency and

A look inside the set's outer case shows a good standard of construction, with two main boards being used - a front panel mounted 'control' board plus the larger main RF board.



mode, again rather useful.

Due to the low price of the receiver, I didn't expect superb on-air performance, however I first started out by taking a listen around the amateur bands. The frequency readout LCD doesn't have a backlight, and although the set does have four small rubber feet on the bottom panel I found I needed to add a small object below the receiver to 'prop up' the front to see the display properly when used on a table-top. I strangely found the displayed frequency always to be offset by 2kHz from the 'real' received frequency on SSB (e.g. 3.779MHz on my main receiver was 3.777MHz on the HF3).

For SSB use, I found the 1kHz steps to be a real 'pain', although after a while I got used to tuning until I heard a signal, then carefully rotating the clarifier each time to demodulate the signal, stepping up/down 1kHz again as needed. Once tuned-in; reception was usually fine, but I couldn't use the set for general 'tuning around' without some amount of two-handed effort.

It was rather different on the broadcast bands of course, where the 1kHz steps were

quite OK. The large tuning knob was a flywheel-weighted type, and I personally liked the 'feel' of this very much for general tuning, a quick twist of this also placing the set into its automatic 'speed-up' tuning mode for band changing. The audio response from broadcast stations seemed a bit on the 'muffled' side, although I'm informed by the manufacturers that the audio response of the receiver is tailored to speech rather than music.

I did find the performance on crowded broadcast bands somewhat limited in terms of strong-signal rejection. The general 'mush' level (from internal receiver intermodulation limitations) I could usually reduce either with the real panel attenuator switch, or by simply using the supplied wire aerial rather than my outdoor type. The 'wire straight into the receiver' did naturally suffer rather more from interference pick-up of domestic equipment, such as various computer and microprocessor clock emissions, as the supplied manual correctly warns about. It's quite true that a receiver is only as good as its aerial of course, but even so I'm pleased that AKD have at least provided some aerial with the set - as this does help get you started straight away if you're a newcomer!

Back to the amateur bands, I used the set to listen to several interesting 'nets' on the various bands as well as plenty of QSOs - indeed right now I'm listening to the AMSAT-UK net on 80m albeit with much adjacent signal QRM. In all cases on SSB I found the bandwidth was far, far too wide, in terms of both 'noise' and 'skirt' selectivity. Strong adjacent stations up to several kHz away often totally wiped out the wanted signal that I'd tuned to. Although the set could receive CW using one of the SSB mode positions, the wide bandwidth again made this difficult at times. Listening to the 40m band using my outdoor aerial without the attenuator switched in was, in my situation, often very trying

due to the level of 'mush' present.

On the 'utility' bands for fax and RTTY reception, I temporarily connected my external data interface from the set's internal speaker connections, being careful to add an isolation capacitor as the internal speaker is referenced to the set's positive DC supply rail. Here I found I obtained reasonable results provided the received signals were strong and in the clear, although adding an in-line audio filter 'cleaned up' the reception considerably.

I often found, on SSB, that received signals suffered from

a noticeable 'warble', almost as if the synthesizer VCO was a little unstable. Some bands were worse than others here, a check with my laboratory signal generator confirming this.

Insides

A look inside the set's outer case shows a good standard of construction, with two main boards being used - a front panel mounted 'control' board plus the larger main RF board. A 45MHz first IF is used, with a two-pole crystal 'roofing' filter used here. Separate small 455kHz ceramic filters at the

2nd IF for the final SSB and AM selectivity.

My measured lab results reflected the on-air performance I found in terms of selectivity, the 'skirt' selectivity being particularly poor on both AM and SSB. The limited intermodulation performance explained the results I found on the broadcast bands, and on amateur bands such as 7MHz which is adjacent to the 41m broadcast band with its strong signals.

Conclusions

AKD are to be commended

in taking a pioneering step to produce a low cost, British made set aimed at the beginner. For its price it gives a reasonable performance for the non-serious listener, as an introduction to the world of HF AM and SSB listening. In my opinion the receiver unfortunately falls rather short in performance for serious amateur or utility listening, both in RF terms and in operating facilities such as tuning and memory provision, but one must keep the economic price in mind here.

* My thanks go to AKD for the loan of the receiver for review.

LABORATORY RESULTS:

All measurements carried out in SSB mode, with attenuator off, unless stated.

RECEIVER

Sensitivity:

Input level in μV pd required to give 12dB SINAD;

Freq. MHz	SSB	AM
0.1	0.93	1.85
0.5	0.96	1.83
1.0	0.92	1.74
1.8	0.88	1.68
3.5	0.85	1.65
7.0	1.09	1.76
10.1	0.93	1.74
14.0	1.02	2.04
18.1	1.31	2.12
21.0	1.13	2.07
24.9	1.46	2.75
28.5	1.89	3.35
29.5	1.80	3.36

Selectivity:

	SSB	AM
-3dB	2.97kHz	4.55kHz
-6dB	3.63kHz	5.22kHz
-20dB	6.12kHz	8.80kHz
-40dB	8.26kHz	13.09kHz
-60dB	0.37kHz	17.24kHz

Blocking:

Measured on 21.4MHz as increase over 12dB SINAD level of interfering signal, unmodulated carrier, causing 6dB degradation in 12dB SINAD on-channel signal;

+/-50kHz;	98.8dB
+/-100kHz;	101.7dB
+/-200kHz;	102.7dB

S-Meter Linearity:

Measured at 14.25MHz;

Indication	Sig. Level	Rel. Level
S1	2.83 μV pd	-19.5dB
S2	3.85 μV pd	-16.8dB
S3	5.22 μV pd	-14.2dB
S4	6.57 μV pd	-12.1dB
S5	8.37 μV pd	-10.0dB
S6	10.7 μV pd	-8.0dB
S7	13.3 μV pd	-6.0dB
S8	17.2 μV pd	-3.8dB
S9	26.4 μV pd	0dB ref
S9+	108.3 μV pd	+12.2dB

3rd Order Intermodulation Rejection;

Increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product, measured at 21.4MHz;

10/20kHz spacing;	Blocking limited.
20/40kHz spacing;	70.5dB
50/100kHz spacing;	71.8dB
100/200kHz spacing;	73.4dB

Image Rejection;

Increase in level of signal at the first IF image frequency (+90MHz), and the first IF itself (45MHz), over level of on-channel signal, giving identical 12dB SINAD signal;

Freq. MHz	Image Rej.	IF Rej.
0.1	65.3dB	39.6dB
0.5	66.1dB	39.8dB
1.0	66.3dB	38.1dB
1.8	66.9dB	38.6dB
3.5	67.7dB	39.7dB
7.0	70.0dB	41.9dB
10.1	70.3dB	43.4dB
14.0	72.4dB	44.4dB
18.1	74.8dB	42.0dB
21.0	75.7dB	41.8dB
24.9	77.0dB	40.7dB
28.5	78.6dB	40.9dB
29.5	78.4dB	42.2dB

Attenuator;

Measured on 14.25MHz;
12.8dB



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SCANNERS

Bill Robertson looks at a couple of new scanners, and shows how you can legally listen into police communications



The new IC-R10, destined to follow on from the popular IC-R1

WFM, SSB, CW and AM). Unlike its predecessor, which had a reputation for overloading on close-in signals, the IC-R10 is claimed to have improved receiver characteristics, with tuneable bandpass filters to give good image and intermodulation rejection performance, a built-in 20dB attenuator is also fitted to help in strong signal areas.

The set's unique features include a 'real-time' bandscope to make it easy to find active frequencies, and a 'busy catch scan' for FM. This scan mode searches for the next busy frequency using a separate receiver circuit, whilst the actual receiver is detecting a signal (i.e. during a scan pause). Then when the scan resumes, the receive frequency jumps to the next busy frequency, to effectively speed up the total scan rate. A voice detection scan halt mode is also fitted, to prevent the set locking up on blank carriers, and 1000 memory channels each with 8 character names are available, all being stored in a non-volatile EPROM. A dot-matrix LCD and computer interface control adds to the receiver's versatility. No firm price or availability for the IC-R10 was given at the show, although I'm told that sets should be available before the end of the year.

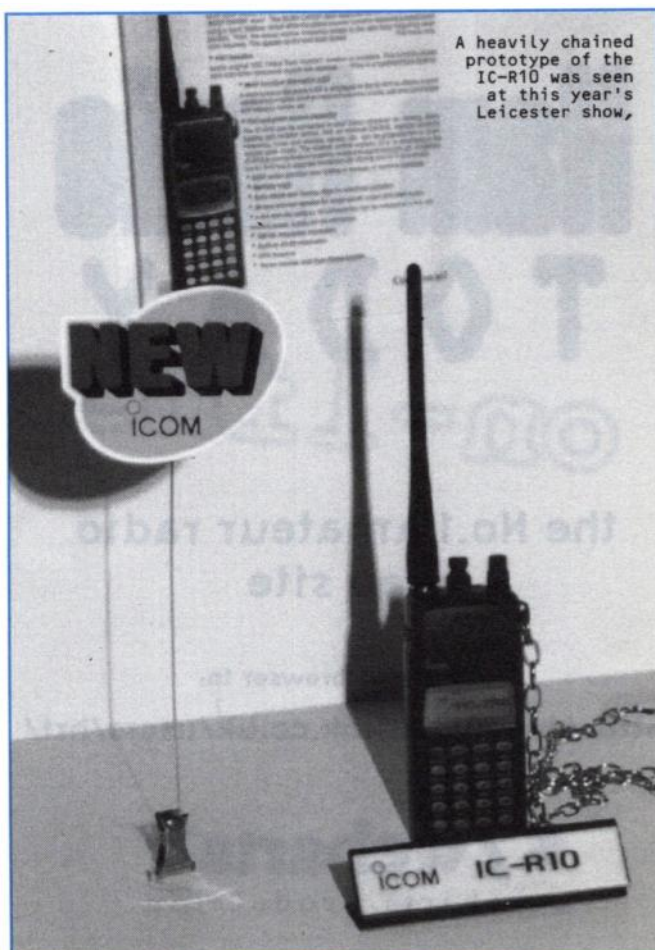
AR7000 launched

The Leicester show was again host to another scanner launch, this being the AR7000

from AOR, described as a "high performance DSP technology receiver". Here's a sample of what the set offers. It covers 100kHz to 2GHz with receive modes of AM, FM, USB, LSB and CW. Signal demodulation and filtering are performed by a high speed 16-bit DSP (Digital Signal Processor) with digital down conversion, digitising signals at an IF of

10.7MHz. A built-in 16 colour 89mm LCD, similar to AOR's SDU-5000, provides visual scan, search and other display data including a spectrum trace, and the receiver can directly drive an external PAL (or NTSC) video display.

Twin VFO's are fitted, with auto-mode band data (which can manually be overridden). There are four programmable



The Leicester show this year brought a couple of new product launches on the scanner front, with a new wideband handheld from Icom and a new DSP base scanner from AOR.

New IC-R10 handheld scanner

At the show, Icom UK displayed a pre-production model of their new IC-R10 handheld scanner, which follows on from the IC-R1. The set covers 500kHz to 1300MHz with all mode reception (FM,

If space is tight get an Active Antenna from Datong Electronics.

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The use of this title on our July advertisement was an attempt to highlight the wideband usefulness of CROSSED FIELD ANTENNAS. Unfortunately the ad came out in the actual sunspot-minimum month and Short Wave conditions were terrible. As we go to press we have noticed a distinct improvement and can confidently predict better conditions are coming in 1997. So why not enjoy your license this year and use a NINE BAND aerial which is capable of working ANYWHERE?

With a Crossed Field Antenna you need not be restricted by planning problems. The Spherical Crossed Field Loop CFL 2 is as small as a satellite TV dish. Either of the Delay-Line Radiator antennas EMDR 1 or EMDR 2, will lie on the roof tiles, or run along the balcony of a flat. All three models radiate safely with no hazard and are EMC friendly. If you buy one of these sensational devices you will never need to buy another HF antenna.

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SCANNERS

clocks and five programmable timers. 2.0kHz, 2.5kHz and 3.0kHz filters are fitted for SSB, 50Hz, 150Hz, 250Hz, 500Hz and 800Hz filters for CW, and 3.0kHz, 6.0kHz and 8.0kHz filters for AM, together with audio filters and a ± 8.5 kHz IF shift facility. Built-in RS232 support and infra red remote control are also standard features. Once again, no firm indication could be given of anticipated deliveries or price, although the early part of 1997 looks promising.

More on remote scanning

Following on from last month, if you've Internet access with a sound card, try the following. For airband enthusiasts, point your browser at <http://www.simuflite.com> for the output of a scanner receiving Dallas Ft. Worth airport ground, approach, clearance, zone etc., I'm told it's very busy! Another (given last month) is the Chicago O'Hare ATC audio feed at <http://www.cyberair.com/audio/c/hiapp/index.html>. So as well as listening to the 'UK end' and the transatlantic crossing on HF, you might also be able to listen into the VHF communications at the US airport!

Listen in, legally!

The Dallas Police Department now broadcasts its 16 police channels in 'real time' (actually, with just a few seconds of delay), you'll find this on the Internet at <http://www.audionet.com/radio/dallaspd>. Tim Allen, who's an officer in the Dallas Police Department, says that since everything that they do is paid for by the taxpaying public, everything belongs to them. Any citizen can, at any time, write an Open Records Request and get audio transcripts or computer data records from their mobile computers in the police department's cars. It's interesting to compare this with the very different attitude of the UK police to the public listening-in to their radio communication!

Short Range Business Service

The use of Short Range



Business Radio (SRBR) in the UK, not just by businesses but by a wide variety of users, is increasing very rapidly. It uses just three channels on UHF, with 500mW ERP (Effective Radiated Power) handhelds, which to date are all Motorola types. To give some degree of privacy, these use differing CTCSS tones, one per channel, giving 15 different 'modes' altogether on the sets. If you've an SRBR system, I hope you find the accompanying list useful.

Air band interest group in the Midlands

If you're on amateur packet, and are a keen airband listener in the Midlands, then you may be interested in a new airband group being formed. Les G4SUJ retired as an Airline Captain some years ago, although his interest in aeronautical radio goes back for 40 years. The purpose of the group would be a simple exchange of information on any aviation subject or airband related topic. From Les's experience he has found that many passionate listeners are puzzled by all manner of related matters and this may be one way of helping you get more fun out of something which even now he finds interesting, amusing and sometimes even frightening. You can contact Les with a packet message to G4SUJ @ GB7MAX.

RA views on Scanning

I have a copy of a letter in front of me here from Jim Norton, Chief Executive of the RA (thanks for sending me this Ian), spelling out the Radiocommunication's Agency's views on scanning. The RA's information leaflet on 'Scanners', which you can freely obtain just by giving them a ring and asking for it, clearly details what you can and cannot listen to. However, even though it's usually illegal in the UK (according to the letter of the law), airband and VHF marine listening is often 'tolerated'. In the RA letter, after discussing the publication of radio frequencies in 'directories' and the like, the RA say "We are also unaware of any prosecution brought as a result of a person listening to aeronautical or maritime radio communications. People using radio scanning receivers at air shows are often assisted by the organisers providing details of frequencies in use at the show and the same can apply on the public viewing galleries at airports. The Agency is not involved with this as in such

circumstances it can be seen that monitoring is taking place with the knowledge and consent of the operator who is trying to enhance the enjoyment of the spectator." So there we are.

Bill Robertson is very pleased to hear from readers, and will attempt to answer questions or cover topics which you're specifically interested in. Please contact him c/o the Ham Radio Today Editor by Email, fax or letter, he'll reply through this column.

Please note that the intentional reception of some radio services may not be permitted unless you have suitable authority, the RA's information sheet on 'Scanners' gives details on this in the UK.

Short Range Business Service modes

Mode	Freq (MHz)	CTCSS
Mode1	461.2625	94.8Hz
Mode2	461.2625	107.2Hz
Mode3	461.2625	118.8Hz
Mode4	461.2625	131.8Hz
Mode5	461.2625	146.2Hz
Mode6	461.4750	88.5Hz
Mode7	461.4750	110.9Hz
Mode8	461.4750	123.0Hz
Mode9	461.4750	136.5Hz
Mode10	461.4750	151.4Hz
Mode11	461.4875	103.5Hz
Mode12	461.4875	114.8Hz
Mode13	461.4875	127.3Hz
Mode14	461.4875	141.3Hz
Mode15	461.4875	156.7Hz

ALL IN A DAY'S WORK

Harry Leeming G3LLL gives some more valuable 'insider's tips' from his extensive experience in repairing amateur radio equipment



Part 1 of this feature appeared in the December 1996 issue of Ham Radio Today, back issues are normally held for 12 months, available from Nexus Subscription Services, Ham Radio Today, Tower House, Sovereign Park, Lathkill Street, Market Harborough, Leicestershire LE16 9EF, Tel. 01858 435344 - Ed.

The rig that didn't last long

Trevor turned up looking very glum, "You know I was looking out for a cheap rig, well I bought this FT-101 from the Lancaster rally. Peter put it on for me on his aerial, and it was great, but when I took it home, and tried to tune it up, it blew

a fuse, and the PA valves look melted. I followed the instructions, what have I done wrong?"

I had to explain to Trevor that the thing he had done to cause the damage was probably too literally follow the instructions. Most rigs fitted with a valve PA have a switch to enable you to switch the meter to read the cathode current of the PA valve (IC), the feedback from the automatic level control circuit (ALC), or the relative power out (PO). The last position seems to have been fitted at the request of PA valve manufacturers to try and keep them in business, as it's use invariably results in the destruction of these.

When tuning up a valve amplifier it is extremely important to keep the input

current as low as possible, and you can only monitor this if you leave the meter switched to the IC position. Use a separate power output or SWR meter when tuning up, and keep a careful eye on the IC current. With a typical 100W valve output stage the current should not exceed about 100mA, until the loading and tuning are spot-on, and the SWR has been tuned to below 2 to 1. Only when you are certain that this is the case, should you wind up the power in two second bursts, quickly peaking things at full power.

When I read the instructions in many operating manuals regarding the 'correct' tune-up procedure, I cringe. Perhaps at the time they were written, valves were cheap, and

patience was in short supply. But, with replacements now running at over £50 a set, more care is certainly called for. Remember, the guy who wrote the instructions advising you to tune for a maximum of ten seconds in the PO position doesn't have to pay for the damage, you do.

It is also important to remember that most makers of amateur equipment run the power amplifier valves at well beyond the makers' recommendations. The 6146B for instance is listed as having a recommended HT voltage of 600V, most ham rigs supply it with around 900V. As stated in our price list, "The makers guarantee is technically void the moment you switch on!"

I offered to supply Trevor

Fig.4. How not to wire in an SWR meter. There are three things wrong with this setup.

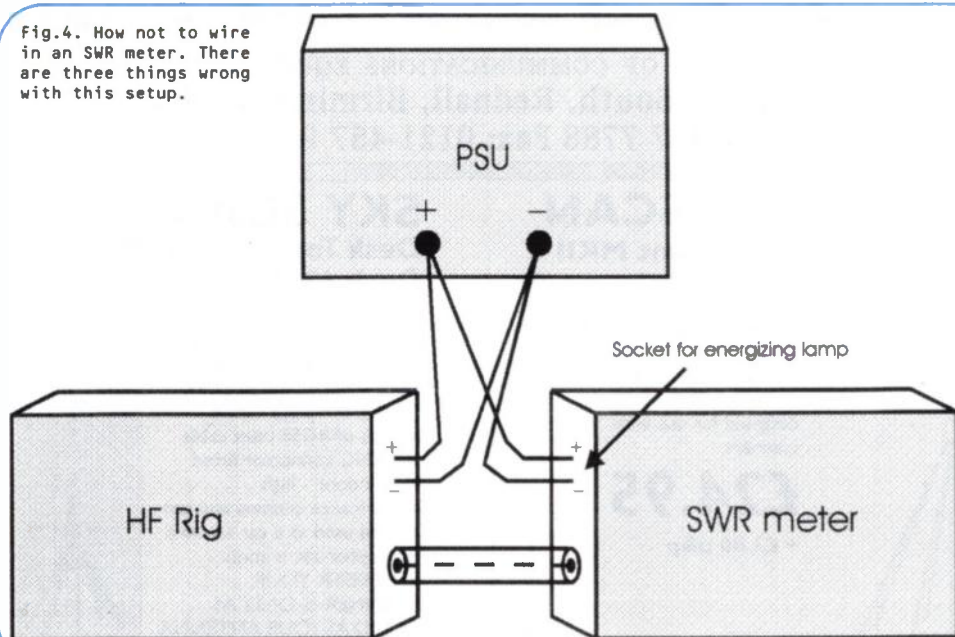
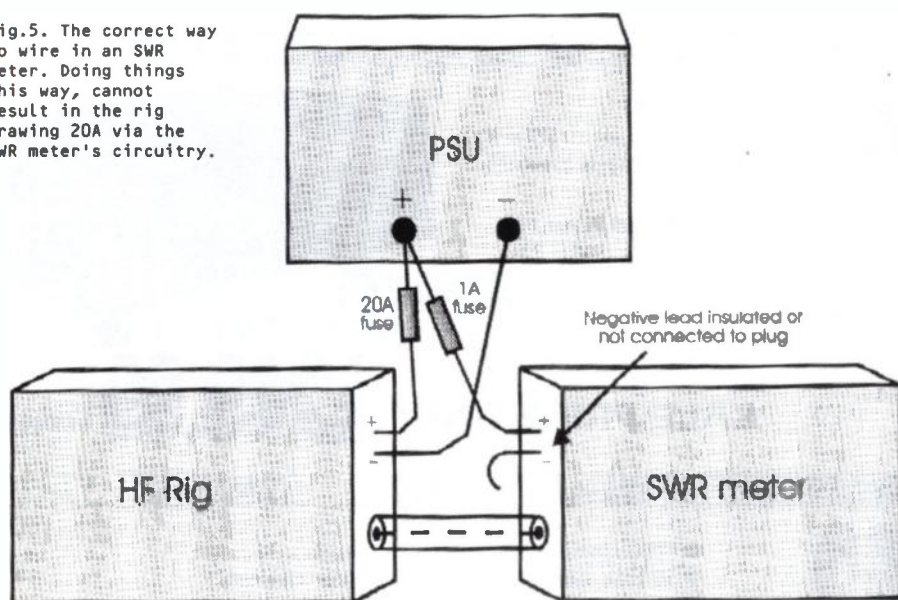


Fig.5. The correct way to wire in an SWR meter. Doing things this way, cannot result in the rig drawing 20A via the SWR meter's circuitry.



Most SWR meters have a small socket on the back so that you can feed in 12V to power the internal lamp. What possible harm could something as simple as that do?

First, any extra leads in close proximity to the aerial provide one more way of RF getting into the wrong place. If the room lighting is good enough, why increase the chances of RF feedback with resultant distortion, or BCI or TVI? Secondly, feeding 12 volts isn't as simple as it sounds.

Have a look at the circuit in Fig.4, a pretty typical set-up, but three things are wrong. First there is no fuse in either the lead to the rig, or the lead to the SWR meter, and it is essential that both of these are fused (say a 20A fuse in the rig lead, and a 1A fuse in the SWR meter connection). Secondly, there is an earth loop, where the rig and the SWR meter are both connected directly to negative terminal of the power supply, and to each other.

This creates a one-turn loop starting at the negative terminal of the power supply, going round through the SWR meter, along the shield of the patch lead through the rig, and back to the power supply. Such a loop can cause audio distortion due to RF feedback. But the worst scenario is to work out what happens if the negative lead to the PSU from the rig comes adrift. Try and transmit and the best part of 20A passes along the patch lead, through the printed circuit of the SWR meter, and back to the PSU. The result, as had obviously happened in Fred's case, is a burnt-out SWR meter. I'm getting quite used to having these returned to me, and having to solder and patch up the PCB.

Fred was told that if he must light up the lamp, to rewire it as per Fig.5. At least doing things this way, cannot result in the rig drawing 20A via the SWR meter's circuitry.

with a new pair of 6JS6C's, but suggested that it would be wise to have the rig checked over before fitting them. As it turned out the PA anode choke, and the valves screen feed resistor, also needed replacement, so Trevor's bargain turned out rather expensive. Before he took the rig away, I insisted on going through the tune-up procedure with him, and as far as I know, he hasn't

blown any more valves.

A burnt out SWR meter

Fred had only had his SWR meter a couple of days when he was in complaining. "This meter you sold me is duff, I could have gone to a rally if I wanted to buy junk". To defuse the situation I took the case off, looked at the PCB, and showed Fred a

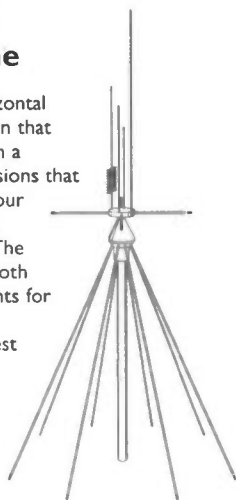
piece of track that was completely fused. Fred admitted that the unit had worked perfectly when he had first tried it, and that the fault had only occurred after he had wired up the pilot lamp. I then had to tactfully try and explain how he had blown the SWR meter, and as to why I always advise against energising the lamp on these units and on ATUs.

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A High Power Amplifier For 50MHz

Parts 1 and 2 of this project appeared in the November and December 1996 issues of Ham Radio Today, back issues are normally held for 12 months, available from Nexus Subscription Services, Ham Radio Today, Tower House, Sovereign Park, Lathkill Street, Market Harborough, Leicestershire LE16 9EF, Tel. 01858 435344 - Ed.

Tuning up

If you have a grid dip oscillator, or MFJ SWR analyser, then it's a good idea to sweep the input and output circuits to make sure that they are resonant on 50MHz. If so, it's time to connect a dummy load. The amplifier is very simple to set up. Once everything has been triple checked for any DC shorts, the blower power is first applied, then the heaters/filament voltage must be applied for 3 minutes. The timer takes care of this for you.

After the delay time has lapsed, the PTT line may be energised. This is achieved by connecting the transmit relay up to the 12V line, but leaving off the 12V negative in the bridge circuit. Then, by earthing the minus side of the bridge the relay will be activated. When the relay shorts R4, this should now show about 80mA on the anode meter, if not then recheck the 5.1V zener supply.

Once the 'standing' current (80mA) has been verified, RF can be applied. Apply a few watts first of all and resonate the grid circuit for an increase in anode current. Now tune the anode/loading circuit for maximum RF out, noting not to go above a few milliamps on the grid meter. Repeat this operation several times until the best input match is noted, along with maximum RF output measured on an accurate meter, such as a

Geoff Brown GJ4ICD completes our Ham Radio Today magazine winter amplifier project with the tuning up procedure

Bird 43 with a 50MHz 1kW slug. If all is OK then you can really go for it!

Several of these units have been built for export over the years and all show the same characteristics, 15W in for around 400W out. This is ideal for the current UK licence. Most transceivers are rated at 10W (FT736 etc), so expect around 300W out, unless a solid-state amplifier is inserted between the radio and the valve amplifier. If you use an FT650 then the amplifier will be a real match for it.

current of 600mA max and grid current of around 60mA), you should never have any problems. You could however install a grid trip circuit, so that should you exceed the 60 mA threshold setting, the relay circuit will be disabled and no TX is possible. Also remember to fit some type of fuse/trip system in the power supply.

Support help line

If you have any difficulties regarding the construction and

have Email facilities, then feel free to Email me at: equinox@itl.net (any reported updates will be available for at least the next 12 months on the Ham Radio Today Voicebank information line, Tel. 01703 263429 - Ed).

Please remember that in order to keep the costs down for the construction of the amplifier and power supply, an amateur approach is needed, i.e., hunt around at rallies and equipment breakers for those parts!

References and acknowledgements:

My thanks to the following for help: The ARRL Handbook 1990, The VHF/UHF DX Handbook by DIR Publishing Ltd, Editor G3SEK: Eimac Operating notes on 3CX800 Triode Valves. John Poole GJ1TJP.

Operating conditions

Try to keep the anode current under 500mA under voice conditions, and the grid current under 10mA, to ensure long valve life. A poor SWR will cause high grid current, and poor or under coupling will also cause the same problem. The efficiency should be around 60 to 65% and measurement of harmonics proved to be over 60dB down. Never exceed 100mA of grid current. On reopening the amplifier RF deck, it was found that all tuning/loading capacitors were at half mesh! A three section low pass filter was made, which could handle 500W and fitted on the output 'N' type socket of the relay.

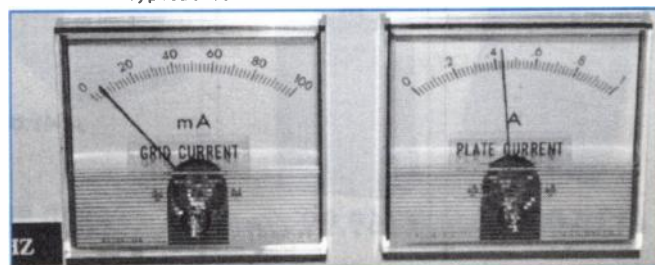
Safety circuits

If you operate the amplifier within its safe limits (anode

The completed unit with low pass filter.



Typical voice conditions on the meters



THIS MONTH'S Software Offer

A special Christmas collection offer for HF operators, VHF/UHF operators, listeners and data enthusiasts

This month's disk collection includes the following superb programs, but if you're a 'software freak' then read on for our special "Christmas Present Collection", offered in addition to this month's disk!

Great Circle Maps for Windows version 2.1 is a freeware program which can be used to make equidistant azimuthal maps, which you can print or save as bitmaps. You can alter fonts, line- font- background-colour, scale and size of the bitmap.

WorldClock is a daylight position map for Windows 3.1 upwards, that shows which portion of the Earth's surface is illuminated by the sun. It displays the current time in both the local time zone and UTC, and a full-colour world bitmap is shown with the sun projected into the map. The map window can be moved and resized, and can be 'stuck to desktop', to emulate a dynamic background bitmap

ACARS; For airband enthusiasts, we've **ACASORT v1.10**, which is a message sorting and decoding program for ACARS log-files, **ACARS Help** is a collection of text files with ACARS information, and finally there's a complete directly printable schematic diagram for a simple ACARS Interface, which can also be used with other data programs.

Oscar-13 book from AMSAT-UK. Yes, this is the complete information book on the satellite, as written by our Satellite Rendezvous columnist Richard G3RWL for AMSAT-UK. A major source of the material is AMSAT-DL, who we thank and acknowledge for their material contained in the book. It's stored in both wordprocessed and ASCII text format on this month's disk for you.

All the above programs and information are included on this month's disk, the HRT Vol.14 No.13 collection, and come with full on-disk documentation and

the usual HRT 'GO' file for easy-to-use information and installation.

The "Best of HRT Software" Collection

This is a superb collection of the very best and very latest ham radio PC software that's available in the world, right now. If you're reading this in your newsagent, you'll need to take this magazine to the counter and buy it to take advantage of this offer - it's not available to anyone else apart from Ham Radio Today readers! How about the following either as a present for yourself or something to 'hint at' to your partner, and it won't break the bank!

Ten 1.44Mb disks for £9.00

Based upon our monthly software disks, on the collection you'll find all of the following, in an easy to use format with full installation routines and on-disk documentation. If any newer versions or updates to these program become available to our knowledge by the time this issue is published, you'll receive the very latest versions of the software on these disks.

Packet Radio

WinPack V5.53, which is the latest version of this superb Windows based program for amateur packet radio.

Introduction to Packet by Larry Kenney, a very comprehensive 20 part guide to virtually every aspect of packet radio, all stored in ASCII text format on the disk for you to read on-screen or print out.

Morse

Super Morse V4.16 by W5CID, independently described as being the very best amateur radio Morse training aid in the world.

Next, there's **CW**, which is W5CID's CW QSO simulator & trainer, which can send a simulated QSO, or random words, groups, a message text you've entered, or a disk-based text file, to help increase your Morse code proficiency.

From the UK, there's **GM7AVE's CW Tutor** helps you learn Morse code and builds up your speed for the Morse test, with a number of facilities including sending random lines of text from a very large text file.

SWL and Scanners

UK VHF/UHF Frequency database contains over 6,000 UK frequency allocations between 30MHz and 1,000MHz together with their users, location, channel numbers, etc. A fast 'search' program utility is also provided on the disk which lets you quickly find the frequencies of any given user, whether this is by name, service, or location. For example 'Beacons' will give you the frequencies and locations of amateur radio beacons, entering a town or city name will give you the same for users in that area, and so on.

Introduction to Scanning is a superb information file, which you can either read on your PC screen, or print it out, or even display or print just the specific parts of the information you're interested in!

For the short wave listener, there's the **SWL Database**, a frequency and broadcasting guide which will read your PC's clock and give up to the minute information on broadcast station schedules, either on-screen or printed in station, frequency, or country order.

Also there's the latest version of **PD**, Version 2.03 for **POCSAG** pager decoding, with extended 'time-out' and message length facilities over earlier versions.

The **HF FAX Frequency Database** is a series of files giving an extensive listing of HF Fax

stations worldwide, as well as stations which automatically rebroadcast satellite received pictures. Current to March/May 1996, details include operating schedules, modes, IDs, locations etc. A superb companion to programs such as **JVFAX**.

Data with simple interface

Here's a complete collection of programs which you can use for either TX/RX or for 'listening', with a very simple (one IC and a handful of components) interface connected to your PC's serial port. There was a full construction project for this in the March 95 issue of Ham Radio Today (an update for this article is also available from the 24hr Ham Radio Today information and fax-back line), and a cover-mounted PCB plus receive interface construction article in the November 1996 issue, several Ham Radio Today advertisers also offer suitable interfaces at low cost.

JVFAX V7.1a is a very popular FAX and SSTV program, which lets you transmit and receive fax and full-colour SSTV from your PC. Add an AM interface (circuit details again being given on the disk) and you'll be receiving weather satellite pictures from both orbiting and geostationary satellites!

HamComm 3.1 is a superb DOS based program for RTTY (Baudot and ASCII), AMTOR ARQ/FEC, SITOR A/B, NAVTEX, Morse code (CW) and SHIP/SYNOP weather reports using the simple interface above. PACTOR decoding is now also included when you register your software!

MSCAN (V2.10) is a program for Fax and SSTV using the same simple interface as **JVFAX** and **HamComm**. **MSCAN** however is fully multi-tasking, and lets you load, save, digitize and edit pictures while receiving or

transmitting another picture.

GSH-PC is another superb DOS program, this time for sending and receiving SSTV (Slow-Scan Television) pictures, again using the simple interface above. It supports all commonly used speeds, (ROBOT, SCOTTIE, SC-2 and MARTIN), and you can load and save in BMP and TIF image formats. It has split TX/RX 'windows', and supports the VD-720 real-time frame grabber.

Satellites

STS Orbit Plus lets you track orbiting satellites such as the NASA Space Shuttle, the Mir space station, and of course orbiting AMSAT satellites.

LogSat Windows V3.0 is a very impressive satellite tracking program, with data on a very wide range of orbiting satellites. As well as multi-window tracking and orbit information in both 'real time' and future scheduling, it includes aerial analysis including 3D radiation diagrams, a logbook and even a callbook section, plus propagation and locator calculations. A very impressive shareware program!

WHATS-UP by G3ZCZ is a tool for experimenting with orbital dynamics and Telemetry Decoding and display for the DOVE, UoSAT-2, Fuji-OSCAR 20 and the AMSAT Microsat Spacecraft (OSCARs 16, 17, 18 and 19). It can also beacon [APRS] and/or automatically attempt a connect to MIR/SAREX, as well as having a Morse code terminal for use with satellites and other links.

Rig modifications

Amateur Rig Service Bulletins is a superb collection of 'information files' on disk, including a massive collection of over 800 separate files from manufacturer's service departments and repair centres, giving plenty of handy tips and upgrade information on equipment from Alinco, Icom, Kenwood, AEA, KDK, Bearcat, PacComm, Kantronics, MFJ, Realistic, and plenty more!

Rig Modification Database is a collection of several hundred 'rig mods' for extended frequency, better performance, and additional facilities for a very

wide range of amateur radio equipment including packet TNCs.

Operating aids

MUFsight is a superb world-map based HF propagation program, giving MUF and LUF to any point on the globe from your location, even graphs of MUF/LUF based on the time of day - fully working but limited to fixed sunspot count and date.

VHFProp allows you to estimate the received signal strength from a distant VHF/UHF amateur radio station in the 6m to 23cm bands (excluding 4m), based on distance, transmitted power, aerial gain of each station, coax losses, aerial heights, and station site heights.

GRAFICDX V6.1 by ON4DM, draws an azimuthal projection of the world centred on either the geographical coordinates, the Maidenhead locator or the IARU prefix of your home QTH. The program then provides the 'straight-line path together with distance, bearing, sunset/sunrise, and grey line if appropriate to any entered 'target' location, plus the locator, geographic coordinates, prefix, CQ zone, ITU zone, country etc.

QLOG V3.30 by IK5HGL is an integrated logbook and terminal program, for HF and VHF use. As well as having several utility facilities such as QSL card label printing, when used with a DX Packet cluster it can intercept the spotted DX and fill in the required logbook fields for call data etc.

Locator is a handy Windows-based utility for your PC, where you can enter the 'start' and 'end' QTH locators and you'll instantly see the bearing and distance to your QSO partner. Great for VHF/UHF and HF enthusiasts!

Windows GMT Clock helps you always put the right time in your logbook!

There are also several superb Windows-based 'help' files in full colour graphical and text formats, which you can view and move around in by just clicking on them from your Windows File Manager or Explorer. These are;

Bandplan - which contains a list of all the allocated radio services from VLF right up to UHF in each region of the world.

Know exactly what you'll hear in any frequency range!

Foreign Language Recognition - great for the SWL, it contains a breakdown of the major language families, descriptions of language characteristics and tips on distinguishing languages from their sounds and usage.

Modulation - with useful info including CW (there's even a nice picture of Samuel Morse himself), AM, SSB, FM, FSK, HF Fax, SSTV, Data (including ACARS, ERMES, POCsAG, Golay, APOC, Ramp, Packet, etc), PSK, there's even a short introduction to QAM and Spread Spectrum.

Radio Propagation, including plenty of colour diagrams and charts as well as text, on Free-space waves, Ionospheric wave, Tropospheric waves and Ground waves

Rig control

Total Ham and Total Ham Plus are a complete operating and control centre for your station, with rig control, packet radio DX Cluster integration, logbook, QSL look-up and label printing, the works!

QRP and Homebrew

QRP HomeBuilder version 2.0 is a freeware Windows program, for amateurs who enjoy building their own radio equipment, or indeed are interested in learning! Included are designs and schematics for a universal VFO and universal diplexer, a capacitor code reader, coil builder, power converter, and QRP article references.

Coilbuilder VSR is a Windows 95 coil winding program and allows the user to design, edit, save and print files for many types of inductors.

NEC4WIN V1.5 is described as 'Mininec for Windows'. If you ever wanted to know what your aerial's really doing, or how it's height difference above ground affects your signal take-off, this one's for you. It's a very user-friendly and fully-featured aerial simulation program, you define the aerial and the program then can then plot and print Azimuth and Zenith patterns, compute impedance, SWR, lobe angles

and width, F/B ratio, and plenty more. Full on-line Windows-based help is given in this program.

Ordering

Ham Radio Today Software Collections are supplied on 1.44Mb PC disk format. The HRT Vol.14 No.13 single disk is £1.00 per disk including UK p/p. The 'Best of HRT Software' is a collection of ten disks in total for £9.00 including UK p/p. This only covers costs and we believe it to be the cheapest anywhere in the UK.

European residents (including Eire) should instead send a Sterling (not foreign currency) bank draft/demand which can be drawn on an English bank to the value of £1.50 per Vol.14 No.13 disk, or £13.50 for each "Best of HRT Software" collection. If you live outside Europe, please send £2.00 Sterling for each Vol.14 No.13 disk, or £18.00 for each "Best of HRT Software" collection. You send cash at your risk, use registered post if you wish added security. All UK orders are sent by 2nd class post, those outside UK by airmail.

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received after Dec 11th, although every effort will be made to ensure prompt dispatch of orders received after this date. Faulty disks will be freely replaced if returned with an SAE within 21 days of receipt. Please

do not contact Nexus or the Ham Radio Today Editorial staff with queries regarding these disks, they cannot help you, it also slows down the staff who are already busy enough getting the magazine ready!

Orders for this month's offer will be accepted up to 31st January 1997 only. If you don't wish to cut the coupon, you can send your order on a photocopy or a plain piece of paper with the same details, but this must

be accompanied by the original corner flash from this page as proof of readership.

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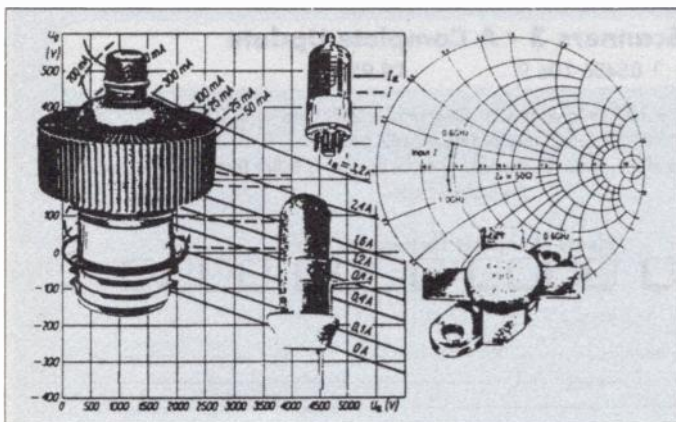
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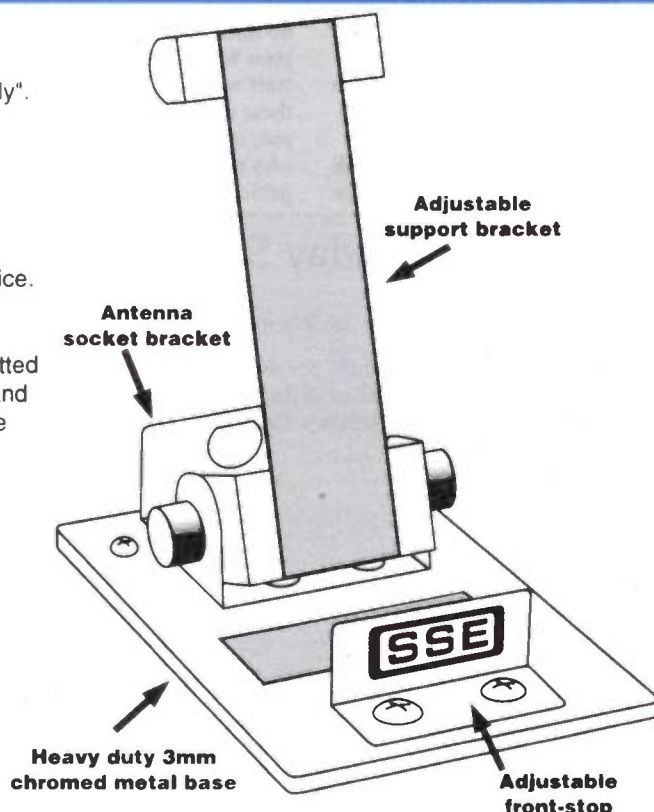
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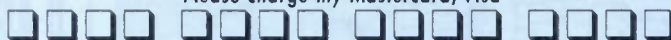
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QRP

From the Algarve

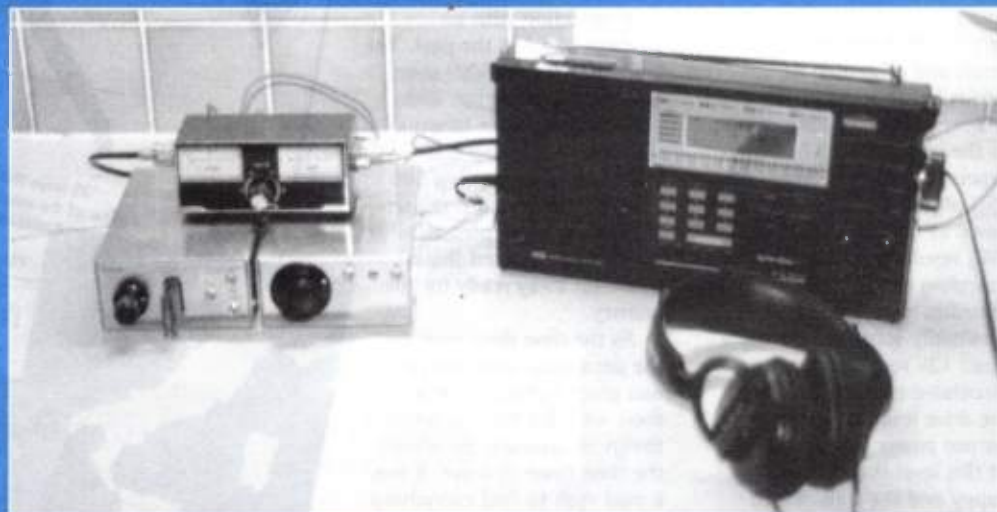
David Dibley G4RGK recounts his experiences with a low power transportable station on 20m and 2m

During August, the weather in the Algarve is usually very hot, my summer holiday there last year was no exception. I have always, in the past, taken my trusty FT290 and a Sangean ATS-803A short-wave receiver along on family holidays. The excuse for taking the receiver was always that we could pick up the BBC World Service and the local FM stations to keep the kids quiet. The FT290 however, was not so easy to justify, as it took up valuable space in our hand luggage which could be allocated to more important family paraphernalia. For once, the holiday had been booked a few months in advance, unusual for us. This allowed me time to hatch a plot to take some HF gear along.

After giving it some thought, it became obvious that the major stumbling block would be the weight of the rig and the associated

20A DC power supply. All electrical equipment must be taken on an aircraft as hand luggage which is subject to weight and size limits.

After weighing the various bits of the proposed HF station on my bathroom scales it became apparent that this idea was a complete non-starter. The only thing to do was to build a small CW transmitter and use this in conjunction with the Sangean, which,



incidentally has a BFO and makes a fairly acceptable CW/SSB receiver.

Building the gear

During May, work started on building a small CW transmitter and an iambic keyer. The one overriding factor was always going to be weight and size of the required PSU. I wanted to try and use the PSU from my laptop computer as this was small, light and good for nearly 2A at 18V DC. I settled on building one of Howes 20m transmitter boards, with a couple of crystals centred on 14.060MHz and 14.020MHz. With a variable capacitor I could pull each crystal a few kHz to dodge any QRM. Building the board took me a couple of hours and presented no particular difficulties. The first problem arose on connecting to the laptop PSU. I had half expected problems here - the PSU objected to holding a key down at full power (about 8W), resulting in a wonderful sounding chirp. Various remedies were tried and I eventually settled on fitting a small 12V regulator and associated circuitry, turning the drive level back so the output power was 3-4 watts. At this level the PSU was happy and the transmitted tone was T9 and rock steady. After installing a changeover relay and some switching, I bolted the whole assembly into a aluminium box 150mm x 100mm x 50mm.

The keyer was built using a kit from Kanga, which consisted of a GAL chip and a few capacitors and resistors. I was pleasantly surprised by the way in which the completed board worked, because over the years I've built a fair number of keyers of various designs, but most had ended up consigned to the scrap heap for having 'funny' logic. The assembled board was placed in another aluminium box from Maplin along with a paddle key, some switching, and a PP3 battery case. Next to come was the aerial. This I decided was to be a dipole, made from the lightest

material I could find. For this I used stranded PCB connection wire fed by around 10m of RG174. A bit lossy, but I wanted to keep the weight and bulk to an absolute minimum.

Testing

The whole station was then assembled on a bench at the bottom of the garden and the dipole put up between the end of a shed and a small tree - at an average height of about 4m. I wasn't convinced that I was ever going to be able to work anything using this flea power, I wasn't new to QRP but I had always used it in conjunction with an efficient aerial in the past. The limitations of the VXO soon became apparent, but with patience I was able to work stations in Germany and Italy. Quite a surprise getting 599 reports with such a small set-up. Feeling quite pleased with my efforts, I packed the whole lot away ready for the journey.

As the time drew near for the departure, little thought was given to radio gear as there were far more important things to organise. So when the time came to leave, it was a mad rush to find everything and get it packed in the hand luggage. The passage through customs was uneventful. I had figured that by making the various boxes out of aluminium they would be transparent to X-rays, and that one bit of electronics looks like any other.

Aerial location

The villa we had reserved was on the Rocha Brava estate, a rambling resort on the cliff tops around 140m above the sea, a few miles east of Carreiveio. The view was quite spectacular and it looked like a fairly decent sort of place to operate from. The villa itself was a typical Mediterranean sort of affair, square in shape with a flat roof patio and all painted white. At one end was a chimney about

DL 6 IR
TO RADIO: *CT1/G4RGK*

CONFIRMING OUR QSO:
DAY MONTH YEAR UT
6 8 95 16:15

TWO WAY QSO IN MHZ BAND UR SIGNAL R S T
CW 14.060 549

TXRX ANT
5W JP

DOK: K 38 · QTH-LOC.: JN 49 EI
Hans-Joachim Zander

QSL from G4 UNL

73 from ROY CHARLESWORTH
Fellow of the International Dance Teachers Ass.

TO RADIO: *CT1/G4RGK*

DATE	GMT	BAND	R S	2 x SSB FM CW
<i>17 AUG 95</i>	<i>0810</i>	<i>14</i>	<i>T 9</i>	

Associazione Radioamatori Italiani

DE *1K1 XMF*
OP *PETER BOX 347*
QTH *GENOVA ITALY*

GMØVCQ
LOC: IO85JW

TO STATION *G4RGK (CT1/G4RGK)*

CONFIRMING OUR QSO *0800* GMT
ON *7.8.95* AT *1400* MODE
FREQ *14.060* MHZ *CW*
UR SIGS RST *559*
RIG *5* WATTS
POWER *100002 Dipole*
ANT *100002 Dipole*
PSE TNX QSL VIA BUREAU/DIRECT

W.J. GAY
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EH12 6JQ

3m high which looked like an ideal support for one end of the dipole. But there was nothing obvious to string the other end from. So I decided it was going to have to be hung from next door's chimney! This is where a fishing rod with a fixed spool reel comes in handy. A line was thrown over said chimney and the other end of the dipole tied to this. As fishing line is almost transparent and the dipole wire very thin, the whole aerial was virtually invisible from the ground. All I had to hope for was that the neighbours had no objections. As it turned out, they didn't even notice. The transmitter was set up at one end of the lounge, and the kids were threatened of what would happen if they were to invade the area. The keyer and receiver were all attached to the transmitter and with a bit of adjustment to the aerial, a reasonable match was obtained without the need for an ATU. Everything looked OK, so a quick check on 14.060MHz and the first CQ call was sent. CT/G4RGK was on the air for the first time. Over to receive and a fiddle with the BFO, wait, there was someone calling, it was DL6IR. The ensuing QSO was an extremely pleasant one, and it turned out that Achim was running only 5W. A genuine two way QRP QSO. We said our farewells after a few minutes as the SWR meter showed that something had gone wrong with my aerial. The climb up to the roof in the searing 35 degree heat was not easy. On reaching the top it immediately became apparent that one side of the dipole had parted company with its anchor. A quick bit of work with the fishing rod and the aerial was back up again. Back down the steps to the operating position, the match was back to normal. The next few days produced many contacts around Europe during the daytime, and my first late-night session pulled in a transatlantic QSO with W1IKB, John in Connecticut.

One thing that made operating more pleasurable from southern Portugal, was

that 20m was open virtually 24 hours a day to somewhere in the world, and was generally much more lively than back in England. Operating was normally limited to late at night or early morning, so this was very important to the success of my station. Many two-way QRP contacts were made, even some across the

Atlantic. A notable one being a chat with AI, KB1FK in Boston, Mass. He was running only 4W and was a solid Q5 during the QSO.

2m

Two metres took a 'back seat' for most of the time, as apart from the local repeater there seemed to be little activity. The exception was the evening of the 11th August. I had returned from the bar at around midnight and climbed up on the roof, as the temperature was more hospitable up there. Looking out over the sea, a thick fog was rolling in. "A chance for some Tropo" I thought! I hastily taped the 2m dipole on to the top of the telescopic fishing rod, tied it to the chimney, and checked around the beacon band.

Nothing. But there were lots of signals in the FM part of the band that didn't seem to be Portuguese. Back down on to CW end of the band and I could hear the Spanish expedition to EA9 calling CQ EME. Not wanting to disturb them I went up to 144.300MHz and put out a CQ call. I was immediately answered by EB8BTB in the Canary Islands, some 1240km further south in locator IL18QI. Now this was real DX with 2W and a dipole on 2m! We had a lengthy chat at S9+ signal levels. The duct seemed to be very stable and we could have no doubt QSO'd on the UHF bands as well, had I the equipment available. Unfortunately by the time we had finished the QSO it was 0100 local time, and no one else was around to take advantage of the conditions.

GMØJOL

Rev. John Lincoln,
The Manse, Bettyhill,
Sutherland KW14 7SZ.

To **CT/G4RGK** Confirming our QSO
on **14** MHz via **CW**
RST **549** at **2308** UTC
Antenna **W3D22**
2WAY QRP **John**
73
Pse/Tnx QSL Direct / via Bureau
G.QRP 4712

IO 78 VM
XS 39 d
WAB NC76
WAB Bk no. 10644
RSGB

G2FFD

Dan Skipworth
Melrose, West End Road, Benington, Boston, Lincs PE22 0BU, England

POWER **3**
W. OUT 2x QRP QSO with:
To RADIO **G4RGK** QRP Nr. **QRP**

6648
WAB: TF34.
PSE / Tnx QSL
VIA
BURO / SPRAT

1105
1148



The QSL cards say it all

By the next morning the duct had gone, but I understand it is not that uncommon at that time of the year for intense openings to appear, just as they do in England in the Autumn.

All too soon the Holiday came to an end, and it was time to pack up the station and head for home. I made

around 50 contacts during my limited operating time, it was a family holiday after all! A number of two-way QRP contacts were made, all in all a really interesting experience. I can heartily recommend the use of simple low power equipment to put the fun back into amateur radio.

QRP corner

Dick Pascoe G0BPS shows how to build a simple add-on S-meter for your receiver

Even more complaints are being bandied about on and off the air, about the encroachment of data onto the 20m QRP activity centre of 14.060MHz. Often it is very difficult for low power operators to identify the stations, because you require some form of data decoding, which not many of us have for the HF bands.

The main problem, like so many others, is that our flea power is considered by those who don't know better, to be so far away that we don't count. The data operator probably doesn't know (or in some cases care) that he will be swamping a QRP signal with his high power data transmission.

The only answer is education. When at your local club, please mention this QRM to others who may be using data on, or near these frequencies. It is bad enough to get the 'fish-phones' on 80m but data on all our other frequencies too is getting pretty exasperating. Having said all this it must also be remembered that we don't own these frequencies, but a 'live and let live' point of view may prevail. Perhaps our very own Ham Radio Today data columnist could mention this in his own column too?

Simple 'S' Meter

Readers may remember my comments in a previous column about a book called the 'Data Book for Homebrewers and QRPers', written by Paul Harden NA5N, it is full of ideas for the builder. I think that there may be still a few of

these books available in the UK. The ISBN Number is 0-913945-57-9 and is available from Five Watt Press, 740 Galena Street, Aurora, Colorado 80010-3922. Email: qrpbook@aol.com

The reason I bring it to the fore again is that I was browsing through it looking for something, and found the following circuit that will prove very beneficial to many other builders. Although this version is from Paul, it is a 'standard' one found throughout the QRP world. It makes a great addition to any homebrew rig to make it appear much more professional.

Most homebrew rigs miss out on the 'S' meter and this circuit will provide a simple method of adding one. It can be driven by either the AGC or the audio. OK, it won't rival the one on your latest multi-thousand pound black box, but it will provide an indication of the received signal strengths.

In normal rigs the 'S' meter is simply a voltage meter on the AGC line. We can use this signal if it is fed to the base of the transistor, which in this case is the very well known 2N2222, although almost any NPN transistor can be used. This circuit is a simple DC amplifier, where R2 is used to forward-bias the transistor so that the meter just begins to move (no signal). R4 is adjusted to set 'full scale deflection'. In practice we would find a very strong signal on the band (at least S9+20dB). If your rig has AGC the connections should be made as shown. If your

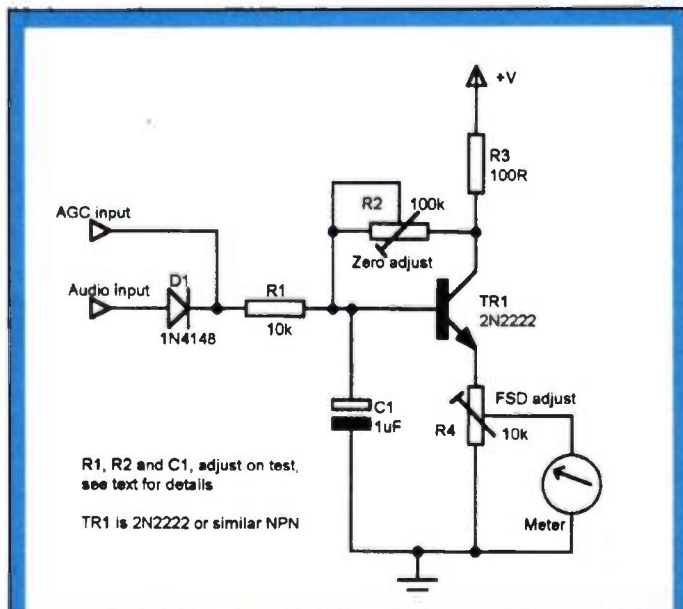
AGC seems to be loaded down then increase R1, a value up to 100k may be required.

If you don't have AGC, like most homebrewers with simple rigs, then this circuit can still be used by making your own AGC by rectifying your audio.

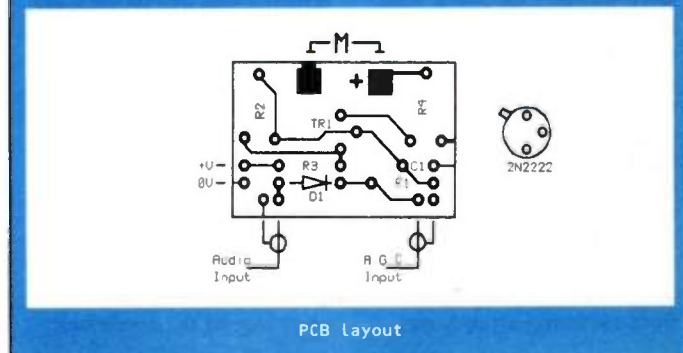
Pick up the audio just before the volume control, that is between the audio amplifier and the volume control. This audio is fed to the unit and then rectified

by D1, which in this case is an 1N914 or a 1N4148. Any similar diode may be used.

The smoothing of the meter is carried out by C1, the larger the value the slower and smoother the reading. Almost any value of meter can be used. With this value of C1 as given, a 0-100µA meter will take little effort, a 1mA meter may take a lot of effort to reach full scale. If with this value you can't reach full scale deflection then lower



Simple 'S' meter circuit



the value of R4.

To calibrate this meter then a separate receiver with a 'S' meter may be used. If one is not available, you can, as Paul says, "just wing it".

In my own case I made a small PCB which fitted on the back of a small 200 μ A meter which I already had available. The resultant board was no larger than the rear footprint of the meter.

'S' meter components

R1	10k
R2	100k Preset
R3	100R
R4	10k Preset
C1	1 μ F (see text)
D1	1N914 / 1N4148
TR1	2N2222 (or similar)

The two pads were positioned for the meter I had in stock, adjust these

to fit the meter you have. Remember that the components fit on one side, the meter fits on the other so that the PCB 'hangs' on the back of the meter.

NorCal QRP Club

The QRP club of Northern California was founded only a few years ago by Doug Hendricks KI6DS. I met Doug a couple of years ago at Dayton, and we became firm friends. I suppose partly because we are of an age and partly because we share the same figure perhaps.

When Doug started the NorCal club he told me that it was his intention to get a club magazine going, hopefully to follow the style of the G-QRP club's own SPRAT. He didn't manage this, as SPRAT is a typically British style of magazine. But, I must say

that the quality of the NorCal magazine, called QRPp has increased dramatically over the few years that it has been going. I think that with their latest issue they have overtaken SPRAT. The latest issue describes and provides circuit diagrams for a multi function accessory for QRP transceivers. This little beast includes a frequency counter, an iambic keyer, a bar graph 'S' meter and a QRP digital wattmeter too. This offering was from the well known Wayne Burdick N6KR. It only measures 75mm x 25mm x 25mm. Other articles include the Spectrum Wavemeter from Tony Fishpool G4WIF, plus several photo's and descriptions of homebrew rigs and a complete SSB transceiver.

All this in one small (A5 sized) club magazine which also included the usual club news. The finale is that it is

professionally printed on glossy paper. You will guess that I approve of this club and highly recommend the magazine to all readers interested in QRP.

I Emailed a copy of these words to Doug, his reply was "I am delighted to see your comments, I shall frame them and hang them on the wall, thanks old friend". What a nice comment!

If you are interested in joining then contact me at the address at the foot of the page, I will then forward your request to Doug via Email. If you're on the net, then try ki6ds@telis.org

That's it for this month, news and views to me via the Editor or direct:

E-mail to Dick @ kanga.demon.co.uk, Packet to GOBPS@GB7RMS, or finally direct to Seaview House, Crete Road East, Folkestone CT18 7EG. TTFN.

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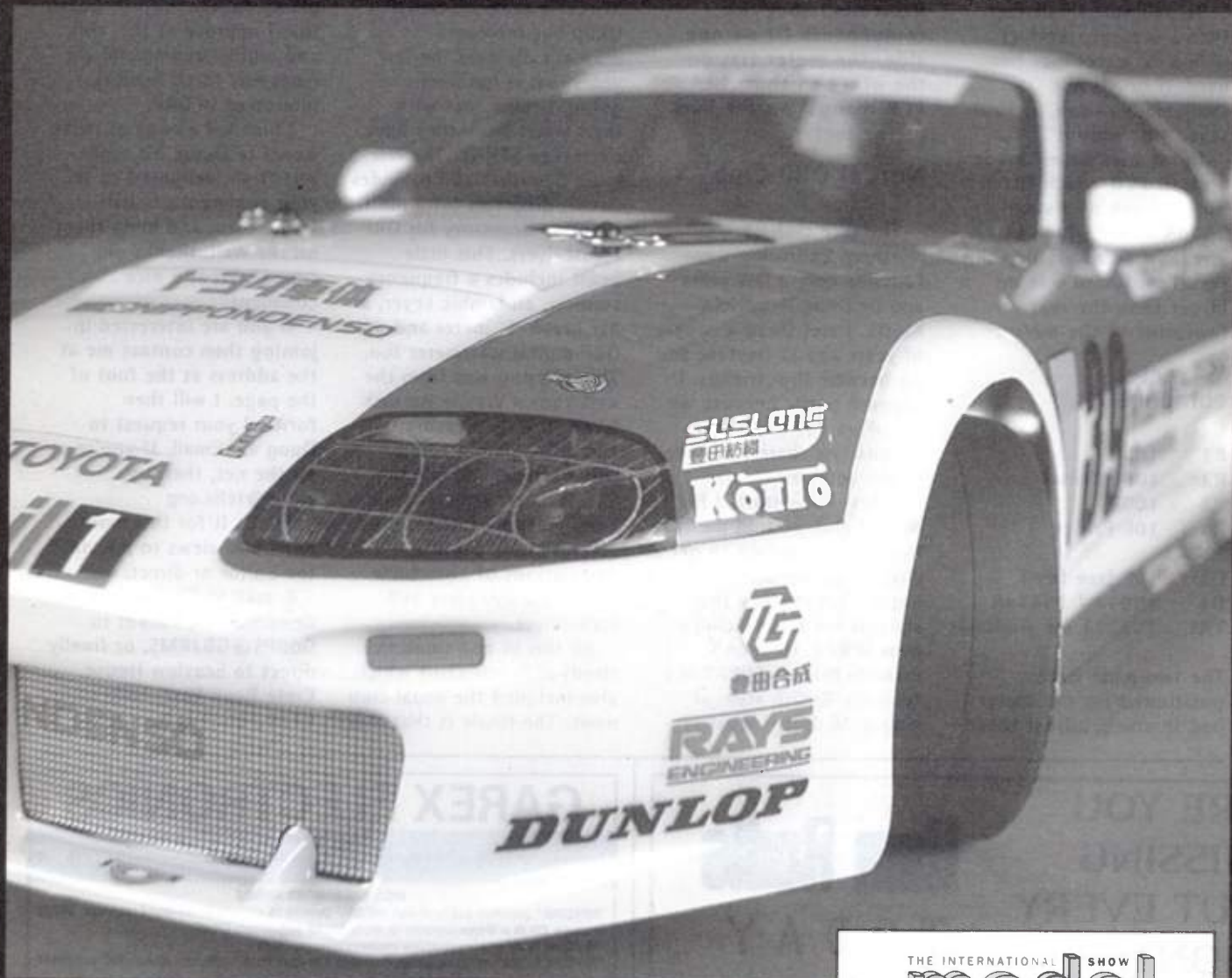
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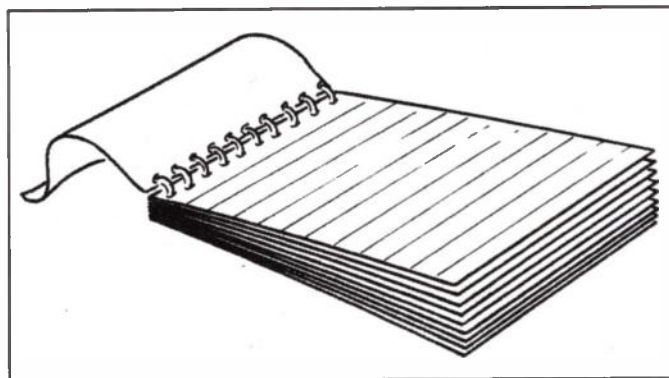
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From my Notebook

Geoff Arnold G3GSR looks at safe working tolerances for electronic components and equipment



Last month I was talking about percentages, and about ways in which percentage tolerances combine when you come to consider things like resistor networks, frequency generators and so on. Actually, I was a little bit naughty, because to keep things as uncomplicated as possible I rolled two different things - tolerance and stability - into one. So what is the difference?

To keep it all as simple as possible, let's consider a single passive component such as a resistor or capacitor. There, we can say that tolerance describes how close the actual value of the component came to that which was marked on it in colour codes or numbers at the time of manufacture. The tolerance will be expressed as an error band - a range of acceptable variation from the marked value.

In the case of resistors, this will nowadays be within 5 per cent above or below the marked value, with plus or minus 2 or 1 per cent where greater accuracy is required. Looking back some thirty years or so, ordinary carbon resistors came with values within plus or minus 20 per cent of nominal as standard (and hence carried no tolerance marking), while 10 per cent was close tolerance and 5 per cent something rather special. Anything better than that was virtually unknown outside of a standards laboratory. Wirewound resistors were always better, at 5 or 10 per cent as the norm.

Stability describes how closely the component will

maintain its value with the passage of time. Often you will find two different stability ratings for a component, particularly something like a quartz crystal; short-term stability and long-term stability. Short-term stability is related to things like heating of the component, remembering that there are two sources of heat, that generated within the component itself and that produced by surrounding sources - its environment, to use the modern term. The overall heating effect is of course a combination of these two.

Long-term stability describes how well the component withstands the gradual ageing of the materials from which it is made. Some of that ageing is unavoidable, due to chemical change, but the process can be speeded if the component is maltreated. It's not unlike the case of a human being - can he or she run 100 metres as quickly at age 50 as at age 15, for example? Part of the inevitable deterioration is due to a natural process, but there are other contributory factors - what was the rate of indulgence in pints

of beer, in chocolates, in 'junk food' or whatever. For electronic components, heat, damp or a corrosive atmosphere can all have a bad effect on long-term stability, as I described last month for those ranks of quartz crystals in ovens.

As a general rule, keeping a component cool will provide the best short-term and long-term stability (though not so cool that condensation might form on it).

End of Life

A component can be considered to have reached the end of its life for two basic reasons. Either because it has drifted so far outside its tolerance band - in other words from its design value - as to upset the operation of the circuit in which it is used, or else because it's suffered a catastrophic failure (e.g., 'burnt out'). Occasionally, it's the stability, rather than the tolerance, that goes outside design values.

I experienced a really extreme case of this back in my seagoing days. It affected a radar set, all valved, operating

in the X-band around 9.6GHz. We were heading up towards Japan in filthy weather when the bridge reported that signals had disappeared from the radar display. Shipboard radars always tend to break down in filthy weather or at night, i.e., when they are most needed, basically because no-one wants to look at them when it's fine and sunny!

I made my way up to the hut which housed the radar transmitter/receiver rack and found that the receive local oscillator was not being held on tune by the AFC circuit, although it would hold steady if tuned manually, with the AFC switched off. Leaving it like that was not a solution, as it would have drifted off in time.

I should explain that the local oscillator was a reflex klystron, a low power (around 35 milliwatts) variation of the device used nowadays in things like TV transmitters. In a reflex klystron, a stream of electrons is accelerated along the tube from the cathode, towards and through two grids at around +300V DC which are coupled to a microwave tuned cavity. The oscillatory field between these grids alternately speeds and slows the electrons, forming them into 'bunches' as they pass through the grids and onwards along the tube. At the far end of the tube is a highly negative reflector which repels the bunches of electrons towards the resonator grids so that they arrive there in the right phase to deliver energy to the tuned circuit, and so maintain oscillation. Energy is

coupled out from the cavity to the microwave mixer by means of a probe.

There are two adjustments to tune the reflex klystron to the correct frequency. One is mechanical, physically changing the size of the cavity. The other, working over a much more limited range, is electrical, by changing the value of the negative bias (in the range 85 to 200V) on the reflector electrode. The AFC circuit operates by controlling this negative bias, derived from a potential divider chain.

To return to my unstable radar, it was obvious that it was the AFC circuit which was causing the trouble, rather than a defective klystron, as sometimes happened. I began checking the resistors in the divider chain, using an AVO multimeter. The resistors did not seem entirely happy, but as they were all of a pretty high value, the AVO did not do a terribly good job of measuring them. So I resorted instead to a 'Wee Megger' - a 500-volt insulation tester which produced its test voltage by means of a hand-cranked generator, rather than the transistorised inverters of the more modern types. This manual version had the considerable advantage that it would produce less than its nominal 500V if you cranked it below the rate at which the slipping clutch operated, providing a crudely variable test voltage.

Checking each resistor in turn on the Wee Megger, the value of one of them appeared to change according to the speed of cranking. Unsoldering one end of that resistor and testing again showed that it had indeed turned itself into a voltage-dependent resistor! Locating a replacement of the correct value in the spares cupboard and soldering it into place restored normal operation, much to the relief of the Captain and Navigating Officers (and myself!).

Presumably the fault must have been a minute fracture in the carbon resistive element, which only became apparent as we sailed northwards through the China Sea into colder climes.

Voltage Limits

I mentioned some time back, when talking about resistor ratings, that any resistor has a maximum safe working voltage. For example, a 0.25W metal film resistor will have a limit of 250 volts. For physically small components having high values of resistance, this voltage rating can limit the power dissipation long before the nominal wattage is reached.

Any component which gets damp, or absorbs moisture from the air, can suffer change of value, loss of insulation, or even total breakdown. For a capacitor, that breakdown is most likely to be of the insulating layer, but in a resistor it may be a breakdown of insulation or a deterioration of the conductive medium, whether it be carbon, metal film, or resistance wire. Of course, the case or encapsulation of the component is supposed to keep out any moisture or chemicals, but the encapsulation may not always be as good as it appears. There have been well-known brands of capacitors built in plastic cases which frequently developed holes or have even split open, with disastrous results - ask any old serviceman!

Moisture

Also from my days in the marine electronics industry, though instance was during the time I was working ashore, I recall an example of a resistor which sometimes failed, basically due to the effects of moisture. It was a fairly substantial wirewound resistor, about 50 or 60mm long and constructed on a ceramic tube about 10mm in diameter. The resistance wire element was wound down the outside of the tube, with substantial lead-out wires attached at each end, and the whole glazed overall with a green vitreous enamel. Its power rating was probably around 30 watts.

This particular resistor was one of a number of similar construction, used in a type of MF/HF telegraphy transmitter-receiver permanently installed in ships' lifeboats. The transmitter

was based entirely on 807 valves in the oscillator, driver, final stage and tone-modulator stages, using a 600-volt HT supply from a small rotary transformer (a type of DC-to-DC motor generator using a single armature with two windings, connected to a commutator at each end). This resistor was used in a so-called 'absorber' circuit, keying the valve screen-grids to apply drive to the final stage.

In routine weekly testing of the lifeboat sets, there was never any trouble, but after the sets had been in use for a few years, virtually every time the annual safety certificate tests were made by government radio surveyors, that resistor would go open-circuit, preventing the transmitter from being keyed, and thus failing the survey. This caused us no end of annoyance, and resulted in the surveyor having to carry out a revisit after the resistor had been replaced.

There were electrically powered drying heaters fitted in the base of the equipment cabinet, but for a variety of reasons, the leads feeding power from the ship to the boat cabin would often get disconnected by deck-crew, allowing the moist sea air to do its worst. As the incidence of failures increased, we took to examining the faulty resistors more closely, and noticed two things. First that a brown or black spot was sometimes visible on the inside surface of the resistor tube, and secondly that the vitreous enamel glazing covered only the outside and ends of the tube.

Consultation with the manufacturers revealed that the ceramic tube could absorb moisture through its inside surface, and this was what was happening. The drop in insulation allowed a flashover between adjacent wire turns, causing the wire to melt and develop an open circuit. The resistors in each set were replaced with a design built on a ceramic rod rather than a tube, and glazed overall, and the problem disappeared.

But why did the fault occur only during government surveys? In a word (well, three actually), supply voltage

regulation. At switch-on, when the cathodes of the 807s had not warmed up and no current was being drawn from the HT rail, the rotary transformer running from a freshly-charged 24-volt accumulator bank could give an output of well over 700 volts. If the transmit-receive switch was operated during the warm-up time, the excess voltage would apparently be enough to put that resistor into self-destruct mode.

It seems that every tester except the radio surveyor was conscientiously obeying the instruction to wait 30 seconds before switching to transmit, but the surveyor was wont to push the switch over immediately after turning on the set. There were muttered comments asking why the surveyor couldn't follow the b. . . instructions like everyone else, but of course he was quite right to induce the fault to occur. There was absolutely no guarantee that an operator in a real emergency, perhaps with the ship on fire or sinking, and surrounded by injured and distraught survivors, would wait the requisite period. Should the resistor blow then, there was no way of getting the set repaired and back on the air.

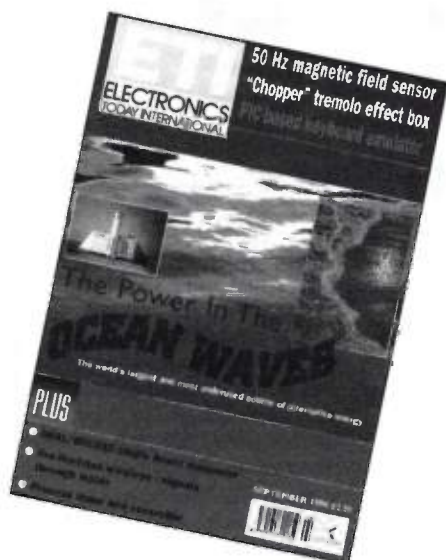
Finally

Reverting to my original theme of component tolerances, percentages, etc., there was in that same lifeboat radio equipment a capacitor whose specification in the handbook parts list was the weirdest I have ever seen. After all these years, I forget the exact figures, but the value given was something along the lines of "1017pF, plus or minus 10 per cent". Not a nice round figure like 1000pF, and not a close tolerance like perhaps 1 per cent - think about it!

(If you have any ideas for topics to cover in future 'Notebooks', please send them to Geoff Arnold G3GSR, 9 Weatherby Close, Broadstone, Dorset BH18 8JB, or have a chat with Geoff on the 'Radio Bygones' stand at a rally - Geoff would appreciate reader's comments and ideas for topics, so don't be shy! - Ed)

12 → 18

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Letters

Letter of the Month

Dear HRT,

I submit the following tale in the hope that you may publish what in my opinion is a story of "The wonderful Brotherhood of Amateur Radio" and a triumph for the mode of Packet. In May this year my family and I stayed on the island of Menorca for our holiday, my nine year old daughter, Katie took her teddy bear with her. Unfortunately on our arrival back home we discovered that the teddy bear had escaped and had decided to stay in Menorca. Katie was very distressed at the prospect of never seeing him again. A

telephone call to the holiday company in Menorca revealed that they had found the bear hiding under one of the beds, but they were unable to post him back to the UK because of a company rule about such matters.

I telephoned the numbers of well known parcel companies who all wanted in excess of £40.00 to collect the bear. Considering that he only cost 20p from a fairground machine this idea was discounted rather quickly. For a number of months we were stuck! Then an idea occurred to me, packet! But I didn't have any addresses of Spanish

stations, so a bulletin was sent to all@ww asking for help. Almost immediately G4YUU in Sutton Coldfield responded with a list of BBS's in Spain, one of which was on Menorca. I sent a packet to the Sysop@EB6WQ and in due course I had a reply from EA6WA offering to collect the bear and post him to us. EA6WA was indeed as good as his word and two days ago an airmail parcel arrived addressed to Katie. Yes, you guessed it, teddy had come home. My daughter is now very happy indeed. I would like to say that this episode has made me feel proud to be a

radio amateur, to know that people that you have never met, and maybe never will, are willing to put themselves out when the chips are down. I would ask that through your pages I be allowed to thank G4YUU (John), EA6WA (Bartoleme), the Sysop@EB6WQ and not least the Agrupacion de Radioaficionados de Menorca, who I believe were also involved in some way. We are very grateful to them all.

73 de David Mellor G4EWK

Leicester Show

We've received many pleasant comments following the Leicester Show from readers who kindly came along and chatted with us at the Ham Radio Today stand. Thank you all for sparing your time at the show and for your kind notes, Emails and letters. Following is a typical comment from a friendly visitor who came along, and chatted with Chris about the regular ex-PMR conversions in Ham Radio Today:

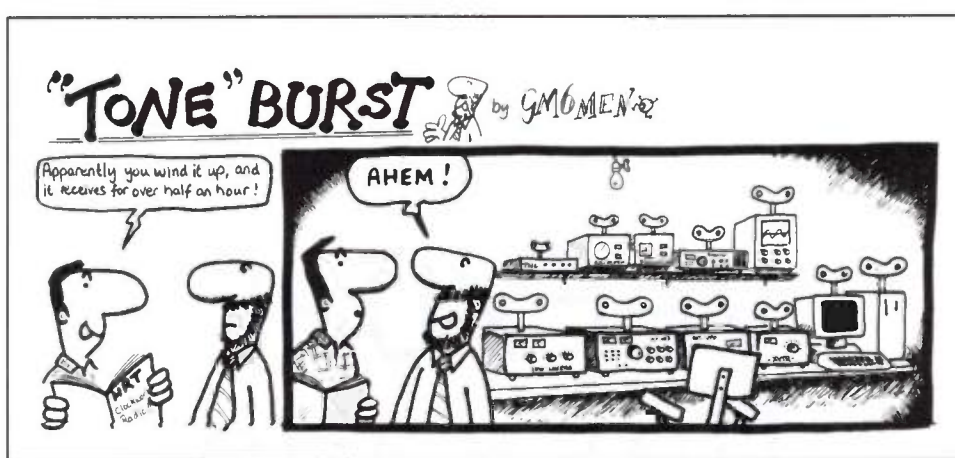
Just a quickie to say how nice it was to meet you and Sheila at Leicester on Friday. Trust the trips abroad go well, and wish you safe journeyings. Pass on my regards to Sheila and the guy from Nexus magazines who sold me the subscription and saved me a few pennies, which can be spent in other areas of the hobby. Regards, Keith G7PND

Editorial Comment;

As readers may have guessed from this, my Consultant Technical Editor Chris G4HCL had to disappear on one of his 'full time job' business trips immediately after the show, this time to the Middle East for a few days, quickly followed the weekend after to central Europe again for a few days. It's a good job he still manages to communicate via Email! Seriously, my thanks go to the many visitors who came to the stand, indeed one G3 amateur stayed for nearly an hour chatting away on technical matters! My VHF/UHF columnist, Geoff GJ4ICD, was also on hand to talk with visitors over the weekend, and I was very pleased indeed to chat with many readers over the duration of the show on Editorial matters. If you're visiting the London Show in March 1997, Ham Radio Today are again planning to be there, see you then?

£10 for letter of the month

Do you have something constructive to say on the state of Amateur Radio today? Perhaps you'd like to put your viewpoint to the readers, get some discussion going, or give an answer to one of the issues raised? We'll pay £10 for the best letter we publish each month (paid during the month following publication). So write in or Email with your views, to; Letters Column, Ham Radio Today, Nexus, Nexus House, Boundary Way, Hemel Hempstead, Herts HP2 7ST, or fax your letter direct to the Editor's desk on 01703 263429 (fax letters for publication only, for general readers queries please see the 'Readers Queries' section in the 'Who's Who and What's What in Ham Radio Today' section at the rear of this issue), or Email to hrt@netlink.co.uk. Please keep your letters short, we reserve the right to shorten them if needed for publication. Letters must be original and not have been sent to any other magazines, and must include name and address plus callsign if held. Reader's views published here may not necessarily be those of the magazine.



Dear HRT,

I overheard a couple of new HF licensees, discussing and then discarding the instructions on the use of the 'dummy load' that is incorporated in such ATUs as the FC-700 series. They failed to see that the reason behind tuning the transceiver to the ATU's dummy load, is as simple as A.B.C.

This type of ATU is designed primarily for mobile usage, as well as for a particular line of Yaesu transceivers. The idea behind tuning the transceiver to the ATU's dummy load, is the prevention of over long tune-up whistles, groans etc., that are still part and parcel of the HF bands.

By first tuning the transceiver to the ATU's dummy load, then switching over to tune the aerial, prevents excessive mismatching whilst tuning up for the first time on any band. This sets the tuning controls of the ATU to, as close as possible, the frequency in use by the transceiver and the 50 ohm match required. So that when one switches the ATU over to the aerial, there should be very little tuning required, if that is, the aerial has been tuned or it's been designed for that particular band. Then, as one moves around the band, a little retuning is all that is required to match the aerial, through the ATU to the 50 ohm output of the transceiver, with a very low VSWR.

Following the instructions, as closely as possible, when one is using such ATUs, not only lessens the tuning-up whistles etc. on the bands, it also, and this is most important to each transceiver owner, lengthens the life of ones PA transistors, as well as better contact reports, both on sending and receiving.

So just remember: a) It's your rig your going to damage if you ignore the instructions for using these ATUs. b) If you lower the

amount of tune-up whistles, groans, cracks and bangs that you put out, you are protecting your own environment (well done!). c) At the same time your pocket will not feel the pinch of excessive repair bills (blown PAs).

Advice such as this comes cheap, that's why most people ignore it. If they were overcharged for this free advice, they would listen to it and act upon it, thus saving themselves costly repair bills. As the advice is free, some will take note, the majority will not.

J.Davies-Bolton, G4XPP

First club on the net?

Dear HRT,

With ref. to the letter on page 36 of the November issue. Whilst the Wakefield Et District Radio Society would not claim to be the first UK radio club on the Internet, nevertheless we would be very grateful for a mention of our site at URL: <http://www.waveg.demon.co.uk/wdrs/>

Apart from details of club activities, this also has a link to the page relating to the Northern Cross Radio Rally, which is held each February. I would be very happy to add links to other radio clubs, particularly those in the North of England, if the appropriate people would like to contact me.

Richard Sterry G4BLT

1 Wavell Garth, Sandal Magna, Wakefield, W. Yorks WF2 6JP.

Email: richard@waveg.demon.co.uk

Dear HRT,

Are you a rigaholic? Do you like to impress all and sundry with the magnificence of your amateur radio station? I used to, until I saw the error of my ways!

Yes, most of us salivate profusely whenever we spot the latest offering from the land-of-the-rising-sun on the horizon. And before we know what hits us, we're either licking the stamp (first class of course!) or whipping out our mobile phones to solicit a full colour brochure from the nearest friendly neighbourhood dealer - and woe betide him if he hasn't got one! (Hey, nobody faxes for one, do they?)

Finally the big day arrives and we just can't wait to rip open that brown envelope to get at the contents. Suddenly, there it is, the rig of our dreams (again) pictured in glorious technicolour - aaaaah....absolute heaven.

Now, after we've spent several sleepless nights tossing and turning thinking about that new dream-machine, how do we pay for it? Well, we could exercise our flexible friend, raid the piggy-bank for the umpteenth time, ask the XYL to buy yet another early Christmas present, or, heaven forbid, part-exchange? Not bleeding likely! That's tantamount to selling the family silver. No, never mind that the wife needs a good holiday or new clothes, or that the family transport is falling to bits - the number one priority is

getting our sticky paws around that new rig! After all, it'll be company for all those other miscellaneous transceivers we lovingly fondle and admire rather than putting them to good use.

If you think you're on the slippery slope towards becoming a hopeless rigaholic, help is at hand! Just pay attention to the following steps: Never ever take plastic or paper money to any radio rallies (except to pay for the odd cup of tea/coffee and a sandwich, or better still take your own, that way it won't cost you a penny) or, be persuaded into putting your moniker onto a legal document courtesy of a silver-tongued salesperson. Never beg, borrow, or steal any brochures depicting amateur radio - particularly rigs! Decline any invitation put to you by your fellow amateur radio enthusiasts to visit their shacks, especially those who take great delight in announcing over the local repeater that they've just acquired another transceiver, as their only perverse motive in doing so, is to watch you squirm as you enter their lair and cast your eyes over shelf after shelf of expensive and 'redundant' equipment. Last but not least, the next time your best friend or your wife tells you that to purchase yet more Japanese wonder-boxes would be absolute madness, believe them! You know it makes sense, okay?

Ray J. Howes, G4OWY

As well as our post and fax facilities for receiving letters, you can Email your 'Letter' direct to; hrt@netlink.co.uk or from our web site; <http://www.netlink.co.uk/users/hrt>

VHF/UHF Message

Geoff Brown GJ4ICD investigates whether Sporadic E propagation is better at solar minimum

Continuing on from last month, July 25th produced CT3 to G6YIN (double or multi hop), lots of single hop stuff in Europe was reported and K1TOL reported the CU3URA beacon (50.013 with no keyer, just the carrier) in the afternoon. In the evening things went wild with Z32, YU, 5T5, EH, ISO, UX1 and others into the UK. YU1AD was a new square for many in KN03. The band opened to Canada at 2040z and G3CEG worked VE1PZ and G3FPQ worked VE9AA for Transatlantic opening No.26, both VE s were audible in GJ.

The 26th produced single hop openings around Europe. G6YIN (Yorks) spotted YL1A/A (KO07) and EU1AB in KO33 during the morning. The afternoon and evening produced much the same with OK, SP and other Eastern Block countries reported.

On the 27th (AM) things went wild. SM4DHN in JP60 was a new one for many and the band was wide open to ES, YL, SM, OZ, LA etc from the UK plus EI to DL, OE to CT, and PA to EA7.

Early on the 28th Japanese amateurs worked UA0CQ, at 1115z G3WOS, G4IFX, GW3JXN, G4RGK, OZ8BZ, G3FPQ, G6YIN, worked JX7DFA and G4IFX worked TF3BM. Later in the afternoon G to OE and Italy. In the evening there was IT9, Z32, and SV into G/GJ.

'ES' still continued on the 29th with G to ES, OH, S5 and other single hop countries within Europe, Bob WA1OUB reported that the 29th was the first day that he hadn't

received any European video signals since May!

July 30th saw almost the whole day with European activity, G to OH/SM3/SP, ON to CT/Z32/4X, PA to SV and DL to EI and SV9. Later in the evening video was again copied in the USA. July 31st produced single hop in Europe and Herb W3IWU heard the TI (Costa Rica) beacon in the afternoon along with the H10 and V44 beacons in the Caribbean.

August still produced the DX, multi hop at that! CT3 to DL and EH8 to ON were reported on the evening of the 1st.

The 2nd, 3rd and 4th also produced 'fleecy' openings from the UK to Italy and YU to SV9, but things were now on a major decline. Later on the 4th, out of nowhere, the band just suddenly became packed with Italians and 49.740/750/760 video. G0HVQ spotted the 5B4 beacon and the SV9 beacon (double hop), at the same time German stations were working SV and UX0FF. Stations in the north of the UK also fared well in this opening. GM4DGT worked into Italy and G6YIN spotted SV8CS, SV1DH, SV9SIX and IT9IPQ, so it seemed a very widespread event. The MUF rose fast as G's started to spot stations in Denmark (sadly on 50.110!). Roger G4HBA (IO81) reported YT1AU (KN04) at 599 at 1819z but alas there was no sign of YT1AU in GJ.

Early on the 5th EH7KW spotted GW4UWR along with OH, PA, G, and S55 beacons. Later in the day things hotted up somewhat with reports of G

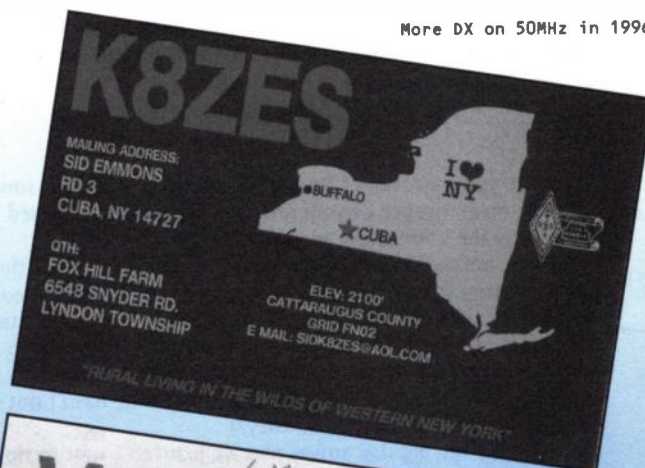
to OH, CT, F, EH7, I, EI to GJ and DL, GM to GJ. At 1932z KP4EIT was heard calling CQ on 50.110 (in August!) bringing the Transatlantic openings to 27 so far this year. KP4EIT worked G6YIN and others in the UK, plus stations in PA0. EH1TA worked CU7BC a little later and Lefty K1TOL finished off the day by reporting 48.250 video coming from Spain.

JA1VOK reports that JA0GLM (PM97) worked VK6JJ (OF88) near Perth on 50.112

CW at 539 at 0529z on August 4th, in sudden improved conditions for the south. He stated "I found the QSO by scatter and quickly called VK6JJ after the QSO, but no response was unfortunately received". BV was heard by scatter beaming 200 deg., JD1BJP and VR2ZXY were open during the opening as well as very strong 9M 48.24/48.25 video. Had the autumn TEP come??

The next day (6th) things were very quiet in the morning

More DX on 50MHz in 1996



6M

WA8DXB

Ashtabula County

STATION	DATE	UTC	MHz	RST	MODE
GJ4ICD	May 29 1996	1902	50.1	55	2X SSB

Jim Gabriel
8380 Route 45
Orwell, Ohio 44076

EN91

Pse QSL Txn

73, Jim

Real DX in 1995 on 50MHz

(but you have to remember that this is August) with only G4VPD reporting the CTOWW beacon. In the afternoon G8RZA reported an opening to OH4 in KP32. In the early evening EH1TA/P copied the VO1 beacon and then worked WB8VYF in EM89 for EU to USA, opening No.28! PE1MCD also reported a repeat of the previous night with KP4EIT in again. KI5GF also reported hearing a G1 into EL09 at 1835z but no contact took place. Both EH1TA and EH1YV worked W2CAP a little later on.

Steve, VK30T sent in the following news; "Just had an opening from here (VK3) to FK8GM, Eric in New Caledonia. Interesting because no one can remember ever getting a double hop that way in July before, he was quite weak and we had a path to VK4 at the same time".

Finally on the 6th Bo OX3LX had an opening into Europe and worked 10 stations in OH and one LA. Bo also copied VE8, OH1, OH9 and LA7 beacons between 2000z and 2330z. What a great start for a month that is usually dead via Sporadic 'E'.

The Sporadic 'E' still went on, with 'G' stations reporting YU, YO, 9A, ES, and SP on the morning of the 7th. Bob WA1OUB also reported video from Spain at 1020z, which is a very early start. JL4GTO worked HL1LTC via ES at 0300z and still more ES appeared in Europe with the CTOWW beacon being S9+ into GJ for over 2 hours, as was 48 and 49MHz video from most of Europe.

GW7SMV reported DL and OE in the afternoon. GI6ATZ also reported OM and Italy showing how widespread the event was.

Sporadic E continued throughout Europe for the next few days, albeit single hop stuff. But on the 10th things went mad with the HIOVHF beacon in at 1940z at my station and Roger G4HBA worked OX3LX 559 both ways on Sporadic E No.29 transatlantic opening. Bo, OX3LX also worked G, GI, GM, GW, DJ, F, PA, ON, SP, and OK, 27 QSO's into Europe! Sunday the 11th was even better,

double hop to the north with JX7DFA in at 1200z at my station at last for country No.157. Many also worked TF3T (HP93) for a new grid. OX3LX again worked into PA and ON and GM4DGT for the 30th transatlantic opening, Neil G0JHC also reported CT3 via double hop. Later during the night Neil G0JHC worked OX3LX during an MS sked. This could have been a mixed mode as TF3T reported a contact with OX around the same time via ES, still it was a nice contact all the same.

Here we go again on the 12th, USA to EU No.31 opening: Another very intense widespread 50MHz opening to the USA, W1/2 worked I, CT, EH and VE9AA had a field day! From 1840z VE1RAA worked IK8MKK (a nice haul), and Steve W2CAP/1 had 65 QSO's and worked HBO, Stations heard in G/GJ were W1/2/3/4.

This was certainly a big opening for August, lasting over two hours. Bob WA1OUB had 50 QSO's and the best DX from FN43 was I8KRO in JM88 at 7125 km. What a month it turned out to be. For yet another opening across the 'pond', the 13th brought even more DX to the USA and opening No.32 with EH, G, GW etc. working W1/2/3/4 from 1430z onwards. W3JO was 40dB over 9 in GJ.

The global view of 1996 Sporadic E

Was having access to the Internet an added bonus when coming to the conclusions of what the 1995/6 season was like compared to previous years? I did a survey, I asked the USA and Japan via the VHF reflectors for their opinions and views of what they actually thought of the season, bearing in mind several factors. Remember, 1995/6 was the bottom of the 11 year cycle, things were supposed to be better, so were they? Well 60% said yes, and, there was 144MHz Sporadic 'E' in December 95 and January 96, also 144MHz opened to Finland from France in February 96, this in itself had never been noted before. I have not noted

all the 144MHz openings as this would take at least another dozen pages in Ham Radio Today.

Both Bob WA1OUB and I have certainly noticed many times that, as Bob starts to receive 48MHz video, the band then suddenly opens in Europe. Steve VK30T also reported July double hop 'ES' in his winter period.

Well I hope you have enjoyed the information collected, make up your own decisions on whether Sporadic E is better at solar minimum. To me, it seems that there is a peak just before solar minimum. Hopefully now with the advent of the Internet and computers we can save all this valuable information and compare it against the next cycle minimum in 2006/7, as it is all been archived onto a CD ROM for future analysis.

Finally, see the accompanying graphs for the total QSO's made across the Atlantic by WA1OUB, W3IWU and myself from 1985 to 1996.

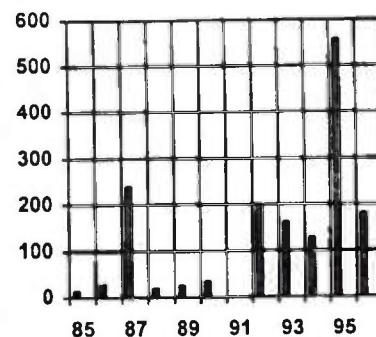
50MHz CD ROM

By the time you read this we should have the 50MHz multimedia CD ROM in production. This is a collection of back years' reports during cycle 21/22, over 100 megabytes of audio clips, picture gallery of those famous operators, beacons, and lots more, in fact up to 650 megabytes of 50MHz information. Call me for more information.

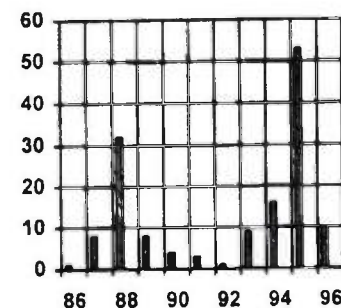
Have a Nice Christmas and new year and let's see what 1997 brings us in the way of VHF/UHF goodies!

Total QSO's made across the Atlantic by WA1OUB, W3IWU and GJ4ICD from 1985 to 1996.

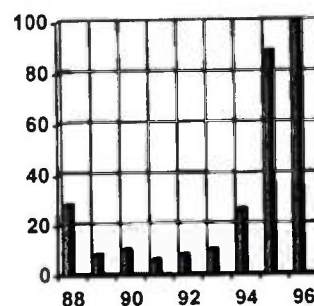
WA1OUB EU QSO's on 50MHz



W3IWU EU QSO's on 50MHz



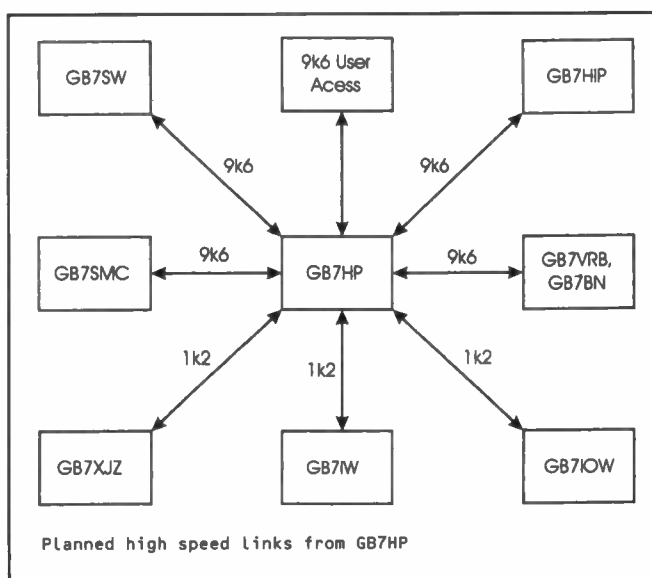
GJ4ICD USA QSO's on 50MHz



News and views please to: Geoff Brown, TV Shop, Belmont Rd, St Helier, Jersey, Channel Islands, or via Email to equinox@itl.net, or even packet at GJ4ICD@WD5B or GJ4ICD@GB7GSY, or GJ4HXJ@GB7GUR - I even have a phone; Tel. 01534 877067. (Geoff always appreciates comments and reports from readers for inclusion in this column - Ed)

DATA Connection

Our data SysOp G4HCL looks at a variety of HF and VHF data mode information sources



I'm often asked about information on HF data modes and activity, in particular on accessible gateways and the like for various modes. Here's a small collection, which I hope readers will find useful;

French 80m SSTV repeater

If you're active on SSTV using JVFAX or whatever, maybe using the PCB provided free on the cover of last month's issue, this may very well be of interest. Francis, F6AIU, says that the TBL club (the French SSTV group) have set up an experimental SSTV 'store-and-forward' repeater. It operates on 3.720MHz, running 50W into a loop aerial from locator JN27UR. To use it, transmit your picture on that frequency, and in response to a valid VIS code your picture will be

automatically re-transmitted. Further information from F6AIU @ DB0GE.#SAR.DEU.EU.

San Francisco APRS Gateway

For GPS over packet fans, Bill KB6LFM in San Francisco is running a APRS (Amateur Packet Reporting System) gateway on 14.098MHz mark FSK, using the alias of TUNE1. The TNC parameters are shift 170Hz, mark 2125Hz, space 2295Hz. The rig is a TCXO-stabilised TS-450S/AT fitted with a 500Hz passband filter, the aerial being a 2 element quad at 15m. KB6LFM invites signal reports, including the date and UTC time, either on packet to KB6LFM @ W6PW.#NOCAL.CA.USA.NOAM or Internet to kb6lfm@ix.netcom.com.

APRS Home Page

If you'd like to find out a little more about APRS, you'll find the Internet WWW page of Bob Bruninga, who's the author of the APRS software, at <http://web.usna.navy.mil/~bruninga/aprs.html>. As well as containing plenty of information, this also has live (i.e. real-time) maps of mobile ham stations using APRS, even orbiting ham satellites. Java is used for this, so you'll need Microsoft Internet Explorer V3 or Netscape 3.0 to view it.

GTOR

Following my recent comments on GTOR activity in this column, Ted G4DKD @ GB7AVM.#49.GBR.EU sent me a message to say he would be interested to know of any other stations, home or away, who have the facility. Ted is using the KAM Plus, and hasn't come across any GTOR activity as yet, indeed he says he's not even sure what it sounds like. If you'd like to arrange a sked with Ted, you can contact him directly by packet. Alternatively if anyone would like to 'start the ball rolling' with a weekly time and frequency which they'd look out for GTOR contacts on, then I'd be pleased to publicize it through this column.

HF Packet via Nova Scotia

A message from Tracy M/KC5CBW (KC5CBW @ GB7OPC.#22.GBR.EU) says that, in his quest to reach the US via

HF packet, he's received the following information from Burt, VE1ANA in Nova Scotia Canada. Burt operates a KA-Node on 14.105MHz LSB, look for VE1AMA-7. Burt is the network 105 coordinator, his Internet address is ve1ama@atcon.com. If you also have luck in getting through to VE1AMA-7 from the UK, Tracy would be pleased to hear from you.

Clover mailing list

Clover is one of those data modes having many benefits, but possibly not that many users at present, making 'chance' contacts a little less frequent. With this in mind, Hank WORLI @ WORLI.OR.USA.NOAM (yes, he of BBS software fame) has established a Clover mailing list on his BBS. To subscribe to the list, send a message to CLOVER @ WORLI.OR.USA.NOAM with the single word "subscribe" (without the quotes) as the subject. To unsubscribe from the list, send a message to CLOVER @ WORLI.OR.USA.NOAM with the single word "unsubscribe" (without the quotes) as the subject. To send a message to everyone on the list, simply send it to CLOVER @ WORLI.OR.USA.NOAM.

PacTOR Gateway

Jim N7SZS @ KC7Y.AZ.USA.NA says that he's established a PacTOR gateway on 7.069MHz FSK from his station in Tempe, Arizona,

which links to his local 2m packet network. The 2m port of the gateway operates on 145.110MHz, giving access to the KC7Y BBS and the PHX node. The HF side uses an AEA DSP-2232 into a Kenwood TS-850, with an Ameritron ALS-600 linear running 380W into a Cushcraft R-7 at 9m. Jim invites you to try the gateway, this could be an ideal opportunity to test winter LF propagation.

SUNPAC Group News

The GB7HP (Portsdown Hill, Hampshire) node has now received site clearance for several proposed ports on the site. The others should follow shortly. A list of equipment which the group needs to purchase is being finalised, and the group would welcome new members to help in this effort, at present less than 20% of users in the area are members of the group. Further details can be obtained from the SysOp, G8OQN @ GB7XJZ.#48.GBR.EU. SUNPAC is a non-profit making organisation, dedicated to the improvement and development of the packet network in Hampshire, Dorset and South Wiltshire. You'll find details and a membership form on each of the area's BBSs.

In conjunction with other packet/repeater groups, SUNPAC will also be upgrading the links from the Salisbury area node GB7SW, to Swindon, the Forest of Dean, and Madley near Hereford, to full duplex 9k6 or faster links, as well as arranging for the planned 9k6 simplex link to GB7HP.

The DX Cluster GB7SMC has recently been taken over by a new SysOp, Colin G3PSM. Colin has been working hard to improve both user access facilities to the cluster, and its linking to the rest of the UK cluster network. I'm told that DX Cluster users in the SUNPAC area who at present are linking into GB7DXS are requested to review their connectivity, as GB7SMC is now able to provide the service they require, and removing their connections to GB7DXS will assist Colin in improving the efficiency of the link. GB7SMC has user ports on

70.325MHz, 144.675MHz and 433.675MHz, note the latter is a change from the previous 432.675MHz channel. If you are unable to link directly, connect to your local node (POMPEY, NEND, IOW or FOREST) from where connections to GB7SMC using the command C GB7SMC, will be routed over backbone links, thus relieving loading on user access channels. Anyone experiencing problems with this transfer can contact G3PSM on GB7SMC (or @ GB7XJZ BBS) or G8OQN @ GB7XJZ, who will then try to help you solve your problems.

Beacons

Here's a little food for thought. Within the coverage area of one of my semi-local BBSs on 2m, there are well over 100 packet stations operational. Now, if everyone sends a beacon every 15 minutes (and many stations send these more frequently), on average there will be nearly five extra frames per minute of non-useful data. On most TNCs the command is BE n - if n is zero, it turns beacons off. Use it sensibly!

School packet

VE3XCK @ VA3TMC.#SCON.ON.CAN.NA is the packet station at the Holy Cross Elementary School in Georgetown, Ontario, Canada, which is around 30km north west of the city of Toronto. The station has been off air for the summer but is now active again. The students say their classroom ham/teacher is Mrs. Card, and that they've had a great time contacting other schools all over the world. They look forward to another fantastic year of making new packet radio friends. Why not drop them a packet message to say 'hello', especially if you also run a school station?

ATC packet

Are you involved with an Air Training Corps group in any way, such as an Officer, CI or Cadet? The 115 (Peterborough) Squadron ATC are keen to compile a list of all packet-active amateurs who are connected with the ATC, for the exchange

of news and information. You can get in touch with the Squadron with a message to MX1AAF @ GB7PET.#22.GBR.EU. A complete list will be then distributed to interested parties (unless you don't wish to be on the general list, if so then state this in your message).

G3LIV Multimode Data Unit

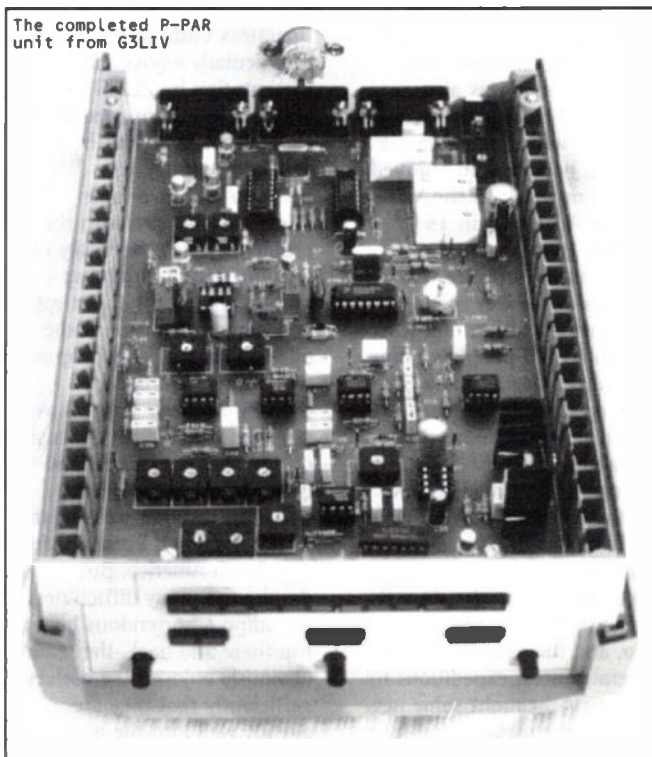
Whilst I was at the Ham Radio Today stand at the Leicester show, I was pleased to meet and chat with many readers, one of whom was Johnny G3LIV. We had an interesting discussion about his 'P-PAR' board, designed for use on Packet, AMTOR, PacTOR, SSTV and Fax. The unit, which is available at a very modest price for just the PCBs, comprises a full 4 active filter terminal unit with two selectable shifts (170Hz and 200Hz) for PacTOR, AMTOR and RTTY, an AFSK tone generator, and a packet modem.

You can use the board with the excellent G4BMK software (you'll get a discount on this if you've bought the P-PAR board), or with shareware software such as HamComm, Super Packet SP9, etc. The main

board is 220mm by 130mm with a second display board mounted vertically on the front edge. The rear edge has HF and VHF 9 pin D type RS-232 connectors plus a DC power connector. Johnny is offering the two bare PCBs (i.e., for you to add your own components etc. to) at just £20.00 complete with component 'shopping list', plus a kit of two panels if required for an additional £5.00. Johnny says there's currently an excellent receiver equipment box available from a UK supplier, for which the board and display have been made to fit. You can get further details from Johnny Melvin G3LIV, 2 Salters Court, Gosforth, Newcastle on Tyne, NE3 5BH, Tel. 0191 284 3028.

CTRL-Z, End of Message

If you've any comments on the column, or you'd like me to cover a specific topic you're interested in, then please do drop me a message. You can send me a letter, fax, email, or leave a phone message c/o the Ham Radio Today Editorial contact lines, or direct via packet to G4HCL@GB7XJZ.#48.GBR.EU. See you next month.



The completed P-PAR unit from G3LIV

HF Happenings

Don Field G3XTT gives a few hints on what to look for on HF in the coming month

Band conditions during late September and early October were probably best described as abysmal for much of the time. The solar flux was at its lowest so far this sunspot minimum, and I have heard a number of HF operators saying they have never heard the bands in such poor shape. However, that belies the fact that there were some interesting openings if you were wise to them. On 10 metres, for example, there was some loud short-skip into Europe, as well as the occasional opening to the Caribbean. At the other end of the spectrum, 160 metre operators were enjoying some excellent openings to the Caribbean and North America, and KL7Y in Alaska reported several contacts with Europe. I was also interested to be told, by a UK amateur with a fairly modest station, how he had enjoyed a band opening to the VK4 area of Australia on 15 metres. Over a period of about 90 minutes he was able to work a number of VK4 stations, including one who was in an old people's home and whose aerial was a piece of wire running beneath the eaves, nowhere more than 3m above ground!

For myself, I made a few contacts in the CQ Worldwide RTTY contest in late September. This contest has become very popular since it was introduced a few years ago, and this year there were several contest expeditions to rare spots. I caught some new ones on the mode in the form

of 5R8EN (Madagascar), KG4GC (Guantanamo Bay), PY0FF (Fernando do Noronha) and A71CW (Qatar). TY1RY (Benin) was also a nice catch. I was particularly pleased with the A71CW contact. This operator (who is Polish) was off the air for several months earlier this year due to licensing difficulties, but they have now been resolved and he is very active once more.

HF Convention

I didn't manage to be around for the whole of this year's RSGB HF Convention, but from what little I saw there was a good attendance, despite the unfortunate clash with the FOC (First Class Operators Club) annual 'bash'. I particularly enjoyed the presentation by ZL2TT on last May's ZL8RI (Kermadec Island) expedition. As well as being very entertaining, this presentation gave some interesting insights into the problems which can easily be encountered in mounting such an operation, both logistical and human. The size of the pile-ups meant that the group was always torn between working as many stations as possible, which meant focusing on the USA and Japan, and trying to catch the elusive openings to other parts of the world, including Europe, Africa and South America. But despite the many difficulties, including a horrendous boat trip there and back, the team obviously enjoyed themselves sufficiently that they are already well into the planning

of an Auckland Island (ZL9) trip for two years' hence.

Contest forum

I had the opportunity at the HF Convention to sit in the Contests Forum, at which members of the RSGB Contests Committee chaired a discussion on contest issues. There was a lengthy debate about Field Day, which for many people is the only HF contest in which they participate each year. That's because it is very much a club event. The number of entries to Field Day has been dropping, and the Contests Committee is anxious to find out why and to take steps, if possible, to reverse the trend. There has been a polarisation in recent years between groups who feel that Field Day has become a playground for those with the latest transceivers, computer logging and the other trappings of the digital age, and those who believe that we should 'move with the times'. It is therefore argued that some clubs drop out because they don't feel they can compete. However, an equally compelling argument was that which said that the drop in numbers is because many clubs cannot muster enough competent CW operators. Perhaps in support of this argument, Chris G3SJJ, the Committee Chairman, quoted statistics which showed that the number of G0 entrants to the major RSGB HF contests is only a tiny proportion of the total. Does this mean that recent licensees

are learning the code to get their licence and then letting it drop? Or is the same true for SSB contests?

As a guide I took the results of the RSGB AFS (Affiliated Societies) contest which, being a club event, seems to attract entrants who might not otherwise go in for contesting. In the CW leg about 27% of the entrants were G0 or equivalent vintage, including Novices. In the SSB leg the equivalent figure was 36%. These figures are probably not far enough apart to be statistically significant, but they at least provide food for thought.

Another topic for the Contests Forum was the time taken for the RSGB to publish contest results. In theory, the fact that more and more logs are submitted nowadays on computer disk should make checking easier. However, computer logs arrive in a variety of formats, despite recommendations as to how they should be prepared. Although the computer can do a lot of the hard work, this frequently ends with many pages of printout identifying possible log errors which then need to be checked manually. One suggestion from the floor was that it would be helpful for contest organisers to post claimed scores on the PacketCluster and Packet BBS networks (and possibly also on Internet) at the earliest opportunity, so that at least the entrants would have some feedback while waiting for the final, adjudicated results.

WN4KKN

Over the weekend of the HF Convention I was pleased to be able to host Trey WN4KKN, one of the world's top contesters. Some of you will also know Trey as the moderator of the Contest Reflector on the worldwide Internet. In addition he was, for a few years, Editor of the ARRL's National Contest Journal.

Trey operates contests these days mainly from the Galapagos Islands, where he uses the QTH of Guido HC8GR. Trey and a group of friends have gradually developed this location, to the point where they now have three towers with a variety of monoband aerials, at least two per band, so that they can mount effective single-operator and multi-single contest operations. Trey was expecting to be on single-op in the October and November contests as HC8N, so hopefully some Ham Radio Today readers will have been able to work him. This site, on a remote island at a favourable latitude for radio propagation, has been a great success over the years, although Trey still finds himself getting beaten by Ville OH2MM, who operates as EA8EA from another propagationally-favoured location, the Canary Islands.

Trey's background in amateur radio is interesting, and perhaps shows how top contesters develop. His parents were amateurs and by the age of eleven Trey was active on CW with his Novice licence (which, at that time, allowed CW operation in limited segments of the HF bands with, if I recall correctly, a power limit of 50 watts). He and some school friends who also gained their Novice licences, used to have round-table contacts on CW in which they tried to outdo one another in their CW speed. This improved their CW ability no end. Trey was also an active participant in CW traffic nets, something we don't have the opportunity for in the UK. It has long been a role for amateur radio in the US to

pass messages on behalf of third parties, and this is an excellent training for operating skills and techniques.

Later Trey started going along to N4AR's big contest station in Kentucky to help with multi-operator efforts. Many other well-known US contesters have been through the N4AR 'finishing school', KR0Y being a more recent example. Trey later went to college in Texas and became a regular contester from the N5AU station and eventually put together an effective contest station of his own. This was dismantled when he moved to California several years back, and since then he has restricted his contesting to operating from other people's stations, a strategy which has been very successful. As well the Galapagos, this has included operations from Paraguay, Costa Rica and the Caribbean. Trey was also one of the participants in July's World Radiosport Team Championship.

Awards

If you collect operating awards and have access to the World Wide Web, it's worth taking a look at K1BV's Home Page. K1BV publishes an excellent directory of awards which I believe is now being carried by RSGB Publications. However, some awards exist only for limited periods, for example in association with a specific special event operation. To overcome the lead time involved in getting them into his Directory, K1BV carries details of such awards on his WWW site, which you can find at;

<http://top.monad.net/~k1bv/>

If you don't have WWW access, here are details of one of the awards currently featured, just to give you a flavour:

NCDXC (Northern California DX Club) celebrates its 50th Anniversary this year. An award is available to any DX station who submits a log showing

contacts with 50 different NCDXC members during the anniversary year 10th October 1996 to 10th October 1997. A contact with NCDXC club W6TI counts for 10 points, and the callsign will be activated during the year by NCDXC members who will make a special effort to work DX stations. Club members may sign /NCDXC or /50 after their home calls to help identify them as Club members. A certificate will be sent to those who qualify for the award. Send the usual log data with your submission to NCDXC, PO Box 608, Menlo Park, CA 94026-0608, USA. Awards will be mailed out at the end of the anniversary year next October.

There are also several awards featured which involved making contacts during 1996, for example with the '1000 Years of Austria' stations using the OEM prefix and '70 Years Amateur Radio in Bulgaria' for which you require contacts with LZ stations. Now that the year is over it may be worth checking to see whether you worked enough stations in 1996 to qualify for any of these.

Forthcoming DX

When you read this it will be almost time for the long-awaited Heard Island operation. The group has also announced operations from FT8W (Crozet Island) and FT8X (Kerguelen Island) en route, though I do not have dates for these. The moral is to keep a close eye on the bands and on the PacketCluster network. Hong

Kong amateurs will be able to change the number in their callsign to 97 from 1st January, and to 98 from 1st January 1998 to mark the transfer of sovereignty from the UK to China on 1st July 1997. HARTS (the Hong Kong radio society) will be issuing some sort of award for contacts made with amateurs using these special prefixes. It has been agreed that the VRA-VRZ prefix block allocated by the ITU to the UK will be transferred to China on 1st July 1997 and will be used by the Hong Kong Special Administrative Region of the PRC after that date. Stations currently using VS6 callsigns will have new callsigns within this block, and amateurs on Pitcairn Island, currently using the VR6 prefix, will have to be allocated a new prefix before the changeover. From a DXCC point of view, Hong Kong will, I can only assume, cease to exist as a separate 'country' on 1/7/97 and, despite having a unique prefix, simply count as China.

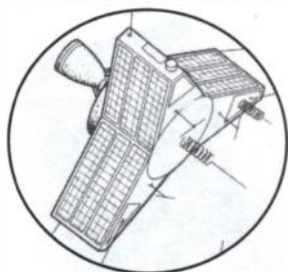
That's it for another month and, indeed, another year. A very Happy New Year to you all. As always, I warmly welcome your correspondence and photographs of HF interest.

(Please send your HF related news, views and photos to; Don Field G3XTT, 105 Shiplake Bottom, Peppard Common, Henley on Thames, Oxon RG9 5HJ - Ed).



QSL card of the 1996 ZL8RI operation (see text)

Satellite Rendezvous



Oscar 13: Drag has not been quite as severe as initially estimated, allowing AO-13 to be moved for a final session at a favourable attitude. The duration of this orientation is unknown, but on or before November 1st, reorientation will be necessary. Re-entry is still expected for the second week of December. The drag effects at perigee cause the ALAT to rise slightly each orbit. The initial orientation of this period was approximately ALON/ALAT 170/-10 with ALAT progressively rising during this time period.

The nominal ALON/ALAT for this orientation allows for much more favourable squint angles early in the orbit when AO-13 is relatively high in the northern hemisphere, without greatly affecting the currently excellent conditions for users in the southern hemisphere. This should be a very good orientation. Use and enjoy AO-13 during this final favourable attitude.

When this orientation becomes impossible to maintain, or by November 1st, AO-13 will be turned to its final attitude of ALON/ALAT 90/0. This will provide protection of the solar panels and omni-directional antenna from perigee heating and will reduce the drag associated deflection of the ALAT. From this point until the demise of the electronics AO-13 will be Mode-B only, full-time omni aerial, much as with AO-10.

James Miller, G3RUH says that the perigee height has been reducing at a rate of 1

Richard Limbear G3RWL with AMSAT-UK news on Oscar 13, the new UNAMSAT, and a future French MicroSa

km/day due to the forces which increased the orbit's eccentricity. Now the perigee height is so low (170 km) that when the satellite encounters the atmosphere it loses energy, and the orbit is tending to circularize, eccentricity is decreasing.

Mean motion is now increasing noticeably from its old value of 2.1 rev/day to 16 rev/day at re-entry. While this is happening, particularly in November/December, the published NORAD elements are always going to be stale and virtually unusable.

In addition, since Mean Motion has a direct effect on rise and set times, and if history repeats itself, we can expect the usual plethora of conflicting 'almost' Keplerian element sets lovingly massaged to perfection, that work for no-one else but their creators!

To try and bring some order out of this chaos, James has placed on the Internet, a file of some 200 2-line Keplerian element sets that represent Oscar-13 every orbit until re-entry. The file, which is about 12K bytes long, is available via anonymous FTP as: <ftp://ftp.amsat.org/amsat/satin/fo/ao13/decaykep.zip>

Up-to-date information about AO-13 operations is available on the AO-13 general (GB) and engineering (EB) beacons. The GB (145.812 MHz), when active, transmits bulletins and telemetry at 400 bps PSK, alternating with CW at 0 and 30 minutes past the

hour, and RTTY at 15 and 45 minutes past the hour. The EB (145.985 MHz), when active, transmits exclusively at 400 bps PSK. These bulletins are also posted to Internet, ANS, Packet, PacSats etc. Internet users who want the latest AO-13 information may check: <ftp://ftp.amsat.org/amsat/satin/fo/ao13/> or <http://www.amsat.org/amsat/Telemetry> is archived at: <ftp://ftp.amsat.org/amsat/satin/fo/ao13/telemetry/>

Oscar 10

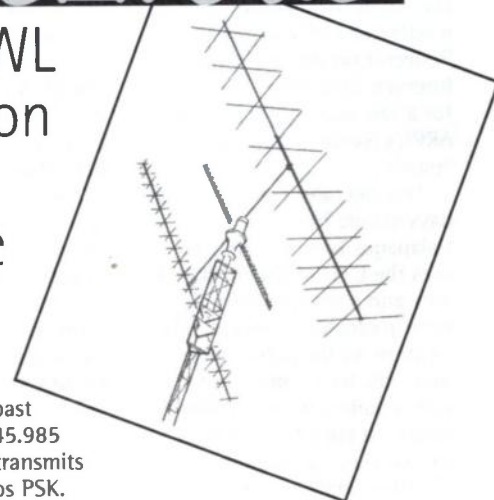
It's currently available in mode-B when in view but please do not attempt to use it if you hear the beacon or the transponder signals FMing. Generally it seems to close down whenever it goes out of sunlight.

Russian Satellites

Contacts with the Mir crew appear to be still happening on 145.550 MHz; John Blaha, KC5TZQ, has been heard often; he appeared to be having fun working the ground stations. He is not a polished DXer so be patient.

Micro/Digital Satellites

Starting September 1st UO-11 ground control arranged for the watch-dog timer to be reset automatically, every ten minutes. This appears to have cured the shut-down problem,



which has been happening over the past few months.

WO-18 has experienced many software crashes recently. Efforts are under way by the command team to identify the cause, and make the appropriate corrections.

FO-29

The spacecraft's communication system may be used if found to be switched on, but initial experiments are still in progress so don't be surprised if it is off sometimes. The BBS callsign is 8J1JCS.

There have been some comments about the strong signal in the middle of the analogue passband of FO-29 - it sounds like digital modulation. Please collect telemetry frames and send them to: jamsat-bb@ijnet.or.jp A World Wide Web Home Page has been established to provide information, the URL is: http://yyy.tksc.nasda.go.jp/Home/Press/Press-e/h2index_e.html (in English).

UNAMSAT

The UNAMSAT launch took place along with Cosmos-2334 from Plesetsk on 5th September. It has since been

named Mexico-Oscar-30 (MO-30). A first look at telemetry indicated that all was working OK. It was tumbling as expected, so the signal strength and polarization sense were changing randomly; it should have locked in to the earth's magnetic field by now. The transmitter was running at a 'safe' power level of about .2 to .3 Watts throughout the initial orbits. Examination of the down link eye pattern indicated the transmitter in use is in good shape but there have been some comments since then that the modulation had a small problem. Temperatures were a bit chilly but within nominal range and they may warm up as the stabilization system locks in. The solar arrays are generating power at the high end of the expected range and the batteries look to be in great shape.

One of their first tasks is to validate the coefficient file for the telemetry which will be released as soon as they have validated all parameters; this could take a while as there are numerous channels to be checked out over a period of several orbits.

The transmitters appear to be off at present but, when on, please continue to collect telemetry in KISS mode and send files attached to Email to wd0e@amsat.org. These data will be reviewed then archived for future comparison as changes are made and the hardware ages.

Downlinks:
UHF TX1 437.206 MHz
UHF TX2 437.138 MHz
(secondary).

Uplinks:
VHF CHA 145.815 MHz
VHF CHB 145.835 MHz
VHF CHC 145.855 MHz
VHF CHD 145.875 MHz

The modulation is the same as in the previous microsats.

On board they also have a 40.997 MHz pulse transmitter and a wide band receiver that will be looking for echoes produced on the ionized trails of meteors as they enter the

atmosphere. To listeners this will sound (roughly) like 50 WPM Morse code dots. The experiment has not yet been activated; additional software needs to be loaded before that experiment can be tested.

Ariane 502 launch

In a published report by the European Space Agency, they announced that the launch of Ariane 502 has now been tentatively set for mid-April, 1997. It was also confirmed that the Phase 3-D Satellite will be on this flight. The other payloads are to be a pair of technological measurement packages for validation of the launch vehicle's ability to place two satellites into a geostationary transfer orbit.

During the press conference, it was also reported that ESA's Atmospheric Reentry Demonstrator, along with an as yet unspecified commercial payload, is to be flown on the following Ariane 5 flight which has been made a part of the Ariane-5 qualification process; this flight could take place in September 1997.

WA2LQQ

Vern Riportella, WA2LQQ, ex-President of AMSAT-NA, died suddenly but peacefully on September 13 at his home in Warwick, New York. 'Rip' was 53 years of age; the cause of death was a heart attack. Martin Sweeting G3YJO, Chairman of Amsat-UK, has sent condolences on behalf of AMSAT-UK, UoSAT and SSTL to his family and friends.

AMSAT elections

Still in the USA, the results are out for the election for the three vacancies occurring this year on the AMSAT-NA Board of Directors. A total of 1645 ballots were cast and Tom Clark W3IWI, Keith Baker KB1SF, and Andy MacAllister WA5ZIB were returned to the Board.

Hans van de Groenendaal ZS5AKV has been elected as

President of SA AMSAT. Tony Reumerman ZS6AOG was elected as Vice President, Hennie Rheeder ZS6ALN as Satellite Development Manager and Laurie Deveraux ZS5DL as Secretary/Treasurer.

SUNSAT

While we're talking about South Africa, the launch of SUNSAT has been delayed till early August 1997. The delay is due to rescheduling by USAF of launch of the primary payload. The operational frequencies are currently being finalized and will be announced soon. SUNSAT information is also available on the SUNSAT home page <http://sunsat.ee.sun.ac.za>

French MicroSat

The next French amateur satellite, called 'Maele' is now under construction. It is a MICROSAT-class satellite weighing 50kg, and it is planned to carry a 9600 bps packet radio transponder similar to the UoSATs as well as an experimental transponder with speeds up to 19.2k bps. Besides the usual 145 MHz uplink and 435 MHz downlink frequencies, plans also now call for Maele to have a 1.2 GHz uplink and 2.4 GHz downlink transponder on board using experimental protocols. There are also plans for Maele to carry some form of Earth observation system. While no firm launch date or vehicle have been secured, the groups are now planning to have Maele in Low Earth Orbit by 1999.

AMSAT-UK news

Ron G3AAJ reports that, with the delay (from February) of the P3D launch, there may still time for folks to get their name placed on the satellite before launch. Cost of this is £150. Contact AMSAT-UK directly if you're interested.

Next year's Amsat-UK Colloquium will, very likely, be 24th to 27th July. If anyone still wants this year's

proceedings document they'd better hurry up as we are nearly out of stock.

For further information about Amsat-UK contact: AMSAT-UK, c/o Ron Broadbent MBE, G3AAJ, 94 Herongate Rd, London, E12 5EQ. A large SAE gets you membership info. SWL's are welcome. All new joiners get the USAT-P tracking program on 5-1/4in disk.



Latest Keplers

AMSAT-UK Keplers are put out on packet weekly sent to KEPLER @ GBR. The latest satellite Keplers as supplied by AMSAT-UK are also available by automatic fax retrieval from the 24hr Ham Radio Today fax-back line, 01703 263429 (use with a personal DTMF, i.e. 'touch-tone', phone/fax keypad - follow the voice menu), request fax document 5 from the satellite voice menu for this month's.

Oscar News' the
official journal of AMSAT-UK

AMSAT • UK OSCAR NEWS

The official journal of AMSAT UK for all users of OSCAR satellites



OCTOBER 1996
NUMBER 121



Club News

To include your club, or rally, in this section, make sure you send us your events details in time. We only list active clubs, i.e. those who send us their diary of planned talks/events, (due to space restrictions we can only include clubs who send us details of events and talks, not 'natter nights' for every meeting). DATES TO BE INCLUDED IN THE ISSUE PUBLISHED ON THE 31st JANUARY MUST REACH US BY THE 11th DECEMBER LATEST (some clubs are being missed out because their details arrive too late) addressed to; The Editor, Ham Radio Today (Club News), Nexus Special Interests Ltd., Nexus House, Boundary Way, Hemel Hempstead, Herts HP2 7ST, or direct to the Editor's desk by fax on 01703 263429 or by Email to hrt@netlink.co.uk

Appledore & District ARC meet on the third Monday each month, 7.30pm, at Appledore Football Clubroom, Devon. Club CW net: 8.00pm - 8.30pm every Wednesday on 28.200MHz, 8.30pm - 9.00pm SSB. Morse speed adjusted to the slowest sender. Planned club events/talks;
Dec 16th - Christmas party
For further details contact Dave Brierley G3YJG, Tel. 01237 476124

Aylesbury Vale RS meet on Wednesday evenings in the Village Hall in Hardwick, located off the A413 between Aylesbury and Buckingham. Club diary;
Dec 4th - G6NB construction contest
Jan 18th - Annual dinner
For further details and meeting times, contact Gerry Somers G7VVF, Tel. 01296 432234

Barnsley and District ARC meet every Monday (inc. Bank Holidays) at the Three Horseshoes, Brierley, near Barnsley (midway between Barnsley and Pontefract) at 7.30pm for 8.00pm. The club hold regular 'On Air' nights. Planned club events/talks;
Dec 9th - Natter night
Dec 16th - The GB3SY & GB3DV repeaters, by G4LUE
The club run a Novice Course. For further details contact Ernie G4LUE, Tel. 01226 716339 (6.00pm to 8.00pm).

Bristol ARC meet every Thursday, at the Scout Hut, Firtree Lane, St. George, Bristol. Planned club talks/events;
Dec 5th - Round table
Dec 12th - Air time/construction
Dec 19th - Merry Christmas
For further details contact David G4ZBT, Tel. 0117 965 4886, or Derek G7HYS, Tel. 01454 772662.
Internet: <http://www.gifford.co.uk/barc>

Bristol (South) ARC meet every Wednesday at the Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol. Club diary of events/talks;
Dec 4th - Annual club darts match
Dec 11th - Christmas social
Dec 18th - Christmas greetings from SBARC
Jan 1st - New Year's greetings
For more information and meeting times, Tel. 01275 834282 24hr. Answerphone.

City of Bristol Group meet on the last Tuesday in the month, 7.00pm for 7.30pm, at New Friends Hall, Purdown, Bell Hill, Stapleton, Bristol BS16 1BG. Club diary of events/talks;
Dec 17th - Christmas party
Further details can be obtained from Dave Bailey G4NKT, Tel. 0117 9672124

Bromley and District ARC meet on the third Tuesday of each month, 7.30pm for 8.00pm at the Victory Social Club, Kechill Gardens, Hayes, Kent. Club net; Sundays 11.00am on 145.350MHz FM. Planned events/talks;
Dec 10th - Christmas social
Jan 18th - AGM
Further details from Alan Messenger G0TLK, Tel. 0181 777 0420

Bromsgrove ARC meet on the second and fourth Tuesday of the month at Lickey End Working Men's Club, Burcot, Bromsgrove. Club diary of events/talks;
Dec 10th - Night on the air
Further details from Barry Taylor G0TPG, Tel. 01527 542266

Buxton ARC meet at the Lee Wood Hotel, Buxton, at 8.00pm on the second and fourth Tuesdays each month. Club diary of events/talks;
Dec 10th - Social evening
For further information contact Derek Carson G4IHO, Tel. 01298 25506, or G4IHO@GB7DAD
Cheltenham AR Association, meet on the first Friday

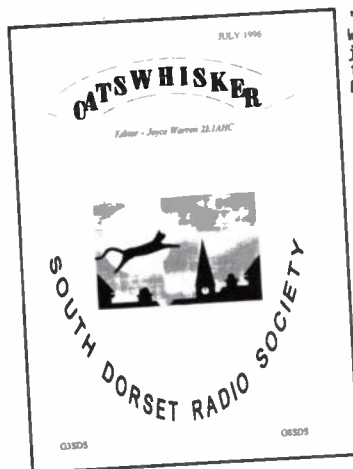
of the month at the Prestbury Library, The Burgage, Prestbury, Cheltenham, at 7.30 for 8.00pm. Visitors and prospective members welcome. Club nets, Wednesdays 8.00pm on S20. Mon & Thurs. 1.960MHz at 9.00pm. Planned club talks/events;
Dec 6th - AGM and social evening
For further details contact the Club Secretary, Mrs P.M. Thom G1NKS, Southern House, 9 Southern Rd, Cheltenham, Glos GL53 9AW, Tel. 01242 241099

Cornish RAC meet on the first Thursday each month, 7.30pm, at Perranwell Village Hall, near Truro. Planned club events/talks;
Dec 5th - Christmas party
For further details contact Robin G0MYR, Tel. 01209 820118



Cray Valley RS meet on the first and third Thursday of each month, 8.00pm at the Progress Hall, Admiral Seymour Road, Eltham SE9, club net 3.720MHz 8.00pm every Monday. Planned club diary;
Dec 5th - 78 inch record manufacture, G0GIR (tbc)
Dec 19th - Christmas meal
For further details contact Tony G4WIF, Tel. 0171 739 5057 office hours only.

Dacorum AR and TS meet alternate Tuesdays, at the Girl Guide Meeting Rooms (next to British Legion), Queensway, Hemel Hempstead. Club net every Wednesday, 19.30, on 144.725MHz. Planned club events/talks;
Dec 19th - Quiz evening
Jan 7th - Informal evening
For further details contact Ian Hamilton G0TCD, Tel. 01442 211925



'Cats Whisker' journal of the South Dorset Radio Society

South Dorset RS meet on the first Tuesday each month in the Games Building, Victoria Inn, Knights in the Bottom, Chickerell, Weymouth. All are welcome. The club run an RAE course at Purbeck School, Wareham. Planned club diary;
Dec 10th - Visit to the Eldridge Pope Brewery, Dorchester
Further details from John Rose 2E1ECK, 45 Ringstead Crescent, Weymouth, Dorset DT3 6PT, Tel. 01305 832057

Dover RC meets at Duke of York's Royal Military School, Guston, Dover on a Wednesday evening, 6.30pm to 10.00pm during term time. The club run Morse classes every Wednesday evening 7.00pm at the school, and hold regular 'operating and natter nights'. All ages over 8 welcome. Club net (The White Cliffs Net) on 3745kHz, 11.00am every Sunday morning. Planned club talks/events;
Dec 18th - Christmas social at the Sea Angling Club
For further details contact Brian Hancock G4NPM, Tel. 01304 821007

Dragon ARC meet on the first and third Mondays of each month at the Four Crosses Hotel, Petraeth Road, Menai Bridge, at 7.30pm for 8.00pm. Visitors and new members are welcome. The club run several special event stations throughout the year. Club diary of events/talks;
Dec 16th - Christmas party
Further details from the Secretary Tony Rees GW0FMQ, Tel. 01248 600963



Dunstable Downs RC, meet every Friday (except Bank Holidays), 8.00pm at Chews House, High Street South (A5), Dunstable, Bedfordshire. Visitors and new members very welcome, just drop in. Planned club events/talks;
Dec 6th - Computers, by Phill G8XTW
Dec 20th - Christmas party
For further details contact Paul G7TSJ, Tel. 01582 861936

Fakenham ARC meet on the first Tuesday each month at the Trinity Church Room, Hempton, 8.00pm, all are welcome. Planned club events/talks;
Dec 24th - Christmas Eve club nets, GX4LSF on air
Further details from Dave Jarrett, Tel. 01485 528633

Halifax and District ARS meet at 7.30pm on the first Tuesday each month, at The Tap and Spile Pub (formally Royal Oak), Clare Road, Halifax, for committee and Morse tuition. On the second and fourth Tuesdays they meet, 7.00pm, at Queens Road (note Queens Road is closed for some periods at school holidays). Planned club events/talks;
Dec 17th - Air Supply 'Air Traffic Control' (tbc)
Jan 21st - Before Marconi and Morse, G4ZVD
Further details can be obtained from Mr. D. Moss G0DLM, Beechwood Lodge, Lightcliffe, Halifax HX3 8NU, Tel. 01422 202306

Hastings Electronics and RC meet every third Wednesday of each month for their main meeting, at West Hill Community Centre, Croft Road, Hastings, and every Friday for a social evening, at the Sea Anglers Club, 16 Grand Parade, St. Leonards. The club is a registered City and Guilds examination centre, and also run RAE, Novice and Morse courses. Planned club events/talks;
Dec 20th - Christmas dinner
Jan 15th - Aerials for small gardens, Ian Keyser
For further details contact Reg Kemp G3YFF,] Tel. 01424 830454

Hoddesdon Radio Club meet alternate Thursdays at the Conservative Club, Rye Road, Hoddesdon from 8.00pm. SWLs and visitors very welcome. The club run Morse training classes. Club diary of talks/events;
Dec 19th - Christmas social
For more information contact Don G3JNJ, Tel. 0181 292 3678



Horndean and District ARC meet on the first and fourth Tuesday of each month, 7.30pm, at Lovedean Village Hall, Lovedean Lane, Lovedean, Hants. The first Tuesday is usually a 'Natter Night'. Visitors are welcome. Club nets are Sundays 1.955MHz 09.00hrs CW, 09.30hrs SSB, and Wednesdays 145.350MHz at 19.30hrs. Planned Club events/talks;
Dec 10th - Club Christmas dinner
Dec 24th - No meeting, Merry Christmas to all
Further details can be obtained from Stuart Swain, Tel. 01705 472846



Isle of Man ARS meet on Mondays, 8.30pm, at The Royal Naval Association, Regent Street, Douglas. The 1st Monday of the month is supplemented with a 30-60 mins talk of general interest to members, held at the TGWU building in Fort Street, Douglas. On Thursdays they have an informal get together, 9.00pm, in The Manx Legion, Douglas Street, Peel. Planned club events/talks;
Dec 9th - AGM
For further information contact Club Secretary Chris Wood G06TWF, 2 Lyndale Ave, Peel, IM5 1JY, Tel. 842786



Itchen Valley ARC meet on the second and fourth Fridays each month, at the Scout Hut, Brickfield Lane, Chandler's Ford, Hants (just up the road from SMC), 7.30pm for 8.00pm. Planned club events/talks;
Dec 13th - Slide show "Were you there?", by GOVNI
Further details from Sheila GOVNI, Tel. 01703 813827

Keighley ARS meet at the Cricket Club, Ingrow, near Keighley, every Thursday at 8.00pm. Many club meetings are 'Natter nights' and 'nights on the air', other events/talks include;
Dec 19th - Christmas buffet
Further details from Kathy Conlon G1IGH on 01274 496222

Leicester RS meet every Monday, 7.30pm, at The Chantry, Gilroes Cottage, Groby Road, Leicester. The HF and VHF shacks are available at each meeting, and have regular HF/VHF nights on the air combined with a general natter evenings. The club also run RAE, NRAE and Morse courses. Planned club events/talks;
Dec 16th - Quarterly progress meeting
Dec 16th - Christmas time! Mince pie and sherry!
For further details contact Stan Hay G3HYH, Tel. 0116 239 4367

Liverpool and District ARS meet at 8pm every Tuesday evening at The Churchill Club, Church Rd., Wavertree, Liverpool. They run RAE, Novice RAE and Morse courses every Tuesday evening beginning at 7.30pm and have regular 'on air' evenings. Planned club events/talks;
Dec 17th - Christmas social
For further details contact Ian Mant G4WWX, Tel. 0151 722 1178.

Lothians Radio Society meet on the second and fourth Wednesdays each month, 7.30pm, at Orwell Lodge Hotel, Colinton Road, Edinburgh. Planned club events/talks;
Dec 11th - Computers for the amateur
Jan 8th - Radio bygonees
For further details contact Tommy Main GM4DCL, Tel. 0131 663 8501, or GM3HAM@GB7EDN

Loughborough and District ARC meet every Tuesday (term time), 7.45pm, at Hindleys Community College, Shepshed, Leicestershire. Planned club events/talks;
Dec 10th - Unusual talk - A N Other
Dec 17th - Christmas drink, Black Swan, Shepshed
For further details contact Ian G8SNF, Tel. 01509 218259

Malvern Hills ARC meet on the second Tuesday each month, at the Red Lion, Malvern, Worcester. Planned club events/talks;
Dec 10th - AGM
Jan 14th - Club talk - Silicon micro chips
For further details contact Jim Davis G0OWS, Tel. 01684 576538

Mansfield ARC meet on the second Monday every month, 7.30pm, at The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. Visitors welcome. Planned club diary of events/talks;
Dec 9th - Christmas party
For further details contact David GORDP, Tel/Fax. 01623 631931, or Howard G1JGY, on Email howardk@proweb.co.uk

Medway ARTS meet 7.30pm on Fridays at Tunbury Hall, Catkin Close, Tunbury Avenue, Walderslade, Chatham. Morse practice, construction and Novice help available. Visitors welcome. Club diary;
Dec 6th - Video recorder servicing, Peter G0GIR
Dec 20th - Christmas party
Further details from Gloria G3VUN, 40 Linwood Ave, Strood, Rochester, Kent ME2 3TR, Tel. 01634 710023

Newbury and District ARS meet on the fourth Wednesday each month at the Bucklebury Memorial Hall, Bucklebury near Thatcham, at 7.15pm. Planned club events/talks;
Dec 11th - Social evening
Jan 24th - Junk sale
For further details contact the club secretary, Tel. 01635 863310

Norfolk ARC meet every Wednesday at The Norman Centre, Bignold Road, off Drayton Road, Norwich, 7.30pm for 8.00pm start. Informal meetings are usually held on alternate Wednesdays, where it is a night on the air, construction QRP and Morse practice evening. Club diary of events/talks;
Dec 18th - Christmas dinner
Jan 15th - Wireless the inside story, Mike G4UUB
Further details can be obtained from Mike G4EOL, Tel. 01603 789792.

South Normanton and Alfreton District ARC meet at the Community Centre, New Street, South Normanton, every Monday (except Bank Holidays) at 7.30pm. Visitors very welcome. Planned club events/talks;
Dec 9th - Night on the air
Dec 16th - Christmas party
For further details please contact Russell Bradley G0OKD, Tel. 01773 863892

Nottingham ARC meet every Thursday, 7.30pm. in the Sherwood Community Centre, Mansfield Road, Nottingham. Visitors interested in amateur radio, whether as a transmitting amateur or SWL, are most welcome. Forthcoming events/talks include;
Dec 12th - Christmas quiz
Dec 19th - Christmas social
Jan 2nd - Natter night
For further details contact Jo 2E1BSN, Tel. 0115 9691436



Plymouth Radio Club meet Tuesdays, 7.30pm, at the Royal Fleet Club, Devonport, Plymouth. All newcomers welcome. Planned club diary;
Dec 17th - Sherry and mince pie evening
For further details contact the Public Relations Officer, F. P. Russell, Tel. 01752 563222

Preston ARS, meet every Thursday evening, 7.00pm, at the Lonsdale Sports and Social Club, Fulwood Hall Lane, Fulwood, Preston, Lancs. The club run Novice and Morse classes on Thursday evenings every week and have regular general discussion / night on the air evenings. Planned club events/talks;
Dec 19th - An illustrated talk
Further details from Eric Eastwood, Tel. 01772 686708

Salisbury Radio and Electronic Society meet at the 3rd Salisbury Sea Scout Hut, St. Mark's Ave, Salisbury, on Tuesdays at 7.30 for 8.00pm. The club run RAE classes. Planned club activities;
Dec 10th - Christmas party and social evening
Jan 14th - AGM
For further details contact George Tollefson G7OAM, Tel. 01722 329398



Shefford and District ARS meet every Thursday, 7.45pm, at the Church Hall, Amphil Road, Shefford, Beds. They run a Novice course on alternate weeks have regular activity nights. All newcomers are welcome. Planned club events/talks;
Dec 12th - Aerials and propagation
Dec 19th - Chairman's mince pie evening, all welcome
Jan 9th - Welcome back
Further details contact Derek Clarkson G4JLP, Tel. 01462 851722

Silverthorn RC meet every Friday, 7.30pm. at the Adult Education and Community Centre, Friday Hill House, Simmons Lane, Chingford, London E4 6JH. A warm welcome is given to everyone. They offer Morse tuition and tests, and have a fully equipped shack with packet radio facilities for members to use, plus regular 'on air' and social evenings. Planned club diary of events/talks;
Dec 20th - Christmas party
For further details contact Andrew Mowbray, G0LWS/G1NPT, at above address, or from Dave G0KHC, Tel. 0181 505 1871, or packet to G1NPT @ GB7TUT.

Southgate ARC meet on the second and fourth Thursdays of each month at the Winchmore Hill Cricket Club Pavilion, Firs Lane, Winchmore Hill, London N21. Meetings are held each 2nd and 4th Thursdays of the month, between 19.30 and 22.00. The club also runs Novice licence courses and have regular 'on air nights'. Planned club diary of events/talks;
Dec 12th - AGM
Dec 26th - No meeting
For further details contact M. E. Viney G0ANN, 20 Auckland Road, Potters Bar EN6 3ES, Tel. 01707 850146.



Stourbridge and District ARS meet on the first and third Mondays each month (except bank holidays), at the Robin Woods Centre, Scotts Road, Stourbridge. The first Monday is usually an 'on air and natter night'. Visitors always welcome. Planned club events/talks;
Dec 16th - Christmas festivities
Further details from Gordon Bryant G0TZV, Tel. 01384 395206

Stratford upon Avon Et District RS meet on the second and fourth Mondays, at the Home Guard Club, Main Road, Tiddington, Stratford upon Avon, at 7.30pm. The club also run an RAE course (write to Mr. J. Harris, 57 Evesham Road, Stratford upon Avon CV31 2PB, enclosing an SAE, or Tel. 01789 295257 for details). Club events/talks include;
Dec 9th - Quiz plus computer question Et answer session
Dec 25th - Christmas greetings on the air
Jan 13th - Annual dinner Et social
Further details from Club Secretary Jeff Porter G4OHU, Tel. 01789 773286

Mid Sussex ARS meet on the first and third Fridays each month, 7.45pm, at Marle Place Further Education Centre, Leylands Road, Burgess Hill, West Sussex. Club shack open all other Friday evenings. The club also run RAE and NRAE courses (contact John G0OIO, Tel. 01444 450957 for details) and have regular 'operating evenings'. Club net; Sundays 8.00am 3.740MHz (+/- QRM), 11.00am 145.350MHz FM, 8.00pm 70cm Novice net on GB3HY. Planned club events/talks;
Dec 6th - Christmas quiz and mince pies
Dec 7th - Annual Christmas dinner
Dec 13th - Shack night
Further details from Mike G0GNV, Tel. 01444 241407

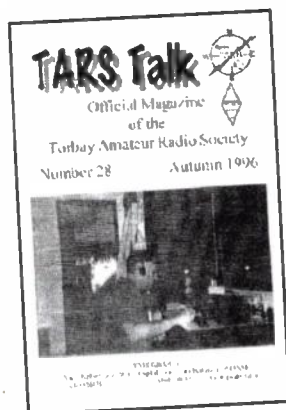
Sutton and Cheam RS meet on the first Thursday (natter night) and third Thursday (formal meeting) each month, 7.30pm for 8.00pm at the Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton, Surrey. Club 'natter freq' 70.3875MHz, Club nets; 20.30 Mon starting on 145.500MHz then QSY, Tue at 10.30 on 3.760MHz. Club talks/events;
Dec 19th - Christmas buffet Et get together
Jan 16th - 100 years of radio, by John G0GNA
For further details, Tel. 0181 644 9945



Swindon and District ARC meet every Thursday evening, 7.00pm, at the Eastcott Community Centre, Savernake Street, Old Town, Swindon. The club hold regular 'natter and operating' evenings. Visitors and new members always welcome. We're told that those considering preparing for the RAE and Morse tests, will always find experienced operators and skilled technicians to provide support and advice. Planned club events/talks;
Dec 19th - Informal Christmas get-together, Carpenters' Arms, South Marston.
For further details contact Ian G3YBY, Tel. 01793 770838, or Den G7PDV, Tel. 01793 822705

Three Counties ARC meet on the second and fourth Thursdays each month, 8.00pm, at the Bramshot Institute and Parish Club, which is in the middle of the village of Liphook. All welcome, non-members please contact an official in advance so you can be 'signed in' as a guest visitor. Club slow Morse net; Monday, 8.30pm, 144.050 or 144.070MHz, CW changes to FM voice on S22 around 10pm. Planned club events/talks;
Dec 12th - Radio quiz - test your knowledge
Jan 23rd - Club dinner
For further details contact Damian Kamm G7RFV, Tel. 01428 724456



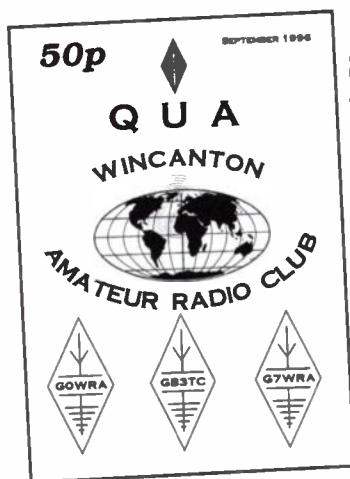


'TARS Talk' journal of the Torbay Amateur Radio Society

Torbay ARS meet every Friday at the ECC Social Club, Highweek, Newton Abbot at 7.30pm. They have informal meetings most Fridays with a talk/event once a month, details as follows;
Dec 20th - Christmas party and quiz
Jan 24th - Construction night (the year's projects)
Further details from Peter G4VTO, Tel. 01803 864528 (day works No.)

Wakefield and District RS meet every Tuesday, 8.00pm, in the first floor rooms, Ossett Community Centre, Prospect Road, Ossett, West Yorks. We're told the club has a well equipped station, library and licensed bar and run Morse and Novice classes. The club net is on 2m FM on Mondays. Club diary;
Dec 10th - Tropospheric openings - how they come about, by G2FKZ
Dec 17th - Christmas social
For further details contact Bob Firth G3WWF, 6 Eastfield Drive, Woodlesford, Leeds LS26 8SQ, Tel. 0113 282 5519, or via packet G3WWF @ GB7WRG

Mid-Warwickshire ARS meet on the second and fourth Tuesdays each month, 8.00pm, at 61 Emscote Road, Warwick. Planned club events/talks;
Dec 17th - Christmas get-together
For further details contact G8HRI, Tel. 01926 424465



'QUA' journal of the Wincanton Amateur Radio Club

Wincanton ARC meet on the first and third Mondays (except bank holidays - then second and fourth) in the Community Lounge, King Arthur's Community School, Wincanton, Somerset BA9 9BX at 7.30pm. Planned club events/talks;
Dec 16th - Lecture - the postcode challenge, by G3ZXX
Jan 20th - AGM
For further details contact Tim Stellar G6RCT, Tel. 01963 31788

Winchester ARC meet on the third Friday of the month, 7.30pm, at the British Red Cross Centre, Durngate House, Winchester (adjacent to North Walls Police Station). Club diary;
Dec 20th - Christmas party
For further details contact Peter Simpkins G3MCL, Tel. 01962 865814



Wirral ARS meet at The Club Room, Ivy Farm, Arrowe Park Road, Wirral L49 5LW, every Tuesday ('Natter Night') and every Wednesday each month, meetings besides those below are usually 'activities' nights. Planned club events/talks;
Dec 18th - Christmas party
Jan 15th - Oliver Lodge, a talk on his experiments in radio showing his actual equipment
For further details contact John Phillips G3PXX, 18 Rockfarm Drive, Little Neston, South Wirral L64 4DZ, Tel. 0151 336 4452

Wirral and District ARC meet at 8.00pm, at the Irby Cricket Club, Mill Hill Road, Irby, Wirral, every second and fourth Wednesday each month, and have regular DEW evenings every first and third Wednesdays at various other locations. Planned club events/talks;
Dec 11th - Chairman's night
Dec 25th - No meeting
Jan 8th - Natter night, questions & answers evening
For further details contact Phil G0JSB, Tel. 0151 677 1947, or @ GB7OAR

Yeovil ARC meet every Thursday at 7.30pm, at the Red Cross Centre, 72 Grove Avenue, Yeovil, Somerset. The club run Novice and RAE courses, plus Morse tuition if required, by arrangement with G3GC. All are welcome: Club nets, Sundays 10.30 on 3.665MHz (80m SSB), Tuesdays 20.30 on 145.350MHz (2m FM) and Fridays 20.00 on 3.550MHz (CW). Club events/talks;
Dec 5th - The First transatlantic amateur radio signals, by G3MYM
Dec 12th - Cruising with an inverted L, by G7SDD
Dec 19th - Social evening with mince pies and RF
Further details can be obtained from Malcolm Sadler G7WAL, Tel. 01460 54657

National and International

British Amateur Radio Teledata Group (BARTG) have a quarterly magazine, 'Datacom', and hold a rally and HF RTTY contest each year. For more details about the group contact their Secretary Ian Brothwell, G4EAN, 56 Arnot Hill Road, Arnold, Nottingham NG5 6LQ, Tel. 0115 926 2360, or via packet G4EAN @ GB7NOT.

British Amateur Television Club, are particularly active with Amateur Television (ATV) - the transmission and reception of vision. They produce a quarterly magazine entitled 'CQ-TV' and have regular get-togethers at their rally stands, and hold their own rally each year. For details of BATC membership write to; Dave Lawton, 'Grenehurst', Pinewood Road, High Wycombe, Bucks HP12 4DD.



'SPRAT' quarterly journal of the G-QRP Club



The G-QRP Club have stands at many rallies

G-QRP Club publish a quarterly journal, 'SPRAT', devoted to low power communication, and hold regular get-togethers at their rally stands throughout the country. For membership details, contact their Secretary, Rev. G. Dobbs, St. Aiden's Vicarage, 498 Manchester Road, Rochdale, Lancs. OL11 3HE. Tel. 01706 31812. Internet: g3rjv@gqrp.demon.co.uk

International Short Wave League who as well as running an International QSL bureau for amateurs and SWLs, have a monthly magazine and regular get-togethers at their rally stands plus several on-air nets on HF and VHF. For more details send an A4 sized SAE to; ISWL HQ, 3 Bromyard Drive, Chellaston, Derby DE73 1PF. Internet: http://www.ober.ac.uk/~srj5/iswl.html

The Irish Radio Transmitters Society publish regular newsletters giving details of local activities, and the yearly IRTS Callbook, they also have a video library. Their contact man is Dave Moore EI4BZ, 12 Castle Ave, Carrigtwohill, Co Cork. Tel. (Eire) 021 883555, or by Email; jryan@iol.ie

Radio Amateurs' Emergency Network (RAYNET) can be contacted at Hunters Moon, Newton le Willows, Bedale, N. Yorks DL8 1SX. 24hr national emergency contact line; 0141 621 2121. The RAYNET Training Team produce a quarterly newsletter for people interested in the National Training Scheme, and can be contacted at P.O. Box 2, Chinnor, Oxon OX9 4JY.

The Radio Amateur Invalid and Blind Club are a registered charity who raise money for radio/computer equipment, and audio cassette courses for home study, for blind, deaf and disabled amateurs. Information from Vice Chairman Margery Hey, Tel. 01953 454920. The club attend rallies throughout the year, and collect surplus equipment for resale. If you have equipment to donate, contact Ian 2E1EGV, Tel. 01274 723951. The Northern Ireland Club collect unwanted tokens or vouchers (e.g. petrol etc.), these can be sent free of charge to; The Charities Appeal Officer, RAIBC NI, Freepost BE 1789, Belfast BT15 3BR.

Radio Amateur Relief Expeditions (RARE) is a registered charity made up of Radio Amateurs and friends who take aid to eastern Europe and organise summer camps for young people to learn about Amateur Radio, English language and life in the UK. New members required to support this work both at home and by taking part in expeditions. Please contact The Secretary, RARE, 1 Allfield Cottages, Condoval, Shrewsbury SY5 7AP, Tel. 01743 873815. Fax. 01743 874729 Packet; G6FHM@GB7PMB. Email; rare@donsun.demon.co.uk

Radiocommunications Agency are the licensing authority for all UK radio amateurs. They have a large number of free publications, including the booklet 'How to Become a Radio Amateur', and their 'Novice Licence Information' sheet, and can offer advice on many aspects of licensing. They're currently in alternative temporary offices: New Kings Beam House, 22 Upper Ground, London SE1 9SA). Direct Amateur Radio line; Tel. 0171 211 0160. General enquiries; Tel. 0171 211 0211, answerphone service; Tel. 0171 211 0591



Radio Society of Great Britain (RSGB) are the National Society who have been representing UK radio amateurs and short wave listeners for many years. They are based at Lambda House, Cranbourne Road, Potters Bar, Herts EN6 3JE, Tel. 01707 659015.

Internet site: <http://www.rsgb.org>

United Kingdom Radio Society (UKRS) are a newly formed National Society (see 'Radio Today' Sept '96). They can be contacted at Box 100, Meadow Street, Northwich, Cheshire, CW8 1FA. Tel. 01606 783270, or 0115 925 6597. Via Packet RADSOC@GB70AR (please send as an 'SP' message), Email: admin@ukrs.org Internet site: <http://www.ukrs.org>

Subscription Services Ltd. handle the issuing of amateur licenses in the UK, on behalf of the Radiocommunications Agency. They can help regarding enquiries concerning individual licences (rather than general licensing matters which the RA handle, see above). Contact details: The Radio Licensing Centre, SSL, P. O. Box 884, Bristol BS99 5LF, Tel. (manned 8.30am - 10.00pm, Mon-Sat inclusive) 0117 925 8333.

UNITED KINGDOM
RADIO SOCIETY

Rallies

If you're travelling a long distance to attend rallies, we recommend you contact the organisers of the events first, to check if there has been any changes since this magazine went to press. If the magazine is informed of any changes, the information will immediately be available on the 24hr Ham Radio Today Voicebank and Fax-back line, Tel. 01703 263429.

December 8th

SDX DX PacketCluster Support Group Electronics and Computer Rally, Maryhill Community Centre Halls, Maryhill Road, Glasgow (located approx. 1 mile from Junc.17 M8 and five minutes walk from St. Georges Cross underground station). Featuring traders, lectures and RSGB Forum attended by members of the RSGB General Council. Refreshments are available, talk-in on S22. Entrance fee Adults £2.00, OAP & UB40 holders £1.50, Children under 14 free with an adult. For further details contact John Dundas GMOOPS, Tel. 0141 638 7670, or Packet @ GB7SAN, GB7SDX

December 15th

Verulam ARC Rally, at the Watford Leisure Centre, Horseshoe Lane, Garston, Watford, Herts, off the A405 near M1 junction 6 and M25 junction 21A. Open 10.00am to 4.00pm. Featuring trade stands, bring & buy, grand raffle, cafe, licensed bar and free parking. Morse tests will be available. For further details contact Walter G3PMF, Tel. 01923 262180, or Ralph G1BSZ, Tel. 01923 265572

January 19th

Oldham ARC Mobile Rally, the Queen Elizabeth Hall, Civic Centre, West Street, Oldham, Lancs. Doors open 11.00am, 10.30am for disabled visitors. Featuring Traders and Bring & Buy stall. Morse tests available on-demand. Talk-in on S22 via GB4ORC, mobile contact prize up to 2.00pm. Refreshments and free parking available. For further details Tel. 01706 846143, or 0161 652 4164

February 2nd 1997

12th South Essex ARS Rally, The Paddocks, Long Road, Canvey Island, Essex (situated at the end of the A130). Featuring amateur radio, computer and electronic component exhibitors, Bring & Buy, on-demand RSGB Morse tests (two passport photos required), homemade refreshments, free car parking with space at the entrance for disabled visitors. Doors open 10.30am, admission £1.00. For further details contact David G4UVJ, Tel. 01268 697978

Harwell ARS Radio & Computing Rally, Harwell Science and Engineering Centre, 1 mile west of A34 between Oxford and Newbury. Featuring trade stands, Bring & Buy, bar, light refreshments and craft exhibitors. Doors open 10.00am. Talk-in on S22. Admission £1.00, children free. For further details contact Arthur G0KOC, Tel. 01235 815399, or see our home page <http://www.rmpc.co.uk/eduweb/sites/ntaylor/rally.html>

February 16th

Northern Cross Rally, Thornes Park Athletic Stadium, Wakefield. One large hall - just out of town on the Horbury Road. Easy access from M1 junctions 39 & 40, well signposted with talk-in on 2m & 70cm. Doors open 11.00am (10.30am for disabled visitors and bring & buy). For further details contact Peter G0BQB, Tel. 01924 379680

March 8/9th

London Amateur Radio & Computer Show, Lee Valley Leisure Centre, Picketts Lock Lane, Edmonton, London N9. Doors open 10.00am to 5.00pm each day. Featuring Trade Show, Bring & Buy, On-demand Morse Tests, Talk-in on 2m & 70cm, Special Interests Groups, disabled facilities, priority admission for disabled visitors, bars, restaurants, ample free parking, lectures. For details please telephone 01923 893929

May 11th

Drayton Manor Radio and Computer Rally, Drayton Manor Park, Fazely, Tamworth, Staffs (on A4091). Featuring main traders in four large marquees, large outside flea market, bring and buy, local radio clubs and special interest group stands. Open from 10.00am onwards, a great day out for all the family. Further details available from Norman G8BHE, Tel. 0121 422 9787, or Peter G6DRN, Tel. 0121 443 1189 evenings please.

May 25th

Plymouth Radio Club Rally, Plymouth College of Further Education, Kings Road, Devonport. Doors open at 10.30am, 10.00am for disabled visitors. Admission £1.00. For further details contact; Stephen Ramsden G7UXL, Tel. 01752 662051 office hours, or 777189 after 9pm.

June 27th to 29th

Ham Radio '97 Friedrichshafen, Germany Europe's largest gathering of over 20,000 ham radio enthusiasts, by the shores of the Bodensee (Lake Constance) at the Messe Friedrichshafen. Wide and varied selection of interests, immense trade presence with 280 exhibitors from 40 countries, large flea market, on-site camping and caravan facilities. For further venue/rally details Tel. +49 7541 7080, Fax. +49 7541 75290. Accommodation/tourist information; Tel. +49 754121729

July 6th

The York Radio Rally, will be held in the new Knavesmire Building, York Racecourse, York. Doors open 10.30am. Admission £1.50. Children accompanied by adult free. Ample free parking. Featuring amateur radio, electronics and computers, Morse tests and repeater groups. Refreshments and licensed bar. Talk-in on S22. For further details contact Pat Trask G0DRF, Tel. 01904 628036



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IC-R7000 communications receiver, voice synthesiser plus controller boards fitted, will also run off 12V DC, £600 ono. Buyer collects. Graham (Ellesmere, Shrops), Tel. 01691 622368

3TBA Hustler beam, never assembled, brand new, £275, yard too small, would take good HF-5B + cash in p/exch. Also wanted; 40ft pump-up mast, or exchange 3TBA + cash for TR-751E multimode. Details to; Tom GOGQJ (Cornwall), Tel. 01872 572535

Realistic PRO-2035 base scanner, 25-30MHz with airband, immaculate condition, wide range coverage, 1,000 channels, boxed with manual, £250 ono. Contact 'Mac' (Northampton), Tel. 01327 842285 anytime.

Linear amp, UK 6m Discovery with 1kW coaxial relay, used 33 short QSOs only, cost £1,295, as new, £850. Alan (Cornwall), Tel. 01736 62809

WANTED
Phasing capacitor, 120-140 MED, 50V AC for Ham II or T2X
Tailltwister aerial rotator. Dave G3WQG, 25 Willow Close, Flackwell Heath, HP10 9LH, Tel. 01628 522973

Yaesu FT-707 needs replacement mode change switch N0190014. Details on how to obtain this out-of-date part to kenny Allen, 25 Knockgreenan Ave, Omagh, Co.Tyrone BT79 0EB, Tel. 01662 246371, or packet G14RSI@GB7TED, or email kenny-allen@welbni.tfnnet.org

Racal add-on's urgently wanted, your price for LF adaptor RA137. Also aerial unit MA197B. Have other units to swap or sell, will collect anywhere. Also has anyone got RA37D, urgent, your price. John (Staffs), Tel. 01538 385735 anytime.

Display unit for Timestep DFC70 counter. Also circuit and manual for model 504-A Set Tester by Supreme Instruments Corp. of America, and for restoration project any Marconi V2 parts, fair price paid. GW3PDW (Pembbs), Tel. 01437 891017

Base/mobile scanning aerial. Also magnetic loop, any make. HF vertical aerial/mobile. Dual band handheld with extended receive, any make. Mr. Howlett (Herts), Tel. 01438 750450

Eddystone receiver mounting blocks, vibrator power unit and

Cat. No. 688D loud speaker. MCR1 receiver coils 2, 3 and 4 and it's AE trimmer knob. Hallicrafter S20 'S' meter. HRO 4-way coil box. Andrew Humphriss (Warwick), Tel. 01926 400876

Radio software TX/RX for Applemac IICX. Tom Stalker, 73 New Edinburgh Rd, Uddingston G71 6AB, Tel. 01698 816793

Morse key, prefer twin paddle but anything considered. Also any information that will help me to pass the RAE. Also G5RV, full or half size. Peter (Welling, Kent), Tel. 0181 854 9589

Emotator rotator control boy, needs 6 pin connection. Ivan G7SNC (Norfolk), Tel. 01603 721209

Eddystone items: Any old or scrap receivers for spares, anything considered! Also models 890, 930, 940, 960, 1000 series to complete collection. Please look in your loft now! Peter Lepino (Surrey), Tel. 01372 454381, or 0374 128170 anytime.

Motorola GP300 radio chargers, Speaker/mics, batteries. Gary G6NYH (Northampton), Tel. 01604 882067

EXCHANGE
Trident scanner, 500kHz to 1300MHz, AM, NFM, WFM, 1000 memory channels, 10 search banks, leatherette case plus charger and manual, for general coverage receiver, ATU or VHF convertor, or WHY? Bill (Strathclyde), Tel. 01236 762473

Kenwood TM-441E UHF mobile, boxed, has new CTCSS fitted, exchange for FT-690 or good 6m radio. 2E1ENE (Derby), Tel. 01332 761177

Please have a look in your cuboards and draws, has anyone out there got a Weathersat MRS receiver and interface, plus software for BBC-B or BBC Master computer, in exchange for 12 assorted PMR handhelds, some with chargers. Mr. C. Powis (Birmingham), Tel. 0121 788 8447

MFJ 1278 multimode data controller, boxed with manuals, requires 12V DC, decodes VHF/HF Packet, RTTY, ASCII, CW, WEFAX, SSTV, has RS-232 TTL and printer ports. Exchange for good quality base scanner or WHY? W. Johnston (Bournemouth), Tel. 01202 422273

HRT Vol.14 No.13

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Date.....*Send this coupon to: Free Readers Ads, Ham Radio Today, Nexus Special Interests Ltd., Nexus House, Boundary Way, Hemel Hempstead, Herts, HP2 7ST.*

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All-Mode HF Transceiver FT-1000MP



The year was 1956. Electronic communication throughout the world was on the threshold of significant and remarkable change. Intrigued by the development of single-sideband radio theory, a young engineer and amateur radio experimenter painstakingly assembled an SSB transmitter. Word of his successful efforts spread quickly among his friends, and soon radio amateurs from all over the country were requesting transmitters just like it. Thus was born the first invention of JA1MP, founder of Yaesu. Though his key is now silent, in tribute to his leadership and exceptional contributions to the radio art, the FT-1000MP carries the memory of his call sign.

An HF Masterpiece, Combining the Best of Digital and RF design technology. The FT-1000MP.



Specifications

- EDSP (Enhanced Digital Signal Processing)
- Shuttle-jog Rapid Tuning Enhancement
- Directional Tuning Scale for CW/Digital mode and clarifier offset display
- Dual In-Band Receive w/ Separate S-Meters
- Selectable Antenna Jacks
- Collins SSB Mechanical Filter built-in, 500 Hz CW Collins filter plug-in, optional
- Selectable Cascaded Crystal and Mechanical IF Filtering (2nd and 3rd IF Filters)
- User-programmable Tuning Steps w/0.625 Hz High Resolution Low-Noise DDS Circuit
- Custom Feature Set-up via New Menu System
- Adjustable TX Output Power: 5-100W (5-25W AM)
- True Base Station: Both 100-117 or 200-234 VAC 10%, 50/60 Hz and 13.5 VDC Power Inputs

Blending digital and RF technology, the FT-1000MP features a Yaesu exclusive: Enhanced Digital Signal Processing (EDSP). Beginning on the receive side with Yaesu's industry-standard high-intercept front end design, the RF signal is then fed to the IF stages, where an impressive array of 8.2 MHz and 455 kHz IF filters (including a built-in Collins SSB Mechanical Filter) establish the tight shape factor so important in obtaining high dynamic range and low noise figure. Finally, the EDSP system provides specially-designed filter selections and response contours for maximum intelligence recovery.

Only with this combination of EDSP, independently selectable 8.2 MHz and 455 kHz IF filters, and a low-noise DDS local oscillator system can receiver performance without compromise be obtained. You can customize your FT-1000MP by choosing from 20 kHz, 500 Hz, and 250 Hz optional, cascaded IF filters, then zero in on weak signals using Yaesu's exclusive Shuttle-jog Rapid Tuning Enhancement and high-resolution (0.625 Hz) DDS VFO. Without question, the FT-1000MP is the most technologically advanced HF rig today.

EDSP operates in both transmit and receive modes. On receive, the EDSP produces enhanced signal-to-noise ratio and significantly improved intelligence recovery during difficult situations involving noise and/or interference. The result of hundreds of hours of laboratory and real-world experimentation, EDSP's 4 preset random noise reduction protocols and 4 digital filtering selections are controlled by easy-to-use concentric controls on the front panel of the transceiver. High, low, and mid-range cuts for voice work are teamed with razor-sharp CW bandpass filters and an automatic notch filter which identifies and attenuates undesired carriers or heterodynes. Also operational in the transmit mode, EDSP provides 4 performance-enhancement pattern selections for different operating circumstances, ensuring best readability of your signal on the other end of the path.

Once again, Yaesu's engineers have reaffirmed the vision and dedication of JA1MP which began nearly 40 years ago. See the incomparable FT-1000MP today.

The FT-1000D continues to offer unsurpassed performance for the serious DX'er who requires a full 200 Watt Power output packaged with full Cross-Band Dual Receiver Capability.

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IC-W32E

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