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FT-2500 VHF 50 W mobile ..... RRP £399.95 ASK PRICE £330.00
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FT-10R/A06 VHF handheld ..... RRP £249.95 ASK PRICE £220.00
FT-10R/A06 VHF handheld ..... RRP £269.95 ASK PRICE £235.00
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Ham Radio TODAY

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Cleartone CM6000 conversion to 2m

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RADIO

WATERS & STANTON OPEN DAY A SUCCESS

On a hot windy Sunday, 1st June, Waters and Stanton held their seventh annual Open Day, which they tell us was their most successful yet. *Ham Radio Today* staff were there in the shape of Andy Forder from the Head Office and our Tech Ed. Chris Lorek G4HCL, who manned our stand right in the entrance hall. We were joined by representatives from major manufacturers such as David G5HY from Kenwood UK (on the 'next door' stand to Ham Radio Today), Dennis G4SOT from Icom UK, Barry G4RKO from Yaesu UK, and staff from the RSGB. The entire car park area was covered with marquees packed with a mixture of junk, clearouts, ends of line, and bargain secondhand goods. Even half an hour before 'opening time', a substantial queue had already formed, and over 400 visitors attended throughout the day. As well as visitors being treated to a number of free raffles during the day as well as food and drink, in the afternoon Mark Francis from Waters and Stanton held his now-famous 'bargain auction', where many visitors left with superb bargains. A brand new, boxed VHF/UHF aerial for just a pound? Yes, there were plenty there! Our Tech Ed came away with one, as well as a 'clearout' FT-101EE in immaculate condition for just £45, now fully operational from his shack, and a fully working 2m synthesized Kenwood portable for £25. We're told that plans are already in hand for an even bigger event next year, which is Waters & Stanton's 25th anniversary year. From the success of this year's event, we'll certainly be going along! Will you?

Before the doors had even opened, many bargain hunters were already in attendance. Mark Francis stands at the entrance, ready to 'open up'.

A steady line of visitors attended throughout the day, enjoying free raffles and 'clearout

Plenty of bargains were to be had

An impressive display of new equipment and accessories from Waters and Stanton

Andy Forder (L) and Chris Lorek (R) stand ready to welcome visitors to the Ham Radio Today stand

HALKYN AND DISTRICT ARS

The well-attended Inaugural Meeting of a brand new Society in North Wales took place on Wednesday 4th June. Eddie Hewins, GW3GSJ, and Albert Thompson, GW0IZR, were elected Caretaker Chairman and Secretary/Treasurer respectively. Their duties will be to get the Society 'up and running' pending elections for a full Committee in September. A full range of activities is envisaged, but as with all new projects, maytake a little time to achieve.

The Society welcomes all radio amateurs, short wave listeners and kindred spirits. They tell us they have within the current membership, a wealth of enthusiasm and expertise which typifies Amateur Radio. Meetings take place on the second and fourth Wednesdays of each month at Halkyn Cricket Club, near Holywell, Flintshire at 8.00pm. Visitors and prospective members are very welcome. Further information can be obtained from Eddie Hewins GW3GSJ, Tel. 01352 780334

POOLE RADIO SOCIETY NATIONAL NOVICE CONTEST

This takes place on Sunday 21st September 1997, and is designed to give Novices their first taste of contests. The rules are specifically designed to be simple and easy to comply with, encouraging the greatest possible participation.

1) *Date and Time*. The contest takes place on Sunday 21st September from 14.00 UTC (3.00pm local clock time) to 16.00 UTC (5.00pm local clock time).

2) *Bands / Power etc*. Contestants can use the 50 MHz (6m) and 430 MHz (70cm) bands, using only those sections of the bands, modes and powers permitted by the Novice licence, and in accordance with published band plans. Stations working Novices using CW are particularly asked to ensure that they send no faster than the Novice station.

3) *Sections*. Here will be a single section for all Novices. The station should be operated by the Novice licence holder throughout the contest in accordance with the Novice licence. Help and encouragement in setting up stations and logging etc. is welcomed subject to licence conditions. The same basic callsign must be used throughout the contest. (e.g. 2E1JHG and 2W1JHG/M are the same station).

4) *Locations*. Stations may operate from up to two locations during the contest. Stations entering may switch between the two locations as they wish. A location is any area of land within a circle of 10 metre diameter.

5) *Exchange*. Each station may only be contacted for points once on each band. Usual reports should be exchanged for the mode being used (e.g. 57 on phone, 579 on CW). In addition some indication of location (such as locator, county, town, village) must be exchanged. Serial numbers are not essential for this contest, but please make sure you log the time of each QSO accurately. A typical exchange might be "2W1GHF this is 2E1JHG, You are 5 and 4 in Poole, Dorset".

6) *Scoring*. Scoring is very simple. Novices score 3 points per QSO. No points will be available for duplicate contacts, even after a change of location. No points will be available for QSOs through repeaters etc. There are no multipliers.

7) *Logs*. Logs should be sent to Colin Redwood, G6MXL, 45A Lulworth Avenue, Poole, Dorset, BH15 4DH to arrive in time for adjudication over the first weekend of October. Any recognizable paper log sheet will be accepted, provided it contains for each QSO, the time, band used, callsign of station worked, reports exchanged and location of station worked and points claimed. We're told that RSGB HF or VHF log sheets can photocopied from recent RSGB call books, and that these will make the adjudicator's job a lot easier. Separate log sheets for each band should be used. Make sure that you include your own callsign, name and address, and details of the location(s) used for the contest. Please add up your score for each band and in total and write it somewhere clearly on the log sheet. Check Logs from all listeners and transmitting stations will be very welcome.

8) *Winners*. The winning station on each band and overall, will each receive a small cup to retain. All entrants will receive an A4 certificate for entering and a summary of the results, providing that a large enough stamped addressed envelope is enclosed with your entry. Certificates and results summaries will also be available to anyone sending in a check log on the same basis. Please indicate the names of each operator, if more than one operator requires a certificate.

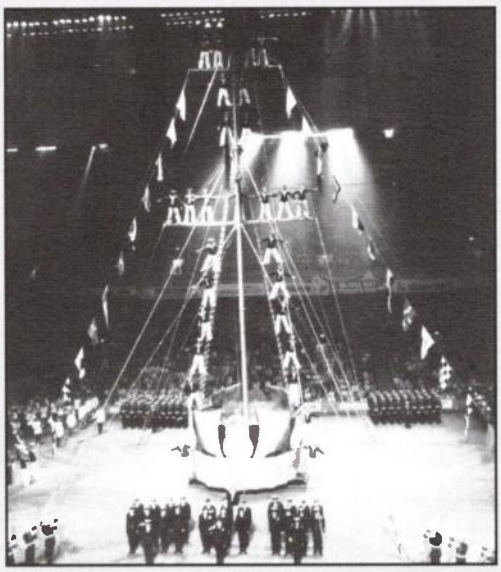
ATC AT THE ROYAL TOURNAMENT

At this year's Royal Tournament at Earls Court from the 15th to 27th July, the Air Training Corps (ATC) will be operating an HF and VHF/UHF Special Event Station, callsigns GB4ATC, G3ATC and G8RT. It will on the air between 12.00 and 21.00 hours local time for the duration of the Tournament. The station will also be operating on 2m and 70cm, specifically transmitting on 70cm each weekday between 19.30 and 20.30 hours, to give Novice Licence holders an opportunity to contact the station. It is hoped to have Novice operators at the special event station to reply.

Air Cadets will be on-hand to pass and receive greetings messages, alongside will be a demonstration station operated by the Cadets using their own allocated frequencies. Arrangements are also being made for Cadets to communicate with aircraft.

For further information please contact Malcolm R. O. Wood, Tel. 0171 438 6053

Kings Troop Royal Horse Artillery



The Royal Tournament Mast Manning by the Royal Navy

RAE AND NOVICE COURSES

Ham Radio Today has been informed of the following RAE courses due to start in September:

Bury Radio Society will be running an RAE course at The Mosses Centre, Cecil Street, Bury, Lancs BL9 0SB. For further details write to the Club Secretary, Steve Gilbert G3OAG, at the Mosses Centre address.

Carrickfergus ARC will be running an RAE course in Downshire Community School, Downshire Road, Carrickfergus. Enrolment takes place on Tuesday 9th September at 7.00pm. All are welcome. For further details contact John Branagh GI3YRL, Tel. 019603 67208

Hilderstone ARC tell us they will again be running an RAE course due to begin in late September. The venue will be centred on East Kent. They say the course is an entertaining and well received course, usually containing one or two practical projects and demos. For further details contact Club Secretary, Vince DeRose G0CLO, Tel. 01843 869812.

Newbury Technical College will be running an RAE course commencing 11th September (Course No. 99018A). They also plan to run a Morse Code course from 6th January 1998. For further details Tel. 01635 35353, or 01672 870892

An RAE course is planned at ***Northfields School, Dunstable, Bedfordshire,*** commencing 24th September. The course tutor will be G3WLM. For further details contact Mrs J. Enright, Tel. 01582 868285

Swindon Technical College plan to run an RAE course commencing 15th September (course No. UFF30S). For further details Tel. 01793 498300, or 01672 870892

Trowbridge & District ARC will be running an RAE course from their club headquarters at Southwick Village Hall, Southwick, Trowbridge, Wiltshire. For further details contact Course Tutor Chris Parnell G0HFX, Tel. 01225 764874, or Club Secretary Ian Carter G0GRI, Tel. 01225 864698.

Widnes & Runcorn ARC will be running both RAE and Novice RAE courses at The Beacons, Symonds Lane, Frodsham, Cheshire. Enrolment takes place on Friday 5th September from 7.30pm. Further details may be obtained from Course Tutors Dave Bibby G1PIX, Tel. 01928 591401 and Dave Wilson G7OBW, Tel. 01270 761608

STOLEN EQUIPMENT

Multicomm 2000 tell us they had a quantity of dual band handheld transceivers and scanners taken from their stand at the Elvaston Castle Rally. The items listed do not have boxes, aerials, or any accessories with them. Multicomm say they would like to offer a substantial reward for the recovery, or information leading to the recovery of these items. These comprise of:

Icom ICR-10	*Serial No. 00235938*
Alinco DJG-5EY	*Serial No. T005830 (including large battery pack)*
Welz MS-1000	*Serial No. E010158*
Netset PRO-44	
Realistic PRO-43	
Yaesu FT-415	*Serial No. 161954*
Icom IC-32E	
Icom ICW-21E	
Icom ICT-7E	
Yupiteru MVT-7000	
Yupiteru MVT-9000	
Standard C528	

Also eight Uniden Bearcat 9000XLT scanners were taken overnight from the Pickett's Lock Rally in March. Serial No.'s 65004569, 65004584, 65004616, 65004612. The serial No.'s of the other four are not known.

If you have any information which might help, please contact Multicomm 2000 on 01480 406770. All calls will be kept confidential. Remember that Ham Radio Today maintains a national stolen equipment register, accessible to anyone 24hrs a day by fax-back, on our Voicebank and fax-back information line, Tel. 01703 263429. The above serial-numbered equipments have of course been added to this listing.

WORKED ALL CARIBBEAN SEA AWARD

The W.A.C.S. (Worked All Caribbean Sea) award is an aluminium plate of 15x21cm on a blue velvet support, that represents the Caribbean zone. It's available to licensed amateurs and SWLs who have worked at least 33 countries in the list below, on the HF bands (i.e., 160-10m, WARC included), using modes of CW, SSB, RTTY, or mixed Each claim must be accompanied by a list showing full details of confirmed QSOs. Contacts with the statement of two radio amateurs certifying that all the QSL cards are in possession of the applicant. Alternatively, all QSL cards must be submitted in photostat. A fee of 20 IRCs or 15$ will be charged per plate that will decorate your shack! Send your request to the Award Manager: IK7NXU Gaetano "Jim" Giorgino Via M. D'Azeglio 116 or Box 114 I-70031 Andria (Ba) Italy. For further information by Email; *ik7nxu@usa.net*

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8P Barbados
9Y Trinidad and Tobago
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CO Cuba
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P4 Aruba Is.
PJ Netherlands Ant.
PJ5 St. Maarten
TG Guatemala
TI Costa Rica
TI9 Cocos Is.
V2 Antigua and Arbuda
V3 Belize
V4 Saint Kitts-Nevis
VP2E Anguilla Is.
VP2M Montserrat
VP2V British Virgin Is.
VP5 Turks and Caicos Is.
XE Mexico
XF4 Revillagigedo Is.
YN Nicaragua
YV Venezuela
YV0 Aves Is.
ZF Cayman Is.

LICENCE REVOCATION

The Radiocommunications Agency tell us they have revoked the Amateur Radio licence of Mr. D. Randles, M0AUT. No further information was given on this case.

TRADE TOPICS

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. Where indicated however, full and unbiased reviews of products are planned for a forthcoming issue of Ham Radio Today.

LOW COST CTCSS UNIT

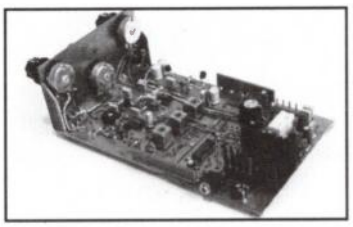
If you're looking for a low-cost add-on CTCSS option for your rig, Duncan G8KNF of East London Communications tells us that his company manufacture a range of modules used by PMR companies, with prices starting at under ú10. They also stock PMR programming hardware, replacement fist mics, and power lead tails. For more information, contact Duncan on 0181 503 3828 weekdays, or their Customer Service Line, 0181 559 2485 (available 7 days a week 9.00am ƒ 9.00pm). Please mention Ham Radio Today magazine when enquiring.

NEW CUSHCRAFT CATALOGUE

Cushcraft Antenna Corporation of New. Hampshire, USA, have just produced a new full colour catalogue of their range of amateur radio aerials and accessories. The catalogue is available free of charge from Waters and Stanton Electronics, Tel. 01702 206835, Fax. 01702 205843 (please mention Ham Radio Today magazine when enquiring).

LOPEN CW TRANSMITTER KIT

The Lopen is a 1.5 Watt CW transmitter working in the 1.5 to 15MHz range. Its primary purpose is to give full band CW coverage when used with a Martock receiver (capable of operation on any single band between 20 and 160m). When used together, the receiver's VFO drives the transmitter and a special offset circuit allows the frequency to be adjusted either up or down to suit the receiver sideband being used. The offset is very easily set with the Net facility. The Lopen can also be used with its own 'crystal' oscillator, based on an actual crystal or a ceramic resonator. The kit is supplied with a 3.582MHz ceramic resonator for 80m and the offset preset can then be used as a tuning control with a range of about 40kHz down from the nominal frequency. The third possibility is to drive the Lopen from an external VFO. The kit includes semi break-in TR control, aerial changeover, muting and a sidetone oscillator. It is supplied as a 100 x 80mm PCB with all hardware for joining to the Martock. The normal price for the Lopen is ú29 plus ú1 P/P, but when ordered with the Martock the pair costs ú62 plus ú1 P/P. For further details contact Walford Electronics in Somerset, Tel/Fax. 01458 241224 (please mention Ham Radio Today when enquiring).



The Lopen CW transmitter attached to the Martock receiver

NEWS FROM NEVADA

Nevada are pleased to announce they now have their first shipment of the new SGC SG 2000 'PowerTalk' HF transceiver with DSP. They say the ruggedised transceiver is ideal for heavy duty mobile, marine or fixed station use, featuring a removable control head, advanced DSP noise reduction and 150W output.

Also the company tell us they were recently appointed exclusive distributor for AEA data products from the USA. This appointment follows the purchase of AEA by Timewave Technology Inc. Timewave intend to improve and develop the AEA range during the coming year, and streamline production techniques. The first benefit is a price reduction on the popular PK12 TNC, which will be reduced in price to £99.00. The new Timewave produced units should now be available.

For further details on any of the above, contact Nevada, 189 London Road, North End, Portsmouth, Hants PO2 9AE,

Tel. 01705 662145 *(please mention Ham Radio Today when enquiring).*

The new SG 2000 Power Talk HF DSP transceiver

Phil Jeffery Commercial Manager of Nevada, with Randy Gawtry President of Timewave Technology, the new owners of AEA, at the recent Dayton HamVention

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HAM RADIO TODAY PUBLICATION DATES

With the change to publishing Ham Radio Today every four weeks rather than each calender month, I'm sure many readers are becoming baffled at the actual date each magazine issue will appear. We hope this brief list of publication dates is useful.

Issue No.	Publication date	Copy deadline
Vol.15 Iss No.9	15th Aug '97	4th Jul '97
Vol.15 Iss No.10	12th Sept '97	31st Jul '97
Vol.15 Iss.No.11	10th Oct '97	29th Aug '97
Vol.15 Iss No.12	7th Nov '97	26th Sep '97
Vol.15 Iss No.13	5th Dec '97	24th Oct '97
Vol.16 Iss No.1	2nd Jan '98	17th Nov '97

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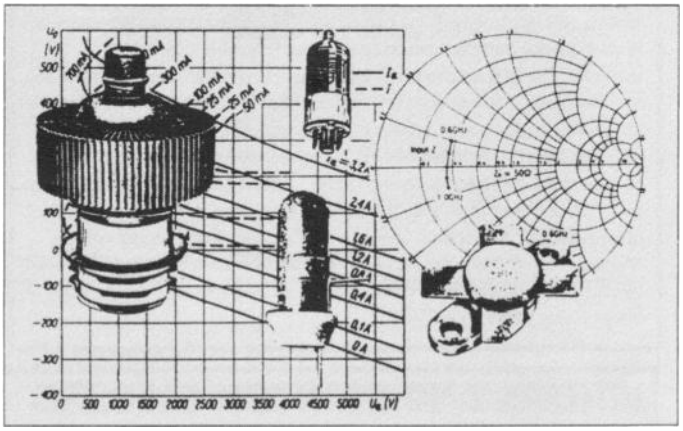

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CQ FROM G8IYA EDITORIAL

Are we prepared for the move to 12.5kHz channel spacing on 2m and 70cm, or is no-one going to bother?

A number of discussions are occurring on air regarding the move to 12.5kHz channel spacing on 2m and 70cm. A typical conversation could go like this; "When are we all supposed to go over to 12.5kHz spacing?", "It's already in force, we should be moving over to it right now", "But no-one's using narrow deviation", "No but they will be, "You mean we all have to get our rigs modified", "Yes, that's right", "But it'll never happen", "It will!", "Well I'm not going to bother".

Some other amateurs, being possibly a little more realistic, are asking which rig manufactures are actually now supplying equipment specifically built for 12.5kHz operation, i.e. with 2.5kHz peak deviation (as opposed to 5kHz peak as at present) and with narrow IF filters fitted. The on-air reply, quite often, is either "none" or "I don't know". Right now, to the best of my knowledge there are only the FT-736R and the IC-706 transceivers which have narrow/wide channel spacing 'built in', and with credit to the manufacturers it's even switchable from the front panel.

CHANGEOVER

There will undoubtedly be a 'gradual' changeover across Europe, although amateurs in some countries, Poland for example, have been using 12.5kHz channel spacing for some time already. A comment I recently heard on my local 2m repeater was from a UK amateur who'd just returned from a trip to Poland where he'd been trying to use his 25kHz channel spacing rig with it's 5kHz deviation, being told that we amateurs in the UK are 'backward' in still using old technology!

Technically, it isn't too difficult

at all for rig manufacturers to equip their sets for 12.5kHz channel spacing instead of 25kHz. Also, because of the differening models they already have for differing market areas, it shouldn't create too much of a logistical problem. To explain this, you may already be aware of the common suffix on ham equipment type numbers of "E" for European market version sets, and of "A" for US market area sets, for example "IC-225A" and "IC-225E". The main difference is usually the incorporation of a 1750Hz toneburst and different frequency limits for transceive coverage, e.g. 144-146MHz and 430-440MHz TX for Europe, with 144-148MHz and 440-450MHz or greater for the US. Thus, as an 'E' model is already being made to a different specification, the incorporation of different filters etc. shouldn't be too much of a problem.

WHAT ABOUT EXISTING RIGS?

But that doesn't really help us at the moment, with our existing rigs in use and with many years of life left in them, does it? From looking through reviews of VHF/UHF FM transceivers in Ham Radio Today, which for many years have *all* included measured figures for 12.5kHz adjacent channel rejection, 'technical bods' may find that particular sets could already have reasonable performance on receive for this channel spacing, and all that's needed is a quick adjustment on-air of the peak transmit deviation. Other rigs will need a filter change as well, maybe more than one filter for some sets. This means getting inside with a soldering iron, or getting an amateur radio dealer's service department to do it for you. Maybe some dealers will take the initiative and even offer a 'while you wait' service, maybe even during a special 'open day' or even, say, a given Saturday each month, where a number of amateurs in a given area can get their sets either modified or simply 'checked over' at a low 'walk-in' cost?

But this will naturally cost money, and many amateurs are quite capable of doing the job themselves provided they have step-by-step information on what's needed. 'Knowledge is power'. But what do you need to change? Do you in fact need to change anything? Again, from the questions and answers I and several others have heard, there are a lot of unknowns at the moment.

FEATURE NEXT MONTH

With this in mind, I've already set my Consultant Technical Editor to work in preparing a comprehensive technical feature on this, planned for next month's issue. It'll give details of which sets need 'doing', what needs to be done, and probably most importantly how you, the amateur, can get your rig going on 12.5kHz *without* needing to use expensive test equipment to accurately set the transmit deviation and so on. Also, did you know that one UK distributor of a given make of Japanese amateur rigs (no, they're *not* a direct retail outlet) is already taking steps with a collation of information of filter types, adjustment points etc. Other's just say "give us time, it's early days yet". Which manufactures *are* indeed planning to incorporate 12.5kHz spacing instead of 25kHz in their new rigs, and when will these be available? You might find out in the next issue.

A 'hard fact' that can't be ignored is that, in the not too distant future, I'm told that *all* 2m and 70cm repeaters in the UK will operate with 12.5kHz channel spacing specifications. If they don't by a given date, I'm told they will be unlicensed and must be taken off air. If you're active on the VHF/UHF bands, or you intend to be in the future, then the next issue of Ham Radio Today could be something to watch out for!

Sheila Lorek G8IYA

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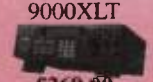

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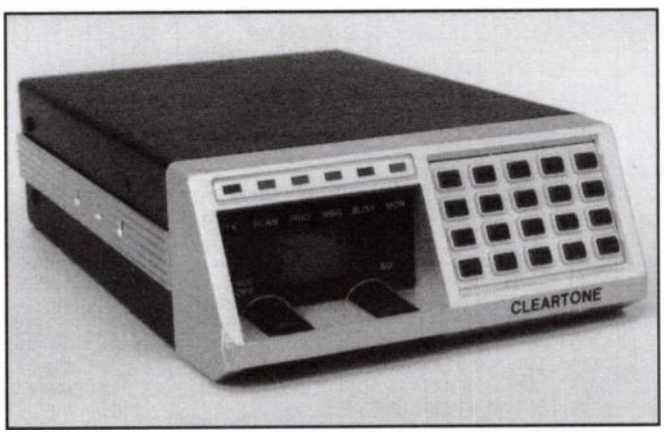
Feature

CLEARTONE CM6000 CONVERSION

Mike Rowe G8JVE shows how to convert the Cleartone CM6000 ex-PMR transceiver to 2m

There have been a substantial number of requests for information on the packet system for conversion details of the CM6000 transceiver. The CM6000 is a synthesised VHF transceiver, microprocessor controlled, which is designed to give approximately 25W RF output in the PMR high band.

The receiver has good sensitivity and operates with 12.5kHz spacing. The set was originally made by Regency in the USA and imported and re-badged by Cleartone. It's constructed around an extruded aluminium centre chassis, one side housing the receive, synthesiser and TX driver, the other containing the PA assembly.



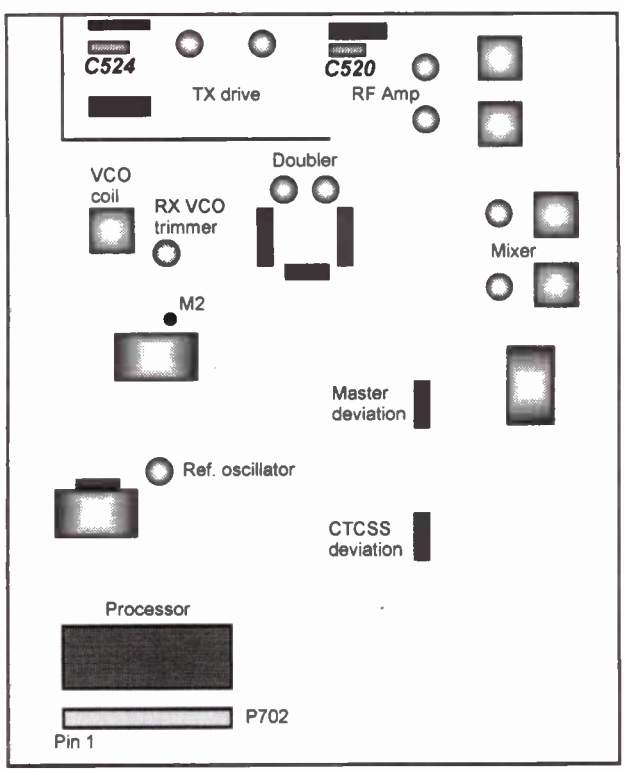
The Cleartone CM6000 transceiver

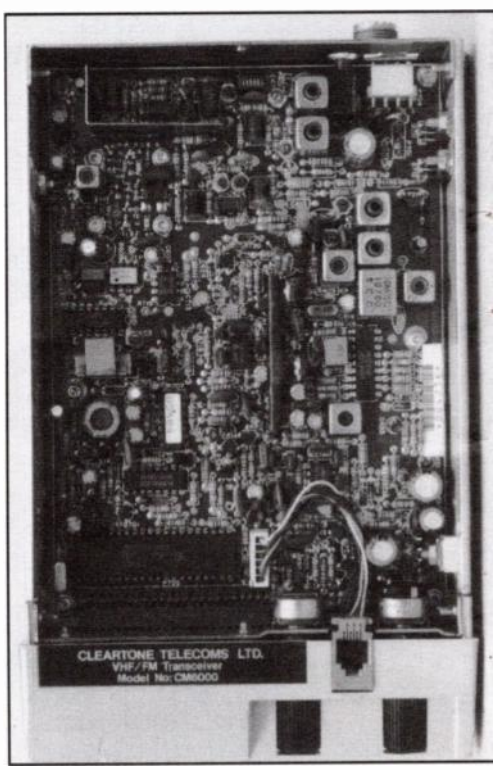
IDENTIFICATION

There are two types of chassis, one is easily programmed via the keypad, the other requires a special programmer which was issued by Cleartone to its dealers. As far as I know this is not now available, as Cleartone no longer support the CM6000. The two types are easily identifiable. One method is to look at the front panel, if this is sloping it is fairly certain that the set can be programmed via the keypad. The best method is to remove the cover on the mic socket side and look for the row of pins - P702 - located between the processor and the right angled connector, through the front chassis upright (see Fig.1).

If the set has a 10 way connector (arranged in 2 rows of 5) by the side of the large wire-wound resistor with a crystal strapped to it, this is the type which requires the programmer. Unfortunately in production, Cleartone did produce some sets with a sloping front panel which had the later type of PCB which requires the programmer, so the sloping front panel is not a guarantee that the set is keypad programmable.

If in doubt about the type of chassis you have, check for the row of pins, P702, located between the processor and the right angled connector





PROGRAMMING THE SET

Locate P702, and fit a shorting link from pin 10 to chassis. Turn on the radio, and enter the programming mode by pressing 'P PRIO' and '10' keys. The display will now blink. The unit is now in the programming mode where it will remain until turned off.

Key in the receive frequency in kHz (6 digits). If you want to program a 12.5kHz frequency, subtract 2.5 from the desired frequency and key in 6 digits. If you want 145.6375 key in 145.635. Select the Simplex/Half Duplex mode (1 digit), 0 for Simplex, 8 for Half Duplex. Select the transmitter operation (1 digit), 0 for normal TX/RX operation, 4 for RX only, TX disabled.

Key in the CTCSS code from the accompanying table (2 digits). Then key in the TX CTCSS code (2 digit code). This step does not have to be done when programming a simplex channel with the same CTCSS code. The TX code must be entered if programming a half duplex channel. Press 'ENTR' on the keypad.

Press the channel number the data is to be entered in. Note when pressing the '10' digit on a 16 channel set, the '1' starts blinking waiting for the second digit to be entered (for channels 11 to 16). If the second digit is not entered within about 3 secs the digit stops flashing and reverts to '1' and the data will be programmed into channel 1. Repeat the above for each channel to be programmed.

Delete any unprogrammed channel by pressing 'DEL' button followed by the 'ENTR' button and the channel to be deleted. Exit the programming mode by switching off and removing the short circuit.

REVIEWING THE PROGRAM

The contents of the program may be viewed at any time. Enter the program mode, press the 'MAN' button on the keyboard. Using the 'ones' digit, the radio will display the programmed data in the order in which it was programmed. Each digit will be displayed for about 2 secs before going on to the next one.

SETTING THE VCO

After programming, the VCO may be set as follows. Connect a voltmeter to TP M2, set the set to TX, and adjust the VCO coil for a reading of about 5 volts. Return to RX and adjust the receive trimmer to give a similar reading. The VCO runs at half signal frequency, and is followed by a frequency doubler which is common to both TX and RX.

RX ALIGNMENT

Although Cleartone list some band conscious components on the circuit diagram, I have not found it necessary to change these. Feed a strong signal into the aerial socket, and adjust the frequency doubler trimmers to give maximum receive. Reducing the signal input as necessary, align the RF and Mixer trimmers for best signal to noise ratio. You should achieve approx. 0.25µV sensitivity. The filter matching and discriminator coils should not normally need to be touched, assuming the set was working correctly on its original frequency.

TX ALIGNMENT

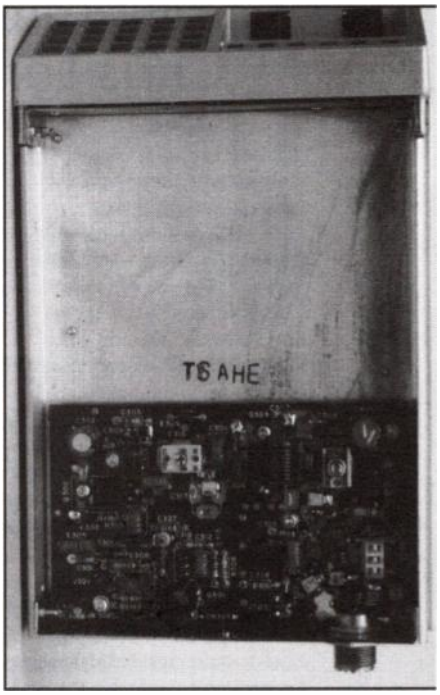
I found it improved the TX if I changed C520 to 68pF and C524 to 47pF. These are in the TX driver circuit. Connect a diode probe to P303 and adjust the trimmers in the driver stage for maximum reading. Turn the set over, connect a power meter to the aerial socket and adjust the trimmers for maximum power. Cleartone do give the following modifications to the PA for operations between 136 and 150 MHz, but on my set these were not necessary. However you may wish to incorporate them.

Change L301 to 4.5t
Change L310 to 3.5t
Change L311 to 6.5t
Change C321,C324 and C314 to 47pF

When tuning the PA final trimmers, it seems to be normal that these are pretty well screwed fully in even when on the original higher frequency. I found that I achieved about 20 watts power output from my set. But beware, there is no APC on the final stages, so a poor VSWR in the original (Taxi?) installation may have damaged the PA and Driver transistors.

If you have any queries regarding this conversion, please address them to the author Mike Rowe G8JVE, 97 Old Worthing Road, East Preston, Littlehampton, W. Sussex BN16 1DU, enclosing an SAE if a reply is required - Ed. Any reported updates to this project will be available on the 24hr Ham Radio Today Voicebank line, Tel. 01703 263429 for at least 3 months following publication.

Top interior view of set



CTCSS PROGRAMMING CODE

Code	Freq. Hz	Code	Freq. Hz	Code	Freq. Hz
00	No CTCSS	13	103.5	26	162.2
01	67	14	107.2	27	167.9
02	71.9	15	110.9	28	173.8
03	74.4	16	114.8	29	179.9
04	77.0	17	118.8	30	186.2
05	79.7	18	123.0	31	192.8
06	82.5	19	127.3	32	203.5
07	85.4	20	131.8	33	210.7
08	88.5	21	136.5	34	218.1
09	91.5	22	141.3	35	225.7
10	94.8	23	146.2	36	233.6
11	97.4	24	151.4	37	241.8
12	100.0	25	156.7		

FT-920 HF AND 6M TRANSCEIVER REVIEWED

A comprehensive on-air and full technical review by Chris Lorek G4HCL of Yaesu's new HF and 6m multimode transceiver

You've probably seen the glossy adverts for this rig, you may also have heard amateurs talking about it on-air. You may have even worked someone on-air who's been using one. But is this new multimode rig as good as it's 'hyped up' to be? I was very pleased in being presented with the UK's first review sample to test for Ham Radio Today readers.

The Yaesu FT-920 transceiver is a real 'man's size' radio.

OPENING UP

My first impressions after opening the packing box are that the transceiver is a real 'man's size' radio. It certainly isn't small at 410mm (W) x 135mm (H) x 316mm (D), and it uses a substantial cast metal chassis to give a solid feel. However, by not using an internal mains power supply, being powered from 13.8V from your own external 22A DC supply, the weight is kept reasonably low.

Besides giving transceive coverage on the amateur HF bands together with a general-coverage HF receiver, 6m transceive is also fitted together with 48-54MHz receive coverage. The large dark-grey plastic front panel contains a wealth of operating control knobs, buttons, and an large orange-backlit LCD which is also used for a multi-section bargraph meter. Separate displays and tuning knobs are provided for VFO 'A' and VFO 'B', but note the FT-920 *doesn't* have a twin receiver - it's simply to make switching between the two VFOs somewhat easier.

AUDIO DSP

One of the set's 'key' features, in my opinion at least, is the built-in DSP system. This uses a fast, 33 million instructions per second LSI system, and operates in the audio stages of the transceiver on both receive and transmit. For receive audio filtering, a large, dual concentric control is fitted on the right hand side of the front panel to adjust the lower and upper audio frequency roll-off points. A variable-level DSP noise reduction circuit is also fitted, together with an automatic audio notch filter.

The transmit audio can be filtered in four different modes as well as 'off', with menu-selected filter positions of either wideband, high, mid-high frequency accentuation, or a 'tailored' position with mid-frequency cut. A DSP-based audio speech processor is also available, and a voice monitor facility lets you hear what your transmitted audio actually sounds like.

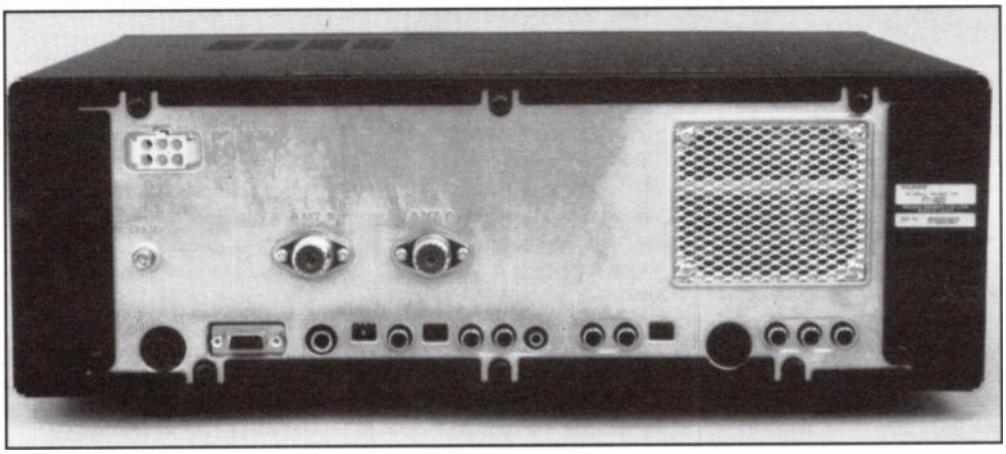
DIGITAL STORAGE AND REPLY

A digital voice recorder is fitted as standard, which provides four separate transmit speech memories, two of eight seconds

each and two of four seconds each, as well as providing a recording facility of incoming speech.

For CW enthusiasts an internal CW memory keyer is also a standard fitment, this including four 50 character and two 20 character memories as well as an incrementing contest/QSO serial number generator.

It certainly isn't small at 410mm (W) x 135mm (H) x 316mm (D)



A variety of accessory connectors are fitted on the rear panel, together with a 9-pin RS-232 connector. Two aerial sockets, selectable from the front panel, are also fitted.

MODES AND FILTERS

The transceiver offers CW, SSB, AM and Data (AFSK or FSK) modes of operation, with FM being available as a plug-in option although CTCSS encode for repeater access is fitted as standard within the set. A single 2.4kHz receiver bandwidth is provided for the fitted modes, although optional 500Hz CW and 6kHz AM crystal filters can be fitted, the FM unit having its own 455kHz IF and ceramic filter.

On transmit, the set offers up to 100W output with 25W on AM. The transmit power can be adjusted down to around 10W in 'normal' use, and for QRP or VHF/UHF transverter use a front-panel button push converts the adjustment range from zero up to a maximum of 10W. Two aerial sockets are fitted which are selectable from the front panel, and a menu facility lets you set the maximum transmit power output from each aerial socket to either 10W, 50W or 100W, again useful for transverter interfacing.

There's a built-in automatic aerial tuner, which, besides being useful for 'trimming up' the presented SWR on transmit, can also be used in the receive path to give a better 50 ohm match as well as an extra degree of RF filtering. The receiver section uses one of two switchable front end amplifier stages, either a JFET or a MOSFET stage. It normally 'defaults' to the JFET for bands up to 21MHz to give good strong-signal handling, with the MOSFET used on the usually quieter bands of 12m, 10m and 6m to give a better receive sensitivity, but they can be selected on a band-by-band basis should you wish.

A variable level noise blanker is fitted, together with an IF shift control and switchable 6dB, 12dB and 18dB receive attenuators complement the variable RF gain control. An 'IPO' button switches out the front-end receiver amplifier to give a higher intercept point when needed to guard against strong-signal overload on receive.

Besides the two main switchable aerial connectors, further receive path input and output phono-style connectors are also fitted. Besides this letting you connect a separate aerial on receive, controlled from a front-panel switch, using these connectors as a 'loop-through' also lets you use an external preselector, receive preamp, filter or whatever on receive, or even a separate external receiver.

A variety of accessory connectors are also fitted on the rear panel, together with a 9-pin RS-232 connector which can directly interface with a PC COM port for CAT control with appropriate software.

A substantial fused DC lead and spare 30A fuse are supplied, a fist microphone with fitted up/down control buttons, plus a 95 page instruction manual with circuit/block diagrams.

ON THE AIR

My initial impression, after having used the FT-920 on air for just the first evening, was that it was a sheer delight to use. Throughout the review period, this impression was strengthened as the days went by. The received SSB audio was superb, likewise reports on my transmit audio, the built-in DSP audio speech processor being very effective. The variable DSP low and high-cut filtering gave a 'brick-wall' response, especially useful for data and CW modes. Through careful use of the receiver QRM-fighting facilities not once did I suffer any effects from strong signal interference. The audio notch filter was also superb, this quickly 'locking onto' even multiple unwanted heterodynes, including unwanted CW signals when I was operating on SSB. I particularly found the DSP variable 'Noise Reduction' facility very effective, and I found I often used this as an alternative to the RF gain control. Unlike other non-variable NR systems, I could adjust this on the FT-920 to just the required level, i.e. just before the audio started to sound distorted and 'bubbly' as on other non-variable filters. It really did clean up CW, data and SSB signals remarkably, and being an LF 'grey line' DX chasing freak I found it particularly useful in quieting general band noise whilst still letting the wanted signal get through, invariably clearer and significantly more readable that without the NR switched in.

I did, however, have a continual 'nagging thought' in the

back of my mind that I'd have preferred the facility of having a switchable narrow SSB filter as well as a 500Hz bandwidth built-in for CW and data use, as standard on a transceiver of this class. Narrow audio DSP filtering is a welcome addition, but it doesn't 'cut the mustard' as narrower IF filtering can.

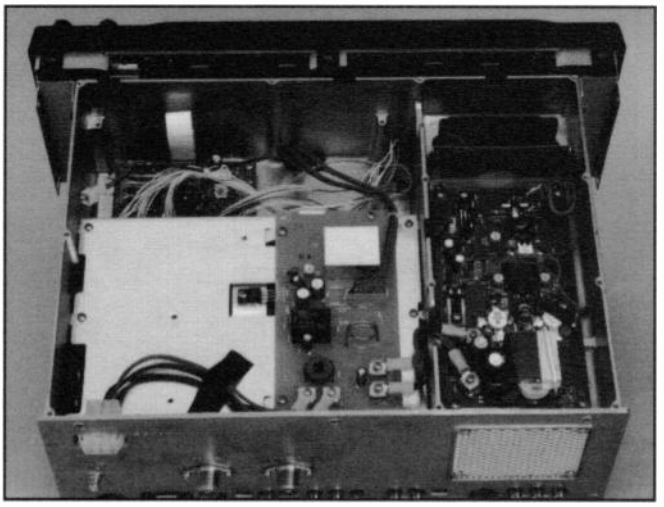
Nevertheless, I appreciated the good RF performance together with many of the transceiver's handy operating features. Here, a 'menu' system is used to set most of the default parameters, 73 in all, including VFO dial speed, 'peak hold' metering, carrier offsets for transmit and receive LSB and USB and so on. Switching bands was a one-button push, and a 'stacked VFO' system is used which remembers two frequencies on each band.

As well as 99 memory channels, each of which can be given a 7-digit alphanumeric name, five 'Quick Memory Bank" channels can be used for quick storage and recall. I found these particularly useful when initially tuning around a band, to let me store and retrieve the frequencies of interesting activity with a quick one-button touch. An outer spring-loaded 'shuttle jog' ring is positioned around the main tuning knob, giving a variable-rate 'auto tune' up or down from the tuned frequency which I sometimes found useful as an alternative to rapidly spinning the VFO dial.

Although I use resonant aerials (a trapped dipole for 160m-40m, and separate dipoles plus a tower-mounted multiband beam for the higher bands, I found the internal ATU always worked quickly, this having internal memories for various frequency segments. For external manually-tuned ATUs (e.g. for long wire aerials) or for tuning up a valve linear, the FT-920 has a useful 'pulse tuner' built in. This transmits narrow pulses (i.e. just like sending fast CW) to reduce the overall duty cycle of the transmission, the pulse length, interval, and tune-up time and power being adjustable via the menu system.

6M

The review period nicely coincided with an extended opening on 6m, the FT-920 certainly being 'put through it's paces' here, mainly on receive as a thorough test (many readers know that I tend to listen a lot and say rather little, at least on air!). Here, I found that the quick VFO A/B switching between 28.885MHz and 6m, either 50.110MHz or 50.200MHz, (or indeed two 6m frequencies) using the twin frequency displays and tuning knobs was quite useful. Used with the set's squelch control suitably set, a 'DW' (Dual Watch' facility cycles the set between the two frequencies which allowed me to keep an ear open on both frequencies, the cycle halting when the squelch opens. But even so, I really felt that it would have been nice to have had the facility of twin receivers, such as that found in the FT-1000. Also, FM fitted as standard would have been handy for use on 10m and 6m. But then, one must keep in my the relatively lower basic price of the FT-920 here.



The FT-920 uses a substantial cast metal chassis to give a solid feel.

SECOND OPINIONS

Although I'm mainly a 'modern mode' operator, my friend Colin G3PSM, who's the SysOp of my local DX Cluster, is a dedicated 'CW only' man on HF. We both operate FT-990 transceivers in our stations, each having done so for some years, and I felt it would be useful to gain a 'second opinion' on the FT-920's DX capability. So, Colin kindly also helped me in this review by using the set for a weekend from his shack (I didn't have to twist his arm too much!)

Colin also found the variable hi-cut/lo-cut DSP filter to work exceptionally well, with no evidence of ringing on even fast CW. He felt this went a great deal towards even possibly obviating the need for a narrow CW IF filter, although my opinion is that no amount of audio filtering beats 'up front' RF and IF selectivity. The noise reduction facility Colin also found superb, although he pointed out one limitation that I'd overlooked, that of the digital audio record and replay system. Although the CW memories worked fine on transmit, Colin found the receive speech recorder didn't operate in CW receive mode (OK, it is a 'speech' recorder but why not allow it to be used on CW receive?). Or maybe this was just an omission in the instruction manual?

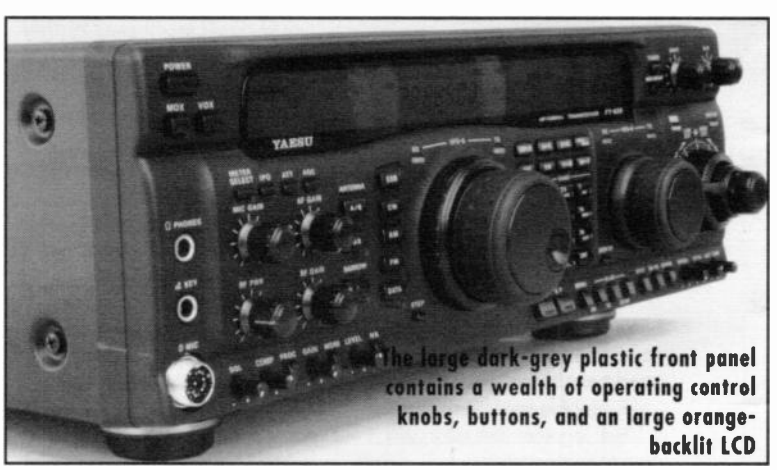
I was also pleased to receive an Emailed report on the FT-920 from another friend of mine, Geoff GJ4ICD who's also the magazine's VHF/UHF Message columnist, particularly regarding the set's capabilities on 6m. Geoff, coincidentally, also used an FT-990 until recently as his 'main rig (what is it that's so popular about the FT-990?), regretting the day he 'let it go', but saying that the FT-920 has now put the smile back on his face. In his conclusion, Geoff says "This radio is undoubtably the best 50MHz radio I have ever operated, it will take pride of place in my shack and the FT-736 and FT-650 will now be used as backup radios!". Geoff found the set to be excellent on 6m, but lamented the fact that it couldn't receive on 10m and 6m at the same time for cross-band listening apart from using the 'dual watch' facility. Although he found the noise blanker worked well, he found a slight problem with this on HF, with a degree of residual noise present when the audio level was turned down low, although I found no problem with this on the different FT920 I tested for this review.

My thanks go to Colin and Geoff for their invaluable tests and comments.

LABORATORY TESTS

The overall receive performance, as I found on air, was clearly in accordance with this 'class' of transceiver. It should certainly support the needs of even demanding types of operation. The 'IPO' tended to 'shift' the dynamic range upwards in terms of blocking performance, although it did improve the intermodulation performance by a few dB.

The IF bandwidth measurements showed the synthesizer to be reasonably clean although some degree of reciprocal mixing from



The large dark-grey plastic front panel contains a wealth of operating control knobs, buttons, and an large orange-backlit LCD

DDS was present, however this was at a low level. The first and second IF (68.985MHz and 8215MHz respectively) rejection and second image rejection was very good. The first image, occurring at VHF (at twice the 1st IF, i.e. 137.97MHz, above the wanted signal) could possibly cause the odd problem with hill-top contest operation at, say, a communal VHF radio site, although using the aerial tuner on receive could prove useful in adding additional VHF rejection. Note that measurement results given here were without the ATU in circuit, because the test source impedance of precisely 50 ohms, being precisely matched, could otherwise give erroneous readings if a matching ATU were placed in circuit.

Again, all measurements were made without using any of the DSP filters, as because this is audio-based, it should not affect any of the set's's RF performance. However, a test of the DSP 'NR' facility on a single received 1kHz tone, with the NR knob rotated to two-thirds of its full travel (the position I found I normally used on air) improved the overall effective receive sensitivity by 12.1dB, in 'cleaning up' the background audio in the absence of other signals. Narrowing the audio bandwidth by using the upper/lower cut DSP filters similarly 'cleaned up' the audio, again giving an improved overall audio signal-to-noise ratio.

CONCLUSIONS

In the FT-920, Yaesu have brought us a superb HF transceiver, with the added advantage of full-power 6m transceive built in. The RF performance is very good, despite the complexity the set is extremely easy to use and has a number of useful operating features built in, such as an automatic speech recorder and replay unit, and superb audio-based DSP filtering which I found worked exceptionally well on-air.

The basic price is very reasonable, but serious operators will I'm sure wish to fit one or two additional IF filters, as only one bandwidth, i.e. for SSB, is fitted as standard. Remember also that FM is an extra-cost option, and you'll also need to provide your own external high-current DC supply to power the set.

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

LABORATORY RESULTS:

RECEIVER;

All measurements carried out on 21.4MHz in SSB mode, with DSP, attenuator, IPO and ATU disabled, with set powered from stabilized 13.8V DC using supplied length of DC lead, unless otherwise stated.

Sensitivity;

Input level in ÊV pd required to give 12dB SINAD

Freq. MHz	SSB/CW		AM	
	IPO Off	*IPO On*	*IPO Off*	*IPO On*
1.8	0.19	0.34	0.60	1.11
3.5	0.18	0.33	0.60	1.11
7.0	0.14	0.22	0.45	0.87
10.1	0.12	0.24	0.34	0.84
14.0	0.15	0.32	0.49	1.15
18.1	0.11	0.27	0.41	0.97
21.0	0.12	0.38	0.43	1.30
24.9	0.10	0.34	0.34	1.27
28.5	0.11	0.37	0.40	1.21
29.5	0.10	0.35	0.39	1.18
50.5	0.09	0.37	0.32	1.25

Selectivity;

-3dB	2.34kHz
-6dB	2.49kHz
-20dB	2.94kHz
-40dB	3.66kHz
-60dB	4.37kHz

3rd Order Intermodulation Rejection;

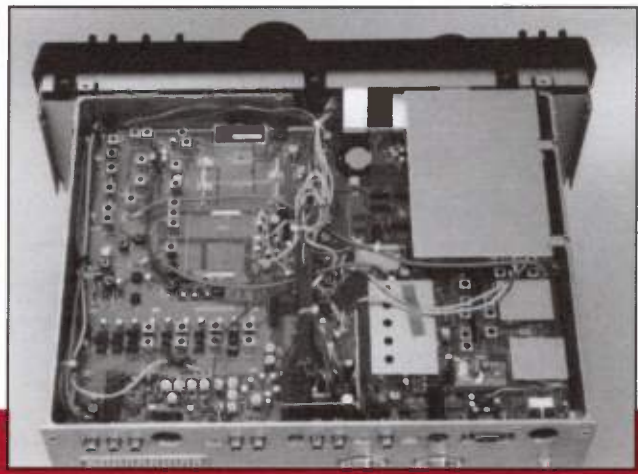
Increase over 12dB SINAD level of two interfering signals giving identical 12dB SINAD on-channel 3rd order intermodulation product, measured at 21.4MHz;

	IPO Off	IPO On
10/20kHz spacing;	70.4dB	73.6dB
20/40kHz spacing;	84.9dB	87.8dB
50/100kHz spacing;	88.0dB	91.9dB
100/200kHz spacing;	88.8dB	93.2dB

Image Rejection;

Increase in level of signal at the first and second IF image frequencies, and the first and second IF, over level of on-channel signal, giving identical 12dB SINAD signal;

Freq. MHz	1st Image Rej.	1st IF Rej.	2nd Image Rej.	2nd IF Rej.
1.8	66.1B	>110dB	>110dB	>110dB
3.5	63.8dB	>110dB	>110dB	>110dB
7.0	64.5dB	>110dB	>110dB	96.8dB
10.1	66.9dB	>110dB	>110dB	73.7dB
14.0	84.6dB	>110dB	>110dB	>110dB
18.1	>110dB	>110dB	>110dB	106.6dB
21.0	76.9dB	>110dB	>110dB	>110dB
24.9	66.7dB	>110dB	>110dB	>110dB
28.5	64.5dB	>110dB	>110dB	>110dB
29.5	63.5dB	>110dB	>110dB	>110dB
50.5	>110dB	>110dB	>110dB	>110dB



Inside the set, bottom view

TRANSMITTER;

S-Meter Linearity;

Measured at 14.25MHz;

Indication	Sig. Level	Rel. Level
S1	1.70µV pd	25.2dB
S2	1.88µV pd	-24.3dB
S3	2.03µV pd	-23.6dB
S4	2.22µV pd	-22.8dB
S5	2.56µV pd	-21.7dB
S6	3.13µV pd	-19.9dB
S7	5.00µV pd	-15.8dB
S8	9.90µV pd	-9.9dB
S9	30.7µV pd	0dB ref
S9+20dB	650µ V pd	+26.5dB
S9+40dB	9.90mV pd	+50.1dB
S9+60dB	59.8mV pd	+65.8dB

TX Power and current consumption;

Measured under normal front panel selection

Freq MHz;	Max Power;	Min Power;
1.8	109W/16.8A	2.3W/5.5A
3.5	107W/16.6A	2.4W/5.5A
7.0	105W/15.2A	2.4W/5.4A
10.1	104W/16.8A	2.5W/5.5A
14.0	103W/15.4A	2.8W/5.4A
18.1	103W/16.5A	3.1W/5.7A
21.0	103W/16.3A	3.1W/5.6A
24.9	103W/17.1A	3.6W/5.7A
28.5	103W/16.8A	3.8W/5.9A
29.5	103W/17.2A	3.7W/5.8A
50.5	101W/19.4A	3.9W/6.3A

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;

	IPO Off	IPO On
+/-50kHz;	104.1dB	103.2dB
+/-100kHz;	105.6dB	105.9dB
+/-200kHz;	107.0dB	106.9dB

Harmonics;

Freq. MHz	2nd	3rd	4th	5th	6th	7th
1.8	-61dBc	-55dBc	<-80dBc	<-80dBc	<-80Bc	80dBc
3.5	<-80dBc	-63dBc	<-80dBc	-80dBc	<-80dBc	-77dBc
7.0	-76dBc	-70dBc	<-80dBc	-75dBc	<-80dBc	<-80dBc
10.1	-60dBc	-53dBc	<-80dBc	-79dBc	<-80dBc	<-80dBc
14.0	-71dBc	-63dBc	-68dBc	<-80dBc	-79dBc	<-80dBc
18.1	-60dBc	-58dBc	-80dBc	-65dBc	-69dBc	<-80dBc
21.0	-76dBc	-63dBc	-72dBc	-72dBc	-78dBc	<-80dBc
24.9	-66dBc	-61dBc	-68dBc	<-80dBc	-80dBc	<-80dBc
28.5	-69dBc	-64dBc	-71dBc	-80dBc	<-80dBc	-78dBc
29.5	-70dBc	-65dBc	-72dBc	<-80dBc	<-80dBc	-67dBc
50.5	-72dBc	-73dBc	-56dBc	<-80dBc	<-80dBc	<-80dBc

S-Meter S9 Level;

Freq. MHz	Sig. Level
1.8	28.9µV pd
3.5	23.7µV pd
7.0	22.9µV pd
10.1	23.1µV pd
14.0	29.8µV pd
18.1	28.4µV pd
21.0	30.0µV pd
24.9	12.8µV pd
28.5	13.8µV pd
29.5	12.2µV pd
50.5	8.6µV pd

SSB IMD Performance;

Measured on 14.25MHz with a two-tone AF signal, results given as dB below PEP level;

	3rd Order	5th Order	7th Order	9th Order	11th Order
ALC Onset	-33dB/ -32dB	-33dB/ -33dB	-48dB/ -49dB	-43dB/ -44dB	-52dB/ -53dB
Mid ALC	-34dB/ -32dB	-33dB/ -33dB	-48dB/ -50dB	-43dB/ -44dB	-51dB/ -52dB
Proc On (Mid ALC)	-32dB/ -33dB	-33dB/ -33dB	-48dB/ -51dB	-43dB -44dB	-48dB/ -49dB

SCANNERS

Bill Robertson gives a few hints on weather satellite reception together with a couple of stories regarding outside broadcast crews

I received a nice Email from Brian Whelan, EI8EJB, in Dublin, saying that he's read my column for the past couple of years, kindly adding that he enjoys it a great deal - thanks Brian!

Brian says he's been involved in scanning as a hobby since 1982, when on a visit to London he purchased his first handheld scanner, and since then he rarely goes anywhere without his present handheld, an Alinco DJ-X1 scanner. Brian is professionally involved in two-way radio and naturally has a good source of information for the hobby, and offers band-plans and spot frequency lists for the Republic of Ireland. I've already sent Brian plenty of information by way of reciprocation, and as I know there are many other readers of this column in the Republic, would any other readers be interested in sharing such information? I'll be pleased to act as an informal 'distributor' either by disk or Email, so please do drop me a line or a message if you're interested.

AR-8000

A letter from Michael Gynane asked me about any available software for the AR-8000 scanner, and a message from Steve Edwards also asks if anyone has built an interface lead for the AR-8000 and what software is available. The ready-made interface from AOR, priced at £99, is of course a significant outlay, although I do have a complete circuit and connection details available for an interface using just one IC (a MAX232C), four capacitors and two resistors. Drop me an SAE via the Editor if you'd like a copy of the details. The only potential problem is the connection to the AR-8000, which uses a small connector beneath the battery cover. Do any readers know of an 'off the shelf' source for these?

Regarding software, ***TrueScan*** version 2.0 is a superb module-based program for the AR-8000 which runs under Windows 95, and it's completely free to use. The bank editor in TrueScan lets you download, edit and upload channel data to the scanner. Each bank is represented by an icon, additional 'scratch banks' are also available to hold extra bank and channel data. The program is quite large, over 3.5Mb in compressed form, which possibly gives you an idea of the great flexibility! If you'd like a copy, I've arranged with the magazine Editor to have it available from the HRT Software Service, together with full circuit construction and connection details for the one-IC interface I've described above *(Ed's note - simply ask for the 'AR-8000 pack', at £6.00 for the three 1.44Mb disks and interface details, inclusive of p/p and VAT).*

DISCRIMINATOR OUTPUT

Geoff in Birkenhead says that he's been trying to use the *'POC32'* POCSAG decoder program, through both the 'mic' and 'line' inputs on his sound card, but although the DCD indicator lights nothing is being decoded.

A point to be remembered here is that your receiver audio needs to have a response preferably as close down to 0Hz as possible, as POCSAG uses frequency shift keying. An output direct from the discriminator via a large-value coupling capacitor is ideal, although this usually means 'delving inside' your set. Some scanners do have a 'baseband audio' output, on others you'll usually find that pin 9 on the commonly-found MC3357 discriminator IC carries this audio - remember to add a series capacitor as this output invariably also carries a DC voltage as well.

OUTSIDE BROADCASTS

Dave in Bradford says he recently came across the Sky TV outside broadcast team on air from the Bradford Bulls rugby match, on 453.150MHz which he adds is the same frequency as used by the local Arndale centre security staff. I'm sure that, if the two users were within range of each other and using 'open channel' that there must have been some interesting conversations going on! Many PMR users do however use CTCSS (sub-tone) controlled squelch, so that only transmissions carrying the same sub-tone frequency are received. In this way, different users can effectively share a channel with privacy from each other, the only limitation being 'blocking' of the channel by the actual transmission carrier. But many PMR users do still operate in 'open channel' mode, and I well remember an incident in my locality a while ago where a BBC 'on location' film crew were in my local city centre and were using 167.200MHz paired with 172.000MHz, this being a nationally-used channel. The same channel was, at that time, also being used by a construction company for controlling operations for a tower crane in the same city centre, and there were a number of rather confused (and rather amusing) cross-user discussions going on until they realised what was happening!

AUDIO RECORDER

I've received a number of messages from users of the 'All Day Audio Recorder (ADAR) software, every one enthusing about the superb results, typical comments being "What a great piece of freeware" and "Much cleaner than tapes and easier to edit". Mark in Eastbourne however asks if there's a similar recorder package but for Windows 3.11 instead of Win95. A quick search around revealed the 16 bit program *'Recall'* which runs under Windows 3.1 and is reportedly very similar to ADAR. However upon checking further, the generally available program is only a *trial* version, i.e. not complete software. You'll need to pay real money for the full version, thus a low-cost voice-activated tape recorder could work out cheaper. Do any other readers have information or thoughts on this?

ROYAL FLIGHTS

If you're an airband enthusiast you'll possibly be interested in the times and locations of Royal flights in the UK. I came across a Freephone telephone number giving exactly this information on a daily basis. It's a recorded message, and yesterday as I write this it gave me the details of two royal flights that day. I'm told it's intended for light aircraft pilots, and that it also gives details and

locations of Red Arrows displays and rehearsals. You'll find it on Tel. number 0500 354802.

DISTANT SIGNALS ON UHF

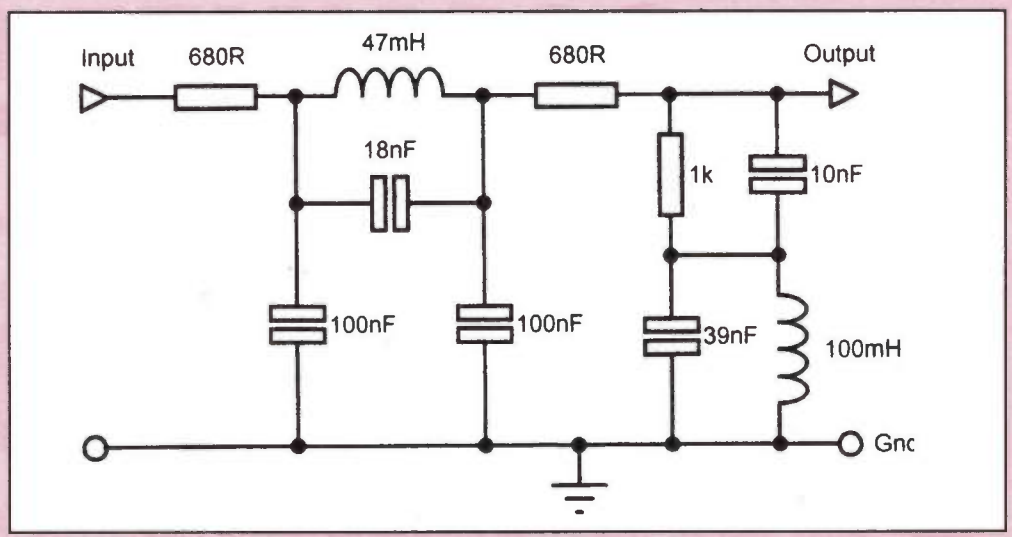
A correspondent on the south coast of the UK says that he's been receiving lots of French chatter on 450.175MHz, and with this range being allocated to government use in the UK he asks whether this could be HM Customs in a coastal port? The most likely answer is probably due to French radiotelephone traffic, which uses the 'reverse' frequencies to those used in the UK. As such, under enhanced propagation conditions, UK-based UHF repeaters which are usually well-sited can re-broadcast signals from strong French-based base station repeaters, also usually well-sited. I know that many UK-based users of this range often moan about this during the summer months when tropospheric conditions are high!

TRACKSIDE COMMUNICATIONS

Like many others, I've seen a number of masts suddenly appearing along railway lines in the UK, supporting multi-element UHF yagis beamed in both directions along the track. These are usually 12 element yagis, always vertically polarised and sometimes in pairs (i.e. two in each direction), and are obviously meant for some form of trackside communications along the 'permanent way'. One suggestion for this new service was of data communication, possibly in the 430MHz band, but do any other readers have more information?

WEATHER SATELLITES

I've received a few queries regarding orbiting weather satellite decoding using a scanner receiver. A common query is if the simple one-IC 'JVFAX' type interface can be used. The answer here is *no*, as weather satellites (as opposed to HF weather fax stations) use AM modulation of the FM carrier (i.e. you select FM mode on your receiver, but the interface needs to demodulate amplitude variations as well). An alternative to building a dedicated (and rather more complex) interface is to use a more sophisticated program employing a PC sound card as the interface. A recent Windows program for this is *WXSAT*, version 2. The program works by storing the received audio from the orbiting satellite as a WAV file and then reloading and processing it into pictorial form. As an average 'pass' lasts around 15 minutes or so, remember that you'll need a reasonable 'chunk' of hard disk as a temporary 'buffer' storage. *(WXSAT is available in this month's 'Software Offer' - Ed)*



Audio filter for weather satellite reception, thanks to Salvador Esteban EB3NC for this

Okean weather satellite image received with the WXSAT program

Another query is about a lack of definition in received images. For successful reception, as I've mentioned in these pages before, you'll need a wide receiver IF (Intermediate Frequency) bandwidth, ideally of around 50kHz or greater. The 'WFM' mode available on a number of scanners is OK here if received signals are of a reasonable strength, and if out-of-band signals (such as pagers) aren't a problem. This mode, used primarily for reception of FM broadcast stations, naturally has a wide audio frequency response, which can degrade the eventual signal-to-noise ratio on received weather satellite signals. An in-line audio filter can help here, and the accompanying circuit comes with my thanks to Salvador Esteban in Spain. Salvador says that this filter improves reception with weather satellite programs, by offering an attenuation of only 3dB at 2700Hz and 30dB at 4800Hz. The filter should be placed in-line between the weather satellite receiver and your PC's sound card or interface unit.

Finally, if you want to know which satellites will be in reception range of your station at any time, you can obtain up-to-date Keplers for all active weather satellites from the 24hr Ham Radio Today automatic fax-back service, Tel. 01703 263429.

SCANNER DETAILS ON-LINE

Link Electronics in Peterborough, who are probably well-known to readers of this column as distributors of Realistic receivers, tell me they now have a scanner products information page on the Web. You'll find it at; http://freespace.virgin.net/link.electronics

Bill Robertson is always pleased to hear from readers, and will answer queries through this column. You can write to him c/o the Ham Radio Today Editor, either by post or fax, or directly by Email to scanman@qsp73.demon.co.uk

Readers should note that, depending upon your country's regulations, reception of some services may not be allowed unless you have appropriate permission. The RA's *"Receive-Only, Scanners"* Information Sheet provides information for UK listeners.

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Feature

A THREE-BAND AERIAL FOR THE WARC BANDS

Tom Harrison GM3NHQ shows how you can build a trap dipole that's very useful where space is limited

In common with most amateur stations, space at the my QTH for aerial erection is very limited. For many years my operation has been restricted (if that's the word!) to the 7, 14, 21 and 28MHz bands, with outside dipoles for 14 and 21MHz, an indoor dipole for 28MHz in the loft and an inverted 'V' dipole slung from the crown of the roof for 7MHz.

Garden space allowed a maximum length of 8.5m in the N/S direction, with about 12m along the E/W line. Consequently, when the urge arose to try the WARC bands, space for new aerials was at a premium, especially as I wanted to continue to operate on the 'old favourites' as well. I also had an instinctive feeling that there would be objections from the XYL if there were "any more wires strung about this house!"

Multi-band aerials were the obvious solution... but of what type? I considered all the various types; single wire with a tuning unit, parallel dipoles on a common feeder, a doublet fed with open wire feeder and so on. But all involved the inconvenience of tuning units, either in the shack or remote in the garden.

Eventually it dawned that trap dipoles combining 14 and 21MHz on one axis and 10, 18 and 24MHz on the other could just about fit into the available space, with the convenience of providing a 50 ohm impedance feeder to my transmitter. Although no standard design appeared to be at hand, the fun coefficient of designing and constructing such a system would be quite high, an important consideration for myself!

TRAP DIPOLES

Before considering the design, it is appropriate to spend a few moments considering the features of trap dipoles.

Firstly they are not 'wonder wires' which give DX contacts all over the world in all sorts of conditions, and they suffer from electrical and mechanical shortcomings. They do, however, have features which make them attractive to the average radio amateur. The first is 'convenience', in that there is no aerial or feeder changing, or ATU adjustment, when shifting from band to band.

Secondly, there is the possibility that the lowest frequency aerial may be squeezed into a shorter length than would be the case for a conventional dipole, as some of the lower frequency resonant length is hidden in the trap coils.

Thirdly, the number of 'wires in the sky' is reduced, as is the number of feeder cables coming into the shack.

Against these must be set the undoubted losses in radiation caused by both the traps and the reduction in effective wire length to do the radiating. Also, the weight of the traps imposes strains on both the aerial wire and the supports, especially when there is a wind blowing. In my case it was an overwhelming need to reduce the number of wires cluttering up the skyline over a small garden that provided the impetus for the project and the 'shortcomings' were accepted.

Perusal of the usual textbooks showed that the principal of operation is straightforward and well established. Namely, that sections of a long piece of wire, fed in the middle, are isolated at the required resonant lengths for the desired frequencies of operation, by inserting, at the ends of the required resonant lengths, parallel-tuned circuits, the traps. These act as high impedance isolators at the desired frequencies, to give a number of discrete resonant half-wave

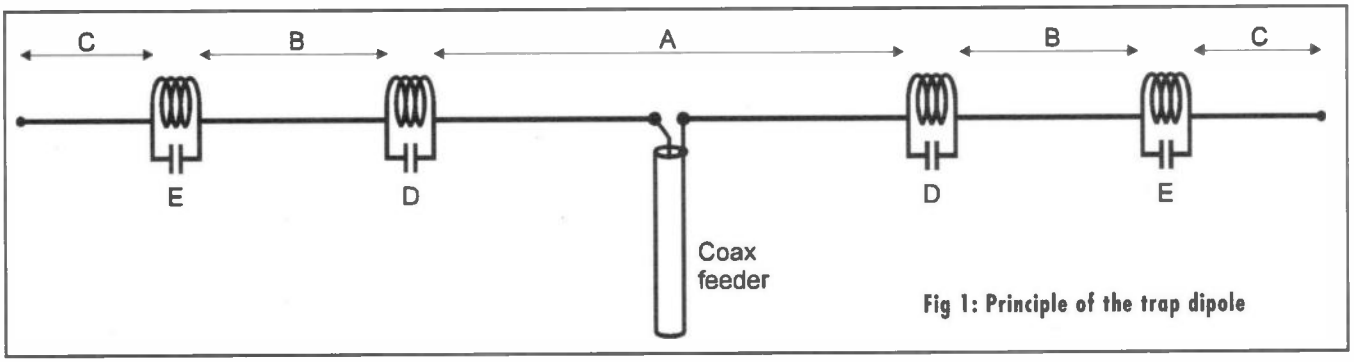


Fig 1: Principle of the trap dipole

dipoles within the overall length of the wire, all fed at the centre by a single coax cable. These tuned circuits have the subsidiary effect of acting as loading coils at the lower frequencies, thereby reducing the total length of wire required for resonance on these lower bands.

Fig.1 illustrates the principle. The length 'A' is resonant at the highest frequency to be used, isolated by trap 'D', with the lengths 'B' and 'C' coming into play in turn for resonance at the lower frequencies, length 'B' being isolated in its turn by trap 'E'. There is a practical problem in calculating the lengths of wire required for 'B' and 'C' as some of the wire wound in the trap coils provides inductive loading for the lower frequencies, and some of this is itself cancelled out by the capacitors in the traps, making the actual 'wire length equivalent' of the coil difficult to quantify without a fair bit of mathematics.

The easy, and for me, the 'most fun' way to find the resonant lengths for the lower bands is to stretch the wire out at head height and tune each section for resonance with a dip meter (if you don't have a dip meter, build one, it's a high 'fun coefficient' project too!).

The other problem with trap aerials are the traps themselves! A parallel-tuned circuit is a simple enough theoretical concept, but this application poses practical problems.

Firstly, the traps introduce losses which may be quite high unless a high 'Q' can be obtained for the tuned circuits.

Secondly, the number of turns on each coil has to be chosen with some care, since the more wire there is wound in the coils, the less there will be strung out to radiate on the next lower band.Thirdly, as each trap acts as an insulator at the high voltage end of a resonant dipole, the trap capacitors have to withstand pretty high voltages, and such capacitors are not easy to find.

Fourthly, the traps have to be physically robust to be able to hold the aerial together and must be suitably 'weather-proofed' to withstand what the weather is likely to throw at them, leading to a consequent weight penalty and windage problem.

Weighed against this list of 'minuses' is the great 'plus' of convenience for multi-band operation without aerial changing, and the possible 'small plus' of lower frequency operation than conventional aerial space requirements will permit due to the shortening effect of the trap coils. In any case none of these difficulties should daunt the average amateur, as they can all be overcome with a bit of thought and effort, yielding an aerial which will give a good account of itself, at least as far as the average station is concerned.

CONSTRUCTIION

Before starting construction, the first thing to decide is 'which wire to use', an item usually overlooked in the textbooks, or assumed to be that old favourite, hard drawn copper wire. This is certainly ideal if you have it, but it is expensive if it must be purchased. Stranded copper wire can alternatively be used, this is easy to get hold of and to work with.

However, if this is insulated with PVC or other coating of any thickness, there will be a parallel capacitance distributed along the wire length, which will effectively shorten the lengths of wire that give resonance. This offers the possibility of further reducing the overall length of wire required for resonance compared to the conventional 142.6/f metres for a half-wave of solid wire, in addition to the shortening effect of the traps. My initial design used enamelled solid copper wire and the dimensions shown in Table 1 are based on this.

Start construction with the section for the highest frequency band, in the middle of the eventual array, and work downwards in frequency and outwards in length. Cut the half wave length as determined by the '142.6/f metres ' and add an extra 150mm at each end for fine tuning and connection to the traps. Trim the length to resonance by shortening the centre connection of the aerial and placing the dip meter close to the short, the dip indicating the resonant frequency.

Since the aerial is fairly close to the earth at this stage, there will be a capacitance to earth from the wire which will lower the apparent resonant frequency of the half wave wire by, in my experience, about 2%. In other words, for resonance at 24.9MHz up in the air, cut the wire for resonance on the meter at 24.2MHz at waist height.

If insulated wire is used, the same procedure applies, but don't be surprised if the resonant frequencies for the wire are found to be well below the 142.6/f metres theoretical value. The capacitance of that insulation can be quite considerable and the use of the dip meter is really essential in this case. In either case cut the wire to resonate at 24.2MHz.

The next job is to make the traps, initially for the 24.9MHz section. These must be robust enough to stand the strain due to the aerial suspension. The system I use is shown in Fig.3. The use of the central strainer removes any load from the trap coil and capacitor and provides a ready anchor point for the aerial wire. The coils are easy enough to wind using the data in Table 1, but a few words on the subject of capacitors is appropriate.

Ready-made high-voltage capacitors are not easy to come by, but suitable substitutes are easy to manufacture. I used two methods, the first shown in Fig.2. This uses double-sided PCB, the faces of which form a parallel-plate capacitor whose value is determined by the area of copper surfaces facing each other through the PCB insulation. The resultant capacitor can be fitted inside the trap coil, making a neat and light installation.

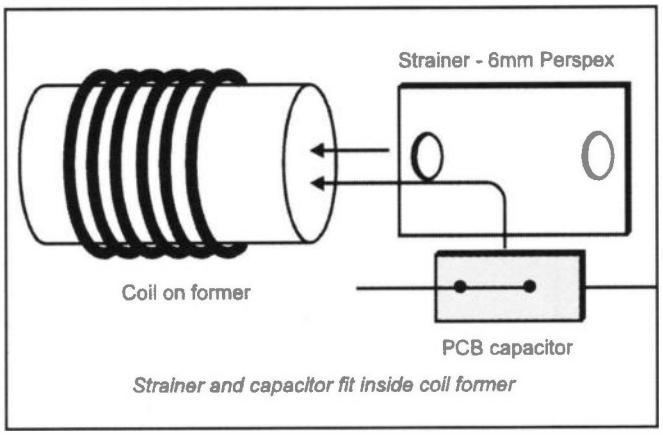
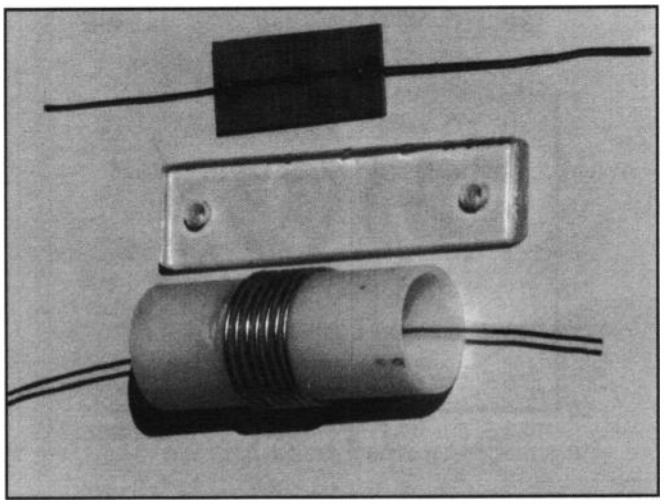


Fig2: Trap construction



The second method uses the capacitance existing between the inner and outer conductors of coaxial cable, the value being determined, in this case, by the length of the cable forming the capacitor. When the coax is finally cut to length, the inner conductor should be connected to the 'inboard' aerial section and the coax screen to the 'outboard' end of the trap coil. The cable can be finally taped to the outboard

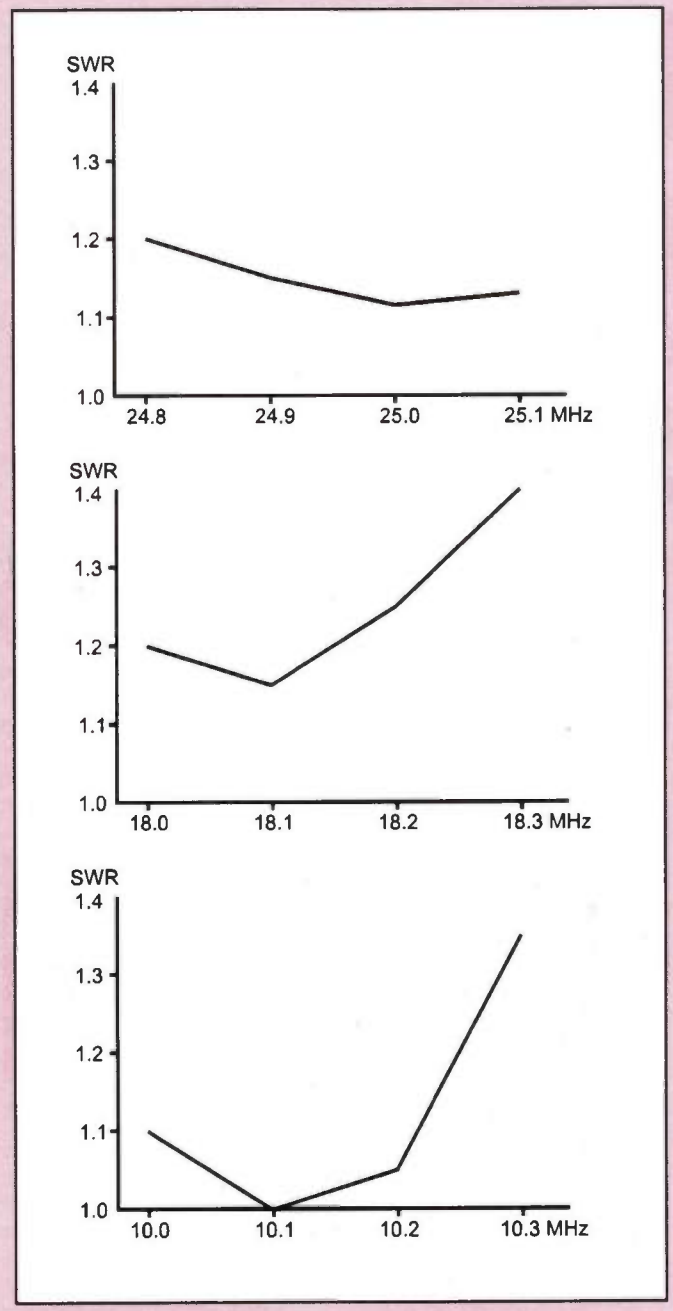


Fig.3: Final SWR readings

aerial wire making the whole installation presentable.

The main drawback to the use of coax is the weight of the capacitors, which even though they are quite light, are considerably heavier than that of a few square millimetres of PCB. The type of coax used is not critical, but it must be able to withstand the voltages developed across the traps. Whichever design is used, the traps should be tuned with a dip meter rather than using calculated values for coils and capacitors, tuned to the centre of the band around 24.9MHz and given a few coats of polystyrene dope to make everything weatherproof.

The next step is to add the wire sections 'B', to give resonance on the 18MHz band. Again this is best accomplished by using the dip meter coupled to the shorted centre feed point and in this case resonance should be at about 17.8MHz at ground level. Trap construction follows the same procedure as for 24.9MHz, again tuning to the middle of the band with the dip meter.

The last job is to add sections 'C' to give resonance in the 10.1MHz band, following the same drill as before, with ground-level resonance at about 9.9MHz. Then remove the short across the centre connection, hoist the array up to it's final position and you're in business! The SWR readings obtained on my aerial, at about 6m up, are shown in Fig.3.

THE TRAPS

The coil/capacitor combinations I've described are not the only ones that will work on the required frequencies, and you're at liberty to experiment with different combinations. In my case, two considerations governed the values chosen.

Firstly, I wanted to have minimum reduction in performance on the 18MHz band, so I kept the number of turns on the 24MHz band trap coils deliberately low to leave the maximum length of wire available to be strung out for resonance at 18MHz, thus ensuring maximum radiation possible on 18MHz.

Secondly, the overall length of the whole aerial was restricted by the available space, requiring more of the 10MHz section of the wire to be 'hidden' in the 18MHz traps. This gave rather more inductance than ideally required, with a corresponding reduction in capacitance required for trap resonance.

Readers are invited to consider their own situations and make their own designs based on their own requirements. There are almost an infinite number of wire length/trap size combinations which will work, bearing in mind the limitations regarding losses and reduced wire length for radiation spelled out above.

Finally, a word about the effect of using insulated, stranded wire. In a test aerial I built using 24 strand, 0.7mm PVC insulated wire, the dimensions for Table 1 were reduced to 2 x 2692mm for 'A', 2 x 660mm for 'B' and 2 x 1720mm for 'C', with traps 'D' having 7 turns and traps 'E' having 16 turns, giving final resonances at 24.9MHz, 18.15MHz and 10.0MHz. The usual formula for calculating half-wave resonant length does not apply, due to the loading effect of the insulation. The use of the dip meter for tuning both the wire and the traps is essential.

If you have any queries regarding this article, please address them to the author c/o the Ham Radio Today address, enclosing an SAE if a reply is required - Ed. Any reported updates to this project will be available on the 24hr Ham Radio Today Voicebank line, Tel. 01703 263429 for at least 3 months following publication.

Table 1: Trap data

Freq.	Coil	Capacitor
24MHz	7 turns over 20mm	53mm x 20mm
18MHz	14 turns over 38mm	38mm x 20mm

All coils wound on 25mm diameter PVC former with 1.5mm tinned copper wire. Capacitors made from double-sided PCB, fibreglass insulation, 1.6mm thick

Wire data

Length 'A'	2 x 2900mm
Length 'B'	2 x 660mm
Length 'C'	2 x 1920mm

In Ham Radio Today Volume15 Issue No.9

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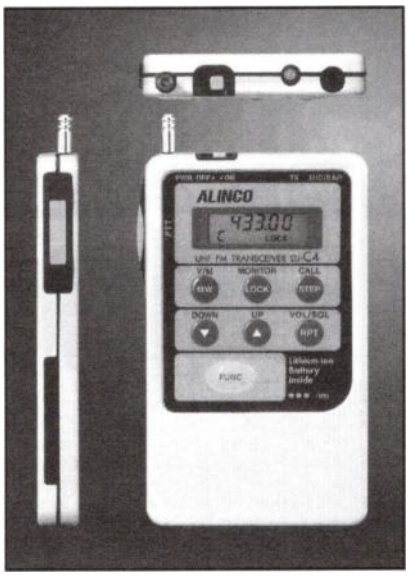

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RANGING THE BOX

Brian Kendal G3GDU shows how to measure the distance away from an amateur repeater

Having spent my working life in aviation, I've always had an admiration for the trio of navigational aids which the Luftwaffe used in the early 1940s.

Y-GERAT

The most sophisticated of these was the Y-Gerat (Y-apparatus) which used a ranging system unique at the time. In this, the ground station which was transmitting the directional beam also radiated a 42MHz carrier which was modulated either by 300 or 3000Hz. This was received by the aircraft which retransmitted the modulation on 46.9MHz. Back at the ground station, the phase shift between outgoing and incoming signals was measured, from which could be determined the time delay and consequently the distance between ground station and aircraft. The use of two modulation frequencies enabled both coarse and fine measurements to be made with the result that a range accuracy of better than 500m was both claimed and achieved in practice. A further advantage of this system is that, unlike direction finding techniques, the ranging accuracy does not vary with distance.

During 1941, radio countermeasures using the sound transmitter from the BBC TV station at Alexandra Palace effectively jammed the system causing the Luftwaffe to abort over 75% of Y-Gerat sorties, but this does not detract in any way from the brilliant concept of the system.

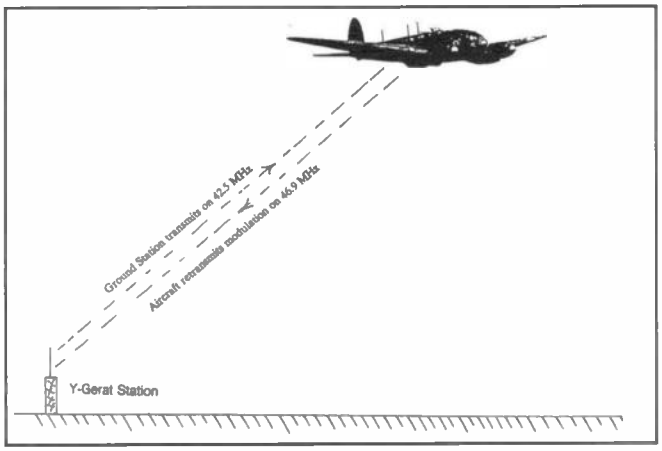


Fig.1 The original Y-Gerat ranging system. The phases of the transmitted and received modulation were compared from which the transit time, and consequently the range, were calculated.

While I had been re-reading the story of the Y-Gerat countermeasures it occurred to me that I could easily replicate the ranging system using my local repeater, GB3WS, which is frequently unused for long periods during 'working hours' as the target 'aircraft'.

THE EXPERIMENT

The basic task was to monitor and compare the modulation transmitted and received on an oscilloscope. A suitable tone modulated could be generated by the 1750Hz repeater access tone generated in the transceiver, for there is nothing magical about the 300 and 3000Hz frequencies used in the original equipment. The main problems were of desensitising the receiver tuned to the repeater output and monitoring the tone transmitted without delving into the transmitter. I solved both problems 'at a stroke' by using a handheld on low power to access the repeater, with my main station transceiver to receive the repeater signal and a spare transceiver to monitor the transmitted modulation.

The two inputs to my oscilloscope were connected directly to the extension speaker terminals of my main and spare transceivers. I monitored the repeater output to ensure that it was not in use and then, after a station identification, I pressed the access tone button and held this down. After synchronisation of the timebase, the phase shift between outgoing and incoming signal could easily be seen, and on calibrating the timebase, I measured the shift at just under 35 microseconds. My first attempt took less than a minute and I could make subsequent measurements in 10 to 15 seconds.

Having determined the transit time, it was now necessary to convert this to distance. As the velocity of radio waves is near enough to 186,000 miles per second, a quick calculation gave the time for one mile to be about 5.4 microseconds. As the signal had to travel to the repeater and return, then there would be 10.8 microsecond delay for each statute mile that the repeater was distant. Ex-radar mechanics might recall that we were taught that a 'radar mile' is 12.36 microseconds, but for radar, nautical miles are invariably used, which accounts for the difference.

The delay I measured was just under 35 microseconds, which corresponded to a distance of just over three miles.

It was now time for me to get out an Ordnance Survey map and check the result. Careful measurement gave me a distance of 3.1 miles from shack to repeater, which was a remarkable accuracy considering the al-fresco nature of the experiment.

CONCLUSIONS

The experiment was undoubtedly a success, but due to the very basic technique I used, it was limited to very close repeaters. If ranging of more distant 'boxes' was required, more RF output power would be necessary with consequent sophisticated means of preventing desensitisation of the receiver. Even if using

separate aerials, cavity resonators or other hi-Q filters would be essential. With such measures in use, the range of any repeater capable of access could be determined.

Over the next few months, I intend to construct suitable filters so that I can attempt to repeat the experiment through more distant repeaters where the phase shift will be more spectacular. One cycle at the 1750Hz tone access frequency has a length of approximately 571 microseconds, which in turn corresponds to a range of 52.9 miles. Although the system accuracy will remain constant, at this range there may be problems with multipath transmission and tones at several varying phases may be seen. Of these, the one corresponding to the minimum range will be most accurate, for multipath returns must, by definition, have a longer time delay than the direct signal.

COMMENT

It can well imagine that many readers will be critical of an experiment such as this. "Blocking the box" is the first of many comments which may be expected. However, once the system has been set up, a measurement can be taken in under 15 seconds.

My initial trials were made at a time when my local repeater was rarely used, and before each transmission both an identification call and an offer to delay the test was made if anyone else should wish to make use of the channel. No such requests were received during the whole of the afternoon when the initial tests took place. There were, however, several calls from stations who wondered just what was happening, and when I explained the experiment, the stations showed considerable interest in both my technique and my results.

What has this experiment achieved? In practical terms, I suppose, really nothing, for it was just repeating an experiment which was brought to operational service more than fifty years ago. Furthermore, I understand that the same technique has been used by the Ordnance Survey for measurement between trig points. However, it did show that, with equipment available in almost every ham's shack, it is quite possible to perform a ranging experiment on a repeater and furthermore with remarkably accurate results. It also gave a realisation of the brilliance of the German scientists and engineers at the Rechlin Experimental Establishment, who conceived and designed the Y-Gerat equipment over fifty years ago.

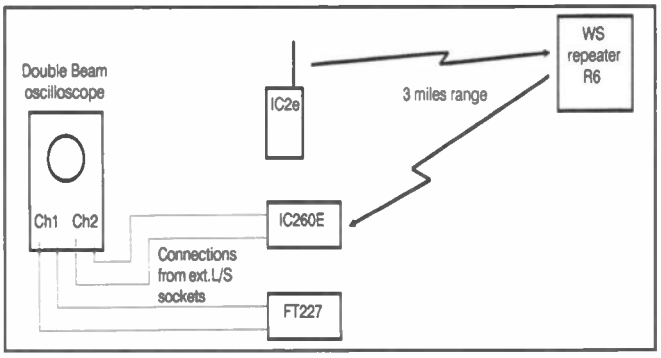
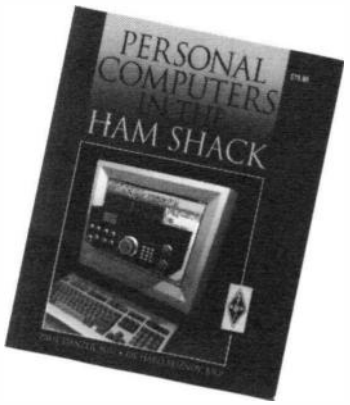


Fig.2 The setup for the repeater ranging experiment. The IC-2E was used for transmission to minimise desensitisation of the IC-260. The FT-227 aerial was disconnected and picked up stray radiation.

BOOK REVIEW - PERSONAL COMPUTERS IN THE HAM SHACK



Reviewed by the Ham Radio Today Editorial staff

Many amateurs use a PC in their shack, and whether you're a PC 'whiz-kid' or a beginner looking for more information, you should find plenty in this book by Paul Danzer N1II and Richard Roznoy K1OF to interest you. It's an American book, published by the ARRL (American Radio Relay League), however by the very nature of its subject its contents are valid throughout the world.

The book is sensibly organised into various chapters covering the most common uses of PCs in the shack. Chapter One contains an introduction to PC hardware, operating systems such as DOS and Windows, and various types of software. Chapter Two looks at the PC as a communications terminal, for packet, AMTOR, SSTV and several other modes. This includes use of programs such as JVFAX and HamComm via a simple interface plugged into your PC's serial port, rather than an expensive multimode terminal unit.

The following two chapters examine the capabilities of the PC for tasks such as log-keeping, and as a 'design tool', for example in circuit simulation and aerial design - no need to get the soldering iron or wire cutters out here before the very 'final tweaks'. Chapter Five is concerned with remotely controlling your rig using the PC, which many software programs including logging and packet cluster programs allow.

Finally, no book on PC communications would be complete without discussing the use of the Internet as a tool. Chapter Six does just this and discusses Internet tricks and techniques, together with lists of the authors' favourite sites. To round off, the book contains a comprehensive 'Resources Guide' with plenty more information, including where to obtain a vast amount of further information no matter where your interests lie.

An extremely informative and currently very up-to date book. It's highly recommended to any amateur who either uses, or is thinking of using, a PC in conjunction with their hobby. The book contains 283 pages, softbound, 228mm x 184mm ISBN 0-87259-571-4. It's priced at US$15.95, we obtained ours from Poole Logic in Dorset (Tel. 01202 683093) who can supply the book at £11.00 plus p/p.

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CALL FOR LATEST UPDATE ON USED EQUIPMENT AVAILABLE AND FOR DETAILS OF OUR SELL ON BEHALF SCHEME

PLEASE MENTION TRADE'IN MARKET PLACE WHEN ENQUIRING ABOUT ANY ITEMS ON THESE PAGES!

LETTERS

LETTER OF THE MONTH

DEAR HRT,

To; *letters@qsp73.demon.co.uk*
As I prepare to write this letter, how hard it is to be constructive about the more negative parts of our hobby. So far in the short time I have held a licence, I have never heard any stations saying that any modes or bands should be removed. I find the negativity comes from the few stations that want nothing new.

If this small amount had got their way, we would not have Packet, Novices, and many more of the new arms to our hobby. As this is a minority, the future of the new parts of the hobby will grow. And this is positive. One of the more destructive things, is the attitude of, once again a very small amount of stations, that the length of time a licence has been held or the age of the holder makes their word law. "Right or wrong". The amount of stations, I have heard being told, that they do not have a view or voice in the hobby, as they have not held a licence for 20 years.

From the stations I talk to, their commitment is as great as anybody else. Could I just add, the price of your station and the size of your linear, does not make for more commitment or a better operator. As this is a few stations, I find this positive. Listening to young stations, some as young as 12, the way they conduct themselves is a credit to them. They are the stations of the future and I am sure that in the future, they will be more helpful to newcomers.

A positive move in the hobby, would be not to let the minority dominate the hobby and the future of the hobby, but listen to new and old alike. At 50, I still can learn about parts of the Hobby. If it is from a station of 12, then it is still knowledge. Yes I look forward to the future, and when I reach 100, I hope something new is around the corner, 'stations and modes'.

K.T.Brown

NOT A RIVAL BUT AN ALTERNATIVE?

To; *letters@qsp73.demon.co.uk*

Mark Coultas said that if the Founders of UKRS put their efforts into supporting *"Their Internationally Recognised National Society"*, perhaps by standing for Council, we would perhaps all benefit, rather than undermine them. He refers to the Founders of UKRS as "Sad people".

Being a Founder member, I am far from sad and resent that type of remark. I see nothing to be gained by sniping at any individual or Society, indeed, treat the Societies the same as you would an Amateur Radio Club, in that they offer each set of members something and together they form part of the Hobby.

In the opening pages of Ham Radio Today Vol 15 Issue 6, UKRS gave a very good detailed article concerning discussions with the RA, it is interesting to note that even the RA are concerned with the in-house fighting going on.

Given that the RSGB are providing services and functions for the RA, who then do you complain to if you feel that you have a complaint? The idea is to have an independent body to turn to, who can seek to represent the issue in question 'in-house' rather than run to the RA, who will try to resolve the problem but may well be by way of tighter legislation.

As far as I know UKRS is not a *rival* to RSGB, and has no desire to take on any roles that should be administered by the RA. It was formed because people felt there was a monopoly, not because they wished to disband the RSGB. In fact Mark Colutas makes a point of identifying the RSGB as the *Internationally Recognised National Society*, this is quite true, the IARU will only recognise *one* Society from each Country and this is RSGB, why alter that. However, when it comes to issues closer to home, why is it only one Society can represent us? The RA are prepared to listen to anyone.

I hope that we can all reside on the amateur bands and in our respective clubs and societies in harmony, and enjoy the hobby rather than worry about who's doing what and who belongs to who. I get the feeling we will need to identify which society we belong to when we put out a CQ; perish the thought. 73 to you all, what ever society you belong to.Jerry Pallister, G1YXF

£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 the publication month). So write in 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, or Email to letters@qsp73.demon.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 are not necessarily those of the magazine.***

Muzzled members?

DEAR HRT,

I feel G0SLP deserves some answer.

1) If I append my qualifications to any letter it is not to make me feel important, but to fend off those who do not want to agree with me and, having no real argument, deploy epithets such as "Winger" (sic), "sad" and the like, hoping to convey that I am unworthy and not to be noticed.

2) I too am sick of bickering over Morse. However, "bickering" as deployed by G0SLP equates, I suggest, to "failing to agree with me". It is high time for all concerned to accept that Morse is a very good pastime for those who have a taste and aptitude for it, and its voluntary use should by all means be encouraged, and to accept also that retention of a compulsory test to deprive those with no aptitude of use of the HF bands, is long past being either necessary or acceptable (indeed, what is a Morse pass today other than a 'Status Symbol'?). As bickering was in my personal experience going on 45 years ago, I think I can assure G0SLP that what I suggest is the only way to stop it.

3) I am a member of UKRS, because the purpose of UKRS is not to undermine RSGB, but to rather fill in where RSGB has been inadequate, and to listen to individuals where RSGB has not.

4) I wonder just what would be the benefit of the UKRS Founders standing for RSGB office. That they might be muzzled?

Alex L. Dick
'Sandy', GM0IRZ

A CHALLENGE TO READERS FOR LOW COST 6M GEAR

DEAR HRT,

It appears that 6 metres or 50MHz is getting quite active now and also the new repeaters, ideal for the B licence, but to find a decent priced rig for 6 metres is very expensive, I can't find any kits or circuits to build, price is about £150 or more at rallies. I am on a limited income, it is easy to find a kit for HF rigs to build, and very cheaply, for as little as £10 in Ham Radio Today, but nothing for 6 metres. Can you help or suggest something, circuit or blue print perhaps?

Mr Smith G7WIP

Editorial comment;

Low cost equipment, i.e. of around the £10 mark, for 6m could be rather difficult to find unless 'junk box' techniques are used. But, as well as 'homebrew from scratch' there are a couple of ways to get a 6m FM, or indeed multimode, rig on the air at little cost. The first is to convert a suitable ex-PMR rig, one such conversion for the E Band Pye Westminster to 6m appeared some time ago in this magazine. Another is to use one of the multimode CB rigs widely available some years ago, again converted to 6m, the conversion details for which having also been documented. Although I'm told such CB sets can no longer be acquired for conversion, a number of amateurs have converted these and they're often just 'sitting on the shelf'. A Free Reader's Ad in our 'Wanted' section could prove beneficial for this, or indeed many other equipment requirements! But here's a challenge to budding authors. How about a simple 6m transmitter and/or receiver combination as a submitted construction project, maybe even using a direct conversion receiver together with the receiver VFO driving the transmitter stage? Over to our readers...

CHANGES

DEAR HRT,

As an old timer, I perhaps do not take too kindly to changes. The particular change that has got me a bit rattled is the change of issue identification of your excellent magazine. I look forward to its publication - and have bought it for many years - and the CQ from G8IYA in particular and I had better add that I look forward to Jeremy's bit as well, just to keep the harmony mode going.

I refer to the 'Volume 15 No.3', in place of 'March 1997', plus the Vol. etc as used by other magazines. My query may be in the same league as the Aerial v Antenna, or Wireless v Radio, but it would seem that the Month and Year would be a lot more acceptable to crabby old WW2 types.

In conclusion, I thank you for the excellent Software Offers you put together, I have most of them and have just today ordered the Vol.15 No.3 single disk, and at £2 has to be the bargain of the year.

73/72 Bill McConachie

Editorial comment;

Thank you for your letter and for your kind comments regarding the magazine Bill. As 13 issues of the magazine are published each year now, and because there are only 12 months in a year, we can no longer call them the 'March' or 'July' issues. However, Sharp-eyed readers will probably have noticed, that as from the last issue (No.7), we began putting the 'Publication Date' on the front of magazine next to the Volume and Issue number instead. We hope this is helpful to you.

SCANNER COMPETITION

FREE COMPETITION

Here's your chance to win a great handheld scanner receiver in this month's free Ham Radio Today magazine competition!

This month, you've the chance to win a free Commtel COM202 handheld scanner receiver, kindly donated by SRP Trading. The COM202 is a handy companion for your listening hobby, and covers 68-88MHz VHF lowband and 4m on FM in 5kHz steps, the VHF airband range of 108-139.975MHz on AM in 25kHz steps, 137-174MHz VHF highband and 2m on FM in 5kHz steps, and 380-512MHz UHF including 70cm on FM in 12.5kHz steps. It scans and searches at 16 channels and steps per second, and 50 built-in memories let you store you favourite frequencies. A 'return message' delay of 2 seconds helps you hear replies on the same frequency, and a set-top BNC aerial connector is used with a supplied set-top aerial for portability as well as letting you connect an external aerial for home or mobile use. Crystal and ceramic filters are fitted for selectivity, and 200mW audio output lets you hear received signal clearly and without distortion. If you'd like more information on the COM202 or one of a wide range of other scanners, ham radio equipment, accessories and aerials, just contact SRP Trading, see their adverts in issues of Ham Radio Today magazine.

You'll find all the answers to the questions below in this issue of the magazine. *Hint;* take a look at the SRP advert as well as the 'Contacts' section and 'Scanners' column this issue for more clues.

Ham Radio Today magazine Handheld Scanner Receiver Competition Entry

Send your entry to: Ham Radio Today, Scanner Competition, Nexus Specialist Publications, Nexus House, Boundary Way. Hemel Hempstead, Herts. HP2 7ST

If you don't wish to cut this coupon from your copy of Ham Radio Today magazine, just send us the original corner flash from this page together with either a photocopy of the coupon, or a piece of paper with the details similarly laid out, with your entry. Entries must be received by Friday 29th August 1997. The draw will be independently drawn, and will take place on Monday 1st September. The winner will be the sender of the first correct entry drawn, and will be notified immediately by phone (if Tel. number is provided) or by post that day. Ham Radio Today magazine reserves the right to publish the name of the winner in a subsequent issue of the magazine.

Competition questions - please circle the correct answer (or cross out the incorrect answers) in each case;

Q1) Do SRP Trading sell;
a) Scanners and aerials only
b) Ham radio transceivers and aerials only
c) Scanners, ham radio equipment, aerials and accessories

Q2) How many channels does the Commtel COM202 scanner have?
a) 10
b) 20
c) 50

Q3) SRP Trading are based in;
a) Margate
b) Birmingham
c) Plymouth

Q4) The direct Email address of our regular 'Scanners' columnist Bill Robertson is;
a) *scanman@qsp73.demon.co.uk*
b) *billrobertson_hrt@nexusmedia.co.uk*
c) *bill@hamradiotodaymag.demon.co.uk*

My details;

Name;_____

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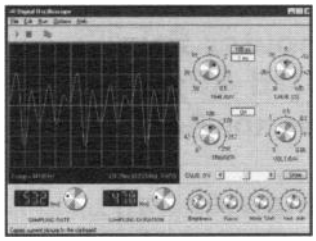
Place a mark in this box ☐ if you do not wish to receive information from other companies besides the publishers or SRP Trading

SOFTWARE OFFER

Once again we've put together a collection of the very latest amateur radio software, exclusively for Ham Radio Today readers - 12.5kHz channel spacing 'setting up' problems are also solved - read on!

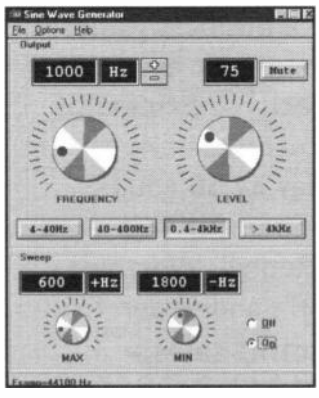
This month we've again searched out a superb collection of the very latest PC software for both Windows and DOS for you. Each month's selection is exclusive to Ham Radio Today readers, and is offered on a cost-only basis as a 'thank you' for buying the magazine.

Would you like a great

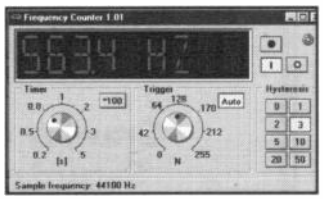


Digital Oscilloscope

collection of test gear in your shack, like an oscilloscope, frequency counter and audio signal and sweep generator? But you've only your PC and sound card? No problem! We've collected just this for you, with three separate Windows-based ***SCOPE, COUNTER, and***



Sine and sweep audio generator



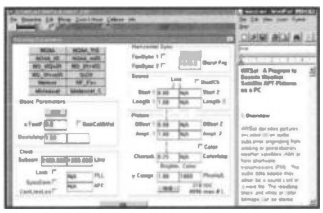
Digital frequency counter, also included on this month's disk collection

AUDIO GENERATOR programs. These freeware programs use only the sound card on your PC as an interface, and can save you hundreds of pounds in what you'd otherwise spend on equipping your shack for homebrew projects or to help you set up your 2m or 70cm rig for the new 12.5kHz spacing which is now being used throughout Europe.

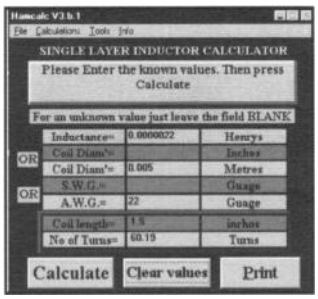
The next program on this month's disk is ***WXSAT***, which is again a superb Windows-based program using your PC's sound card as the interface, for storage, demodulation and display of received HF fax *and* satellite weather fax signals.

HAMCALC version 3.b.1 is a British shareware program from Howard Guppy in Essex, and offers a wide variety of ham radio and electronic circuit and conversion calculations, such as tuned circuits, frequency and wavelength, horizon distance, inductive and capacitive reactance, filter / CR times, single layer inductors, Ohms law, decibel calculations, AC voltage conversions, series capacitor and parallel resistor solutions, and a unit conversion calculator, a great collection sent to us direct by Howard himself which will be useful in any amateur's or listener's station.

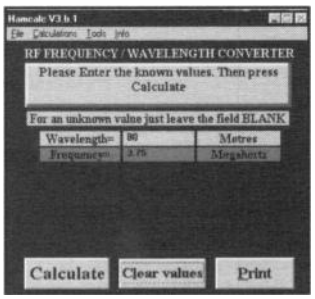
Also on this month's disk are a collection of self-running guides, which can be run under either DOS or Windows, from our 'Computer Contacts' columnist Paul GORUR. These include a new file, ***"So What Now V2.0"*** which is an NRAE guide with answers to numerous of frequently-asked questions on amateur radio such as CTCSS, VHF/UHF band plans, Morse Code and so on. Other self-running files from Paul G0RUR on this month's disk include a guide to ***"Understanding Computer Terms"*** which explains all those



WXSAT offers weather satellite and HF fax reception with no external interface needed



HAMCALC helps hams and listeners with calculations

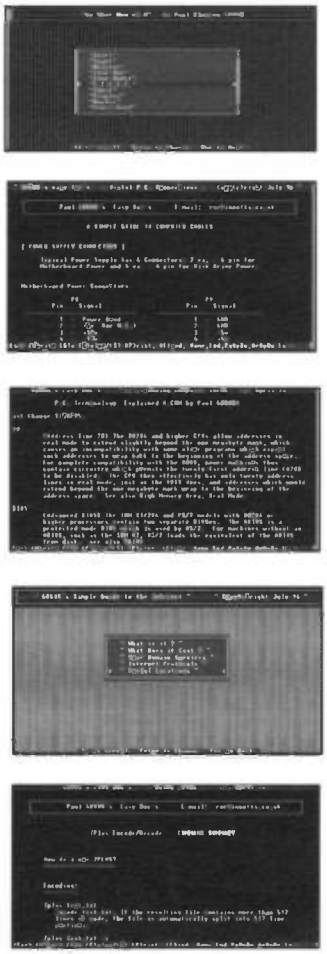


abbreviations and exactly what they mean, ***"Useful PC Connections"*** with pin-by-pin connections for computer cables and the like, ***"Using 7 Plus"*** on packet radio and how it can be used for sending and receiving multi-part files, and ***"G0RUR's Simple Guide to the Internet"*** explaining what it is, what it costs, useful locations and plenty more.

All the above programs are contained on a single disk, as this month's collection. They are all fully functional freeware or shareware programs for amateur radio use, and are not 'demo' programs. Each program comes with full on-disk documentation, and each month's collection is provided with easy on-disk installation routines and an information sheet.

FROM THIS MONTH'S COLUMNS;

'TrueScan' for the AR-8000 is a very comprehensive and fully-functional module-based program for Windows, offering full control of the AR-8000 handheld scanner via an RS-232 interface. See this month's ***'Scanners'*** column. The



Useful self-running 'help' programs from Paul GORUR

software itself is just under 4Mb in size in compressed form and is supplied on three 1.44Mb disks (at £2.00 per disk), with an easy on-disk extraction routine to your PC's hard disk for installation. Also provided with the program is an information sheet and circuit diagram for a suitable one-IC interface for the AR-8000, plus an information sheet on setting up the TrueScan program for European use.

Please note this *TrueScan* collection of three 1.44Mb disks and information sheets, which is offered this month as the *'AR-8000* pack', is a ***separate*** multi-disk collation to this month's software collection (Vol 15 No. 8) disk.

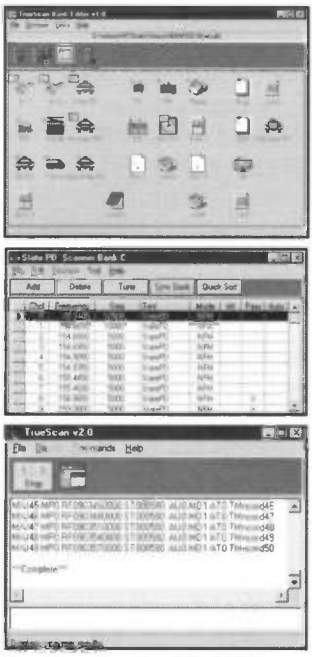
ORDERING

Ham Radio Today Software Collections are supplied on 1.44Mb PC disk format. This month's disk, HRT Vol.15 No.8, is priced at £2.00 per disk including UK p/p and VAT, with the three-disk AR-8000 collection at £6.00 incl.

Readers outside the UK (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 £2.50 per disk, or cash (e.g. a UK £5.00 note for two disks or £10.00 note for four disks, orders can be combined with past month's offers within the validity dates). You send cash at your risk, use registered post if you wish added security. All UK orders are sent by standard post, those outside UK by airmail. These are offered as a service to readers and just cover costs, we believe it to be the cheapest postal service anywhere in the UK.

HOW TO GET YOUR DISKS

Simply send a cheque or Postal Order (or as above for outside UK) payable to ***S. LOREK,*** together with your completed coupon to; Software Offer, PO Box 400, Eastleigh SO53 4ZF England. Cash may be sent at your risk if you don't wish to send a cheque or PO. If you don't wish to cut out the coupon, you can send your order on a photocopy or a plain piece of paper with the same details, but as this is purely a service to readers this ***must be*** accompanied by the ***original*** corner flash from this page as proof of readership. If you would like the added security of recorded delivery (UK only), include a *fully* completed recorded delivery form (available from your post office), add £1.00 to the total to cover the additional costs, and allow a few extra days for processing and delivery.



TrueScan for the AR-8000

Important notes: Please *do not* make your cheque or PO payable to any other individual or any company (note that "Mr. S. Lorek" is *not* acceptable to the UK banking system). If you do, your order cannot be processed and will be held awaiting an SAE from you. Other payment methods, such as foreign currency, unfortunately can't be accepted at this time. Orders for this month's offer will be accepted up to 31st October 1997. Disks are sent by standard post at readers' own risk. Queries regarding supply of disks should be sent to the above address with an SAE for reply. Disks found to be damaged in the post will be freely replaced if returned with an SAE within 28 days of receipt, you should reclaim postal costs for disk damage by the PO from your local PO sorting office. **Please *do not* contact Nexus or the Ham Radio Today staff with queries regarding these disks, they cannot help you.** Disks are normally placed in the post within 48 hours of the receipt of your order, please allow up to 28 days for delivery.

HAM RADIO TODAY SOFTWARE OFFER VOL. 15 NO.8

Please send me; Qty____of this month's disk (HRT Vol.15 No.8 at £2.00 U.K., £2.50 outside U.K. per disk) Qty____of AR-8000 pack of three disks and printed details (at £6.00 UK, £7.50 outside UK per pack) *Cheques/POs payable to* ***S. Lorek*** *(please* ***not 'Mr.'*** *nor any other individual or company). This month's offer is valid only until* ***31st October 1997****. If you don't wish to cut this coupon, just use a separate piece of paper and include the corner flash from this page.*

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Post this coupon to; Software Offer, PO Box 400, Eastleigh, Hants SO53 4ZF.
Photocopies will be accepted if accompanied by the original corner flash from this page as proof of readership. Please note this is a post only service, telephone orders and enquiries can't be accepted. Queries or faulty disk returns must be accompanied by an SAE for reply.

QRP CORNER

Dick Pascoe G0BPS describes how to build a low-cost ATU and suggests a few ways of modifying the IC-706 for QRP power levels

Having recently acquired an IC-706, I have been trying to get information on any modifications to set the low power to QRP levels. I've had some response but most suggested changing the setting of the low power preset. A long letter from Brian G0NSL reminded me of the normal way we can do the modification, by applying a negative voltage to the ALC line (Automatic Level Control). By applying this negative voltage we can adjust the power level to any (lower) one that we require.

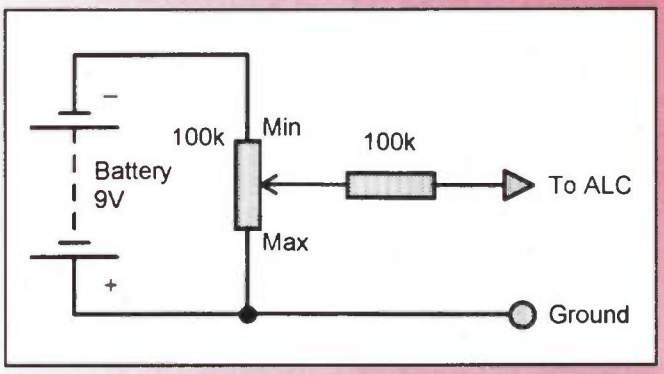


Fig.1: Simple variable power control

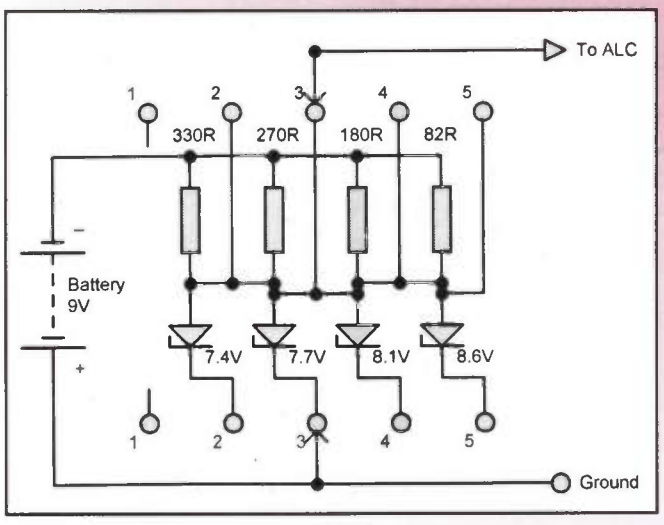


Fig.2: G0GSF version with two section switch

In most cases where I, and others have done this, we have just taken a 9V battery and by using a potentiometer as in Fig 1, adjusted the power level to our required point. There are several disadvantages to this. The battery has to be removed every time you wish to use the rig at its normal power setting. A bit of a chore getting behind the rig every time to do this. Brian G0GSF (ex ZS6BKW) had published his variation of this control. With this variation the power level can be varied in controlled steps (see Fig 2). Even greater range may be achieved by using different Zener diodes and a rotary switch.

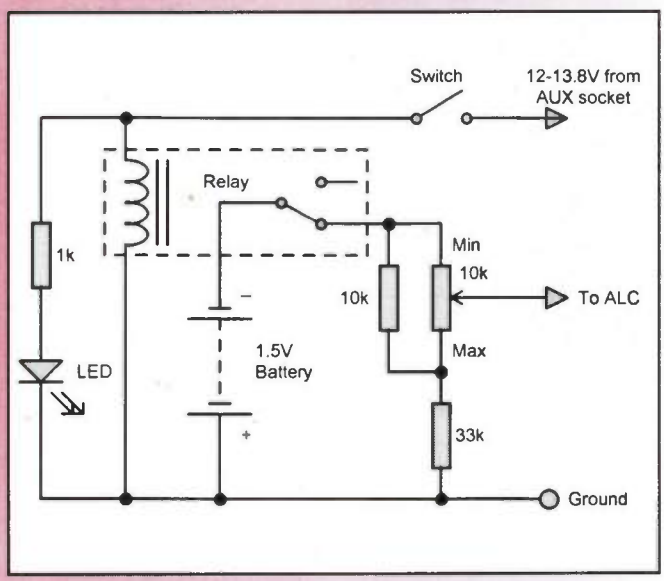


Fig.3: G3DNF version

Fig 3 shows the 'ultimate' version that can be switched in and out, or left in place to be energised whenever the rig is switched on. This version appeared in 'Sprat' some time ago from Gordon G3DNF and I think it would work well with many rigs. The best way of course is for you to try and experiment for yourself.

AERIAL TUNERS

A recent comment about aerial tuners brought to mind a comment from Ian G3ROO some time ago.

He had trouble locating a roller coaster for his latest aerial tuner, and as it was only for QRP work he tried a roll of wire that was tapped, as usual, at varying points. His method was to wind ten turns of wire around his hand and then twist a short length together to form the tap and then wind a further ten turns and make another tap. After doing this several times, increasing the number of turns each time a substantial roll of wire will have been used resulting in a lot of inductance. He then used waxed string to tie the whole together. Each tap is identified and connected to a multi-way switch. He then proceeded to add a variable capacitor to make the ATU.

Thinking of this later, the current difficulty of finding air spaced variable capacitors has become a serious problem. Back to the experimentation. In the bottomless junk box I found a couple of sheets of PCB, single sided measuring about 200mm x 100mm. Thoughts of (dare I mention?) amplifier tuning came to mind.

I soldered a wire to each PCB and separated them with a sheet of paper. Out came the trusty capacitance meter and, lo and behold, it showed 365pF. By sliding the plates away the capacitance dropped.

If one plate were bolted to the base of the ATU and the other to an insulated threaded bolt, the adjustment between the two could be made very finely (see Fig.4). A sheet of 'Fablon' or similar insulation will be required and turned around the edges of one plate. OK, it will never replace the proper variable capacitor but if none are available this will work until one is found.

So that's it for this time, news and views to me via the editor, via packet to GB7RMS, Email to *Dick@kanga.demon.co.uk* or snail mail to Seaview House, Crete Road East. Folkestone CT18 7EG.

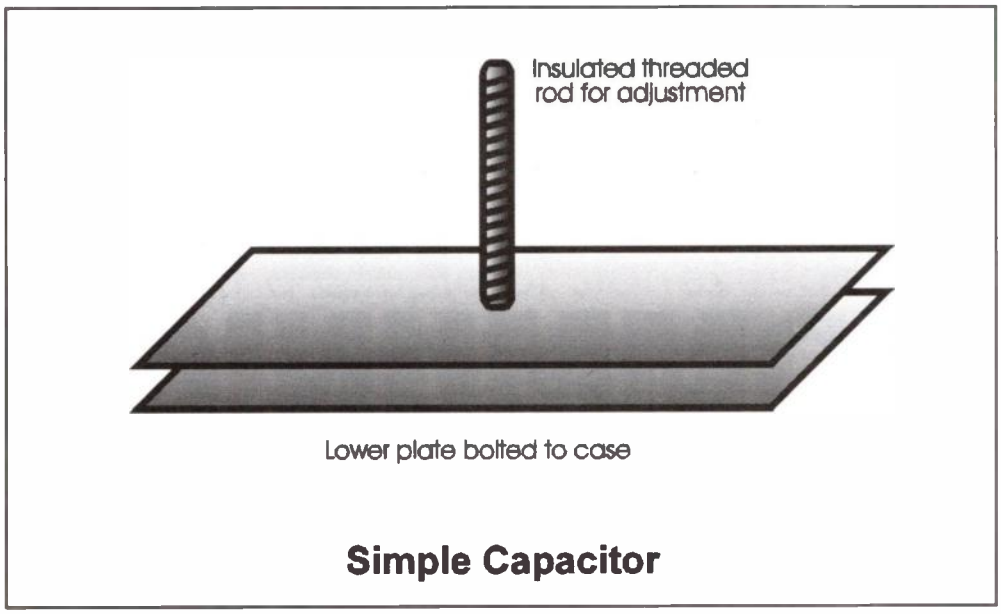


Fig.4: Simple capacitor

NET COMMUNICATION

Jeremy Boot G4NJH says "Don't forget the listeners!"

Our hobby is very varied. We hear a good deal about high profile contesters, DXpeditions, award winners and of course we hear daily our fellow amateurs on HF, VHF, the local repeater and the like. But what about those listeners who sit in the background, and who often 'know' us just as well as the friends we speak to on the air? This month I should like to consider what Internet has to offer them.

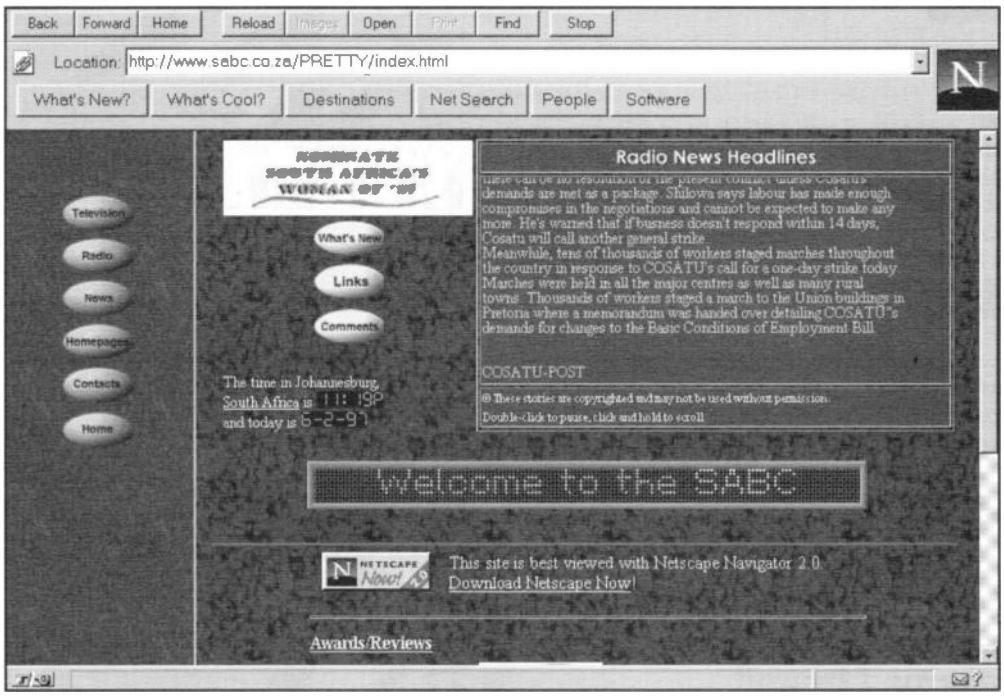
GETTING STARTED

My introduction to amateur radio in 1977 came from a trip to New York. In the sweltering heat of down town Yonkers, my guest produced an enormous SW radio - probably a Grundig of some sort - and said, "We usually listen to the BBC about now." I was flabbergasted: how? Then vague memories stirred of that Bush console, in a beautiful veneer, as big as I was, from my childhood, when those strange crackles and whistles and foreign voices announced that my Mother had been dusting again and accidentally turned the bandswitch to 'SW'.

The rest is history. When I returned from NY, I bought a first a SW receiver, then through Lowe's in Matlock (1) - in the hut, not the posh outfit they have now. I was introduced to SSB and receivers capable of receiving it. Ah, happy days, when I meticulously logged broadcast stations and hams alike and the joy of sending QSL cards and getting back not merely cards but often warm and friendly letters with them! It was on the strength of one such friendship that I went in 1985 (after being licensed) to Queensland.

COURTESIES

We must all take care not to lose such courtesies, nor the attention we give to our colleagues, amateurs or listeners alike. The age of civility is not yet past, I hope. We should not hesitate to give our time, share our equipment or give access to the shack. Showing patience towards the novice (in all senses of the word) will enrich us as much as them. Our hobby excels in unselfishness. It always has, but it takes effort. If some values are, or should be, so to speak, unchanging, time marches on and new developments such as the Internet - which is what these articles are about - go on apace. Changes of this sort, major as they are, need not be unwelcome or destabilising. Innovation is no



Radio S Africa, professional presentation, or what?

excuse for lack of effort or achievement.

SHORT WAVE LISTENERS

So this month's contribution is more for the Short Wave Listeners amongst us. Some will have registered with the RSGB, ISWL, or with other international organisations as Short Wave Listeners. Others will not. Some will be heavily into the minutiae of contests, point-scoring, awards and the like, using sophisticated equipment and aerials; others will have simpler equipment and follow no particular path or association. They may be club members on their way to a ticket, they may not. It can be tempting to think or SWLs as 'apprentice hams.' This used often to be the case, but CB largely put paid to that. SWLs are an historically well-established section of our hobby.

So what does the Internet have to offer SWLs? Oh no, I hear you say, "not Iphone again!" No indeed! I am thinking more of the information which is of specific use to the listener. First there are the broadcast stations. The last copy I saw of the World Radio and TV handbook, a useful, but in my opinion a shockingly expensive book, produced annually *(http://www.wrtv.com)* listed a good variety of international stations which run sites giving information of their particular system. They often include some pleasing tourist links too as well as transmitter info and technical details. They provide Email (as all good commercial and private Internet sites should) and some sort of interactivity. Sometimes there are special offers. Ex-SWLs may still remember as I do the free Radio Peking calendars, and I still have a shelf of propaganda literature from East Germany showing happy, contented citizens who hardly noticed the 'wall' at all! How times change, perhaps Southerby's would be interested in these in a few years.

Back to the plot. Klingenfuss, who produce those very detailed books on all sorts of frequencies, have a CD ROM and a rather plain but useful Internet site at *http://ourworld.compuserve.com*

Radio Australia, always a popular choice, fair dinkum!

BBC, Wallace and Grommit too, a super Internet site, very comprehensive

/homepages/Klingenfuss/QRZ (http://www.qrz.com), a site which allows you to look up an amateur by name, callsign or even beam heading, replicated on many an amateur homepage (including mine), as have Buckmaster *(http://www.buck.com/cgi-bin/do_hamcall)*, and equipment is viewable with the latest news of what is available from Yaesu (2) Kenwood (3) Icom (4) Alinco (5) to name but a few.

Of the broadcast stations' sites, I particularly recommend Radio Australia *(http://www.abc.net.au/)*, Radio Japan *(http://www.ntt.jp:80/japan/NHK/)* and of course the BBC World Service *(http://www.bbc.co.uk/worldservice/)* and its links. But there are many others. I have a list on my own SWL page *(http://www.innotts.co.uk/~asperges/swl.html)* and many to be found there are listed aside.

In addition, some home pages cater for the SWL. I was keen to make a special page for SWLs on my site and I have had some good feedback, not just for the page itself but for the fact that it exists. A page called Jim's Radio Room *(http://www.exit109.com/~jimh/radio.html)* is a good resource as is the Nordic Shortwave Centre (http://swl.sds.se/) and Simon Jude's International Shortwave League Pages *(http://www.aber.ac.uk/~srj5)* which is UK-based. Finally, don't forget the RSGB's own pages *(http://www.rsgb.org.uk)* which have some items of SWL interest content, as well as all their usual fare. Each page has its own new links of course. For a giant and up to date page of broadcasters, Oxford University has a page at *http://www.comlab.ox.ac.uk/archive/publishers/broadcast.html*. Another excellent list is to be found at *http://swl.sds.se/iguide/* (the Internet Guide to International Broadcasters).

I hope this gives some food for thought. Needless to say all the general amateur pages are available to SWLs as they are to us all, some of more interest than others of course. There are newsgroups too of special interest: *rec.radio.shortwave, rec.radio.broadcast and the alt.radio.scanner and alt.radio.scanner.uk* groups as well as that fount of all rumour, *uk.radio.amateur*.

By the way, those of us more used to speaking on air than listening can still rediscover the joys of listening. Try it (again) sometime. Anyone care to catch up on years of arrears of QSLs though? No, I thought not. I'll just have to send them by Email. Happy listening!

Jeremy Boot, asperges@innotts.co.uk and g4njh@usa.net

G4NJH Amateur Radio Pages in the UK: http://www.innotts.co.uk/~asperges/

Commercial equipment supplier www sites;

(1) http://www.demon.co.uk/lowe/index.html

(2) http://www.yaesu.com/

(3) http://www.kenwood.net/

(4) http://www.icomuk.co.uk/

(5) http://www.alinco.com/

VHF/UHF MESSAGE

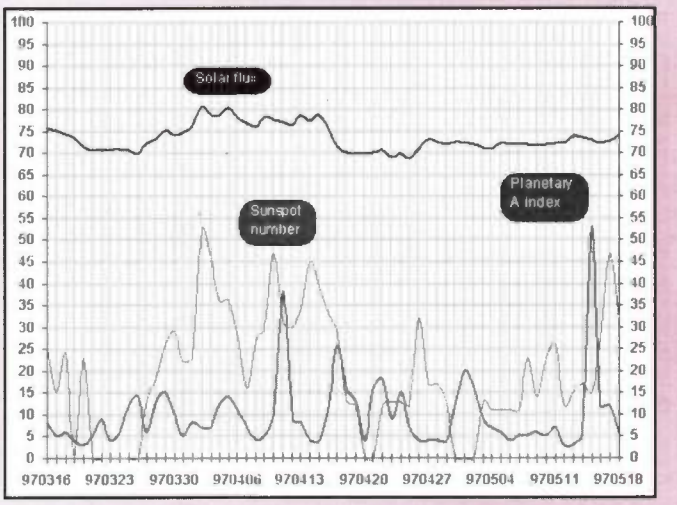
Geoff Brown GJ4ICD brings news on microwave activity from both Europe and 'down under', and details some interesting openings on lower bands

The 50MHz beacon VE9MS has moved frequency to 50.0685MHz, it is now FSK. Mario K2ZD writes;

"Installed a Six Metre Beacon on the frequency of 50.0685 using FSK. It signs K2ZD/B in FN20, located at Latitude 40-45-40 and Longitude 74-01-47, Grid Square FN-20. It overlooks New York City but is located on the New Jersey Palisades. The radio is a commercial General Electric radio running 20 watts output to a 5/8 wavelength vertical aerial, which is at a height of 76 metres. I originally tested a AEA Halo but the high winds at this location blew the aerial off of it's mount, so I switched to a vertical. The beacon is on twenty-fours a day. I hope it will give my friends 'over the pond' an indication when the band is open to the East Coast. Signal reports would be appreciated as I can increase the power output to 150 watts if needed. Wishing good DX to all, 73 Mario K2ZD (formally WB2CZB for 34 years) 50 MHz DXCC number 048".

BAND CONDITIONS

April 27th produced Sporadic 'E' on 50MHz from Japan to Hong Kong. Later in the day Jimmy W6JKV/5 who has now moved to Texas, and Dave N5JHV, reported a 90 minute opening to the W4 area. In Europe there were a few reports of 50MHz traffic, but all from the Mediterranean area (i.e. Italy to Portugal).



Here is the latest on cycle 23, note the Sunspot increase in May

News came in from Hatsuo JA1VOK which reads as follows; "The BS7H DXpedition in OK85 was selectively worked by JR6HI, Ken and other JR6's in grid PL36, by single-hop E-skip at 0225-0400z on May 3, just before unexpectedly going QRT. Ken worked the group on CW at 0225z and SSB at 0343z. JR6VSP worked them on CW at 0302z and SSB at 0312z. Nothing was heard except for weak short popped signals in Jamainland, including my area (3,200km). BS7H is believed to have worked DU and VS6 on 6m on the same day".

May 4th produced more short Sporadic 'E' from northern UK to Italy and IT9. OZ5W operated in the IARU VHF contest and worked some nice DX on Six, but mainly via Meteor Scatter. Palle s group were running a five element Tonna and two six element NBS yagis plus a kilowatt. When they used the two big aerials, signals in GJ were constant at 5/3 via Troposcatter / Ionoscatter, the distance is about 1166 km.

Early May also saw a group of VHF DL s active as C31MS. C31 (Andorra) has not issued reciprocal VHF licences for some years, after a UK station operated without a permit on 50MHz.

I did question Winfried Recker DH3YAK, who seemed to be the publicity man for the group on Internet, Winfried stated that this was the first permit issued for VHF work from C31 in 1997 . The permit was for Meteor Scatter only, no tropo.

Ezzat SU1ER heard his first signals on six metres on the 6th May. Two Italians were heard at 3/2 during the afternoon, but the Italians could not hear him. This was due to a fault that had developed on the 100 watt 50MHz amplifier that the UK Six Metre Group had donated. On the 9th, Ezzat (SU1ER) worked his first station on 50MHz, this was an IT9 station. The 11th was even better as he worked Italy, Spain (best DX so far) and IT9 again, he was heard weakly in GJ working the Italian stations.

George JY9QJ in Amman, Jordan (KM71) is now active on six metres with an IC-736 and a CL6DXX seven element aerial.

May 15th saw a large aurora, reports were received even on 432MHz! LY2WR, 432.0528MHz reported SM3AKW 59A at 1446z, John G4SWX reported SM and GM loud on 144MHz.

Several large ES openings transpired on 50MHz during mid May, but nothing had been reported two-way across the pond! Nick G3KOX had a fleety contact with Israel on 50MHz on the 17th, this was of course via double hop Sporadic 'E'. Bob WA1OUB spotted video from Spain on 48.250MHz on the 19th.

As of the 20th, Ezzat SU1ER in Egypt had worked IT9, 9H1, SV, YU, EH5, 4X and Italy on six metres, we were all still patiently waiting for the multi-hop events in June to work him. More later.

QRV 70MHZ?

Allan GM4ZUK and Stewart GM4AFF have now created a 4 metre site on the Internet at:

VK5NY, Australia's great microwave man!

http://wkweb1.cableinet.co.uk/gm4zuk/4m/

The pages contain everything to do with 70MHz activity including video clips, audio clips and even equipment. This site is well worth a visit if you are active on the band.

MICROWAVE NEWS: DE VK5LP

VK5KK made a successful microwave outing on 13th April. He says:

"Contact was made on 10368.100 MHz between VK5KK/P5 at Summertown (just north of Mt. Lofty) at 1228 and Colin VK5DK/P5 at Cape Northumberland, who was accompanied by Trevor VK5NC. Signals were 55 both ways, the distance being 385km. Colin used a Qualcomm 10 GHz transverter with 1 watt to a 600 mm dish. VK5KK was running DB6NT with 1 watt into a 600 mm dish. Interestingly, signals on 144 MHz only averaged 51, with QSB, using 10 watts and a three element beam. 10 GHz signals were fluttery but more consistent! Signals were available on 10 GHz between VK5KK and VK5DK for the length of the test (until 1310) with little change in signal levels. Colin listened for the Adelaide beacon, on 10368.45 MHz, however did not report hearing anything.

"Keith VK5AKM was also on 10 GHz from his home QTH, however he did not hear Colin. VK5AKM uses a 600 mm dish at 13 metres with 250mW. His location at Wasleys, is about 60 km north of Adelaide, beaming through a saddle in the Mt Lofty Ranges. Signals between VK5KK/P5 and VK5AKM on 10 GHz (57 km path) were only 52 due to obstructions.

"At the same time, Russell VK3ZQB/P3 was at Pt Fairy. Signals were stronger from Pt Fairy on 144 MHz, than from Cape Northumberland with both VK5KK/P5 and VK5AKM working Russell from 1220 to 1340. Various attempts were made on 10368.1 MHz from 1245, with some signals heard by VK3ZQB/P3 from VK5KK/P5 at 1310 and in the reverse direction at 1325, but signals did not peak long enough to establish contact.

"During the time of the attempts, Russell reported that the weather conditions at Pt Fairy, changed from clear skies to heavy cloud as the front approached. 2m signals gradually dropped after 1330. Weather conditions at VK5KK/P5 were typically damp with light rain that seems to exist with microwave openings at 600m ASL, enough to get soaked. The rain had no effect on 10 GHz signals other than to scatter the beam heading by about 10 degrees. Propagation was ahead of a front going through the bottom of SA/VIC ahead of a large high in the Bight (centre 1033 mB). Where were highs like this during summer?"

Microwave News from Sam Jewell; The area of high pressure in early May resulted in enhanced conditions on the higher bands right up to the start of the multiband contest. Friday night started off well with an excellent water path between the east coast of England and the Netherlands. 10GHz QSOs with PA0WWM, PA0/OZ1DOQ, PE1JBK, PA0EHG and PA0EZ (all in JO22) produced signals up to 59+ both ways.

On 24GHz QSOs with PA0EHG and PE1JBK (and an exchange of signals with PA0EZ, without QSO details) followed. This was my first QSO with PE1JBK on 24GHz for a new initial on the band. Trans-North Sea QSOs on 24GHz are now becoming quite common-place! The conditions lasted long enough for multiband exchanges with PA0WWM, PE0MAR/P, PA3AGS and G4LIP/P before the rain bearing front wiped out all the higher bands during Saturday evening. A partial return of conditions on Sunday resulted in multiband QSOs with PE1JBK. Multiband means all bands 432 to 10368MHz except 5760MHz. Conditions on 24GHz were never quite good enough for a QSO across the North Sea during the contest. I really must get the 5760MHz transverter finished!

That s all for this month, news, views and info please to: Geoff Brown, TV Shop, Belmont Rd, St Helier, Jersey. C.I. or fax 01534 877067, or Email equinox@itl.net

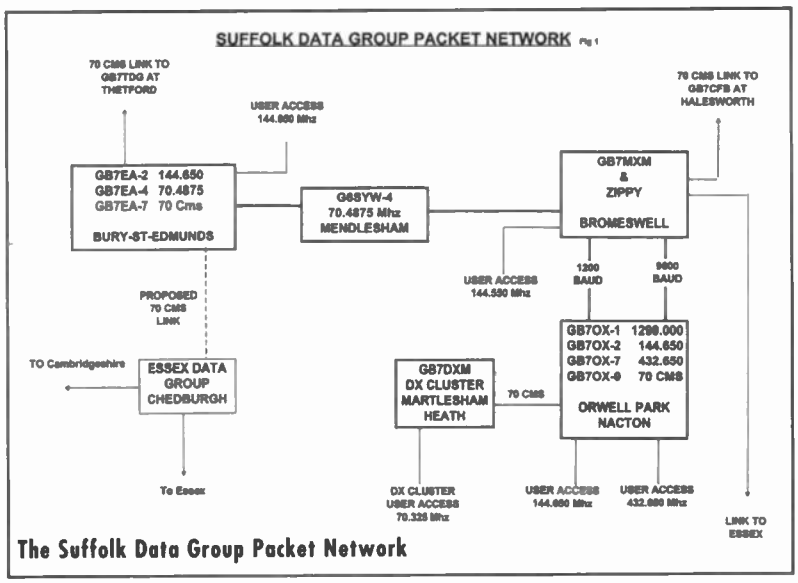
This is Peter G3PHO's microwave test equipment.

DATA CONNECTION

Ham Radio Today's resident data SysOp brings details on the new 2m packet radio bandplan

A letter (accompanied by a very informative and well-produced newsletter!) from Andy G3ZYP tells me that the Suffolk Data Group has in the recent past continued in name only, with the local network being kept up and running by a small group of very willing workers. Building on the success of two recent group meetings, Andy is now very optimistic that the committee can take the group forward. The group have also published a very interesting and informative Summer 1997 newsletter, membership cards are all printed, and they have a web site on *http://freespace.virgin.net/unicom.co/sdg* Andy says that the local network is available for all to use, but adds that subscriptions and donations are always welcome to keep the local node network running as well as for expansion and improvement. If you're on packet in this area, then do consider getting in touch with the group.

For more details, contact the group's treasurer, Richard *M1ADT @ GB7MXM* or Email to *Rvickerstaff@compuserve.com*



The Suffolk Data Group Packet Network

BARTG PERSONALITIES

We often contact amateurs via data modes, but we often don't know what they look like apart from seeing them at rallies! Ian G4EAN kindly sent me a collective 'mug shot' of some of the personalities in the British Amateur Radio Teledata Group committee, these being;

Bill McGill G0DXB, the Membership Secretary who's the main contact person for all subs payments, enquiries about membership and notification of members' change of address.

John Barber GW4SKA, the Chairman and Contests Manger

Ken Godwin G0PCA, Publications Sales and Rally Co-ordinator, who arranges (and staffs most of) the BARTG stands at rallies and sells the BARTG's range of publications by mail order

Alan Hobbs G8GOJ, President and mechanical RTTY expert, who's the longest serving member of the BARTG and is also their expert in mechanical RTTY.

Dick Whittering G3URA, Treasurer who manages the finances of BARTG, and

Sam Hallas G8EXV, Internet Manager, who maintains the group's Web pages at *www.bartg.demon.co.uk*

Not to be forgotten is of course Ian himself who's the group's Secretary, and although he doesn't appear in the photo I know that Ian is a very active and significant member of the BARTG. The accompanying photo shows Ian's comprehensive data station, which comprises an FT690MkII, FT290MkI and FT790MkI all having been acquired secondhand, together with an FT-757MkI for HF. Ian's aerials include a TH3Mk3 for 10, 15 and 20m, an 18AVT/WB vertical for 10-80m and a G5RV dipole together with various VHF/UHF aerials. The multimode TNC is a Kantronics KAM (another secondhand bargain, Ian tells me), driven by a Commodore C64 computer, although Ian has an 8086 PC which he says will eventually replace the C64.

You can read a lot more about the BARTG in their excellent quarterly publication 'Datacom', membership details can be obtained from Bill G0DXB @ GB7WRG or Tel. 01709 814010 evenings 7.00-9.00pm.

Some of the BARTG committee, Bill G0DXB, John GW4SKA, Ken G0PCA, Alan G8GOJ, Dick G3URA and Sam G8EXV

REVISED 2M DATASUB-BAND

A full DCC meeting held on the 24th May considered the proposed plan at the time along with further comments that had been received.

As a result the DCC say they are pleased to announce the following ratified bandplan for the new 2m data sub-band;

144.825MHz; 25kHz channel, high speed only.

144.850MHz; 12.5kHz channel, AX25 BBS User access. Recommended for BBS's previously on 144.550MHz.

144.8625MHz; 12.5kHz channel, unallocated. Available for issue on NoV to GB7 mailboxes and nodes subject to local agreement.

144.875MHz; 12.5kHz channel, TCP/IP User access. Recommended for TCP/IP systems previously on 144.5625MHz.

144.8875MHz; 12.5kHz channel, AX25. Priority to be given to DX cluster user access where required subject to local agreement.

144.900MHz; 12.5kHz channel, DX cluster user access. Recommended for DX clusters previously on 144.675MHz.

144.9125MHz; 12.5kHz channel, Ad-hoc packet, one to one users etc. Will not be issued for use on GB7 mailboxes or nodes.

144.925MHz; 12.5kHz channel, TCP/IP user access. Recommended for TCP/IP systems previously on 144.625MHz.

144.9375MHz; 12.5kHz channel, unallocated. Available for issue on NoV GB7 mailboxes and nodes subject to local agreement.

144.950MHz; 12.5kHz channel, AX25 BBS user access. Recommended for BBS's previously on 144.650MHz.

144.975MHz; 25kHz channel, high speed only.

All channels, except those allocated for high speed, are 12.5kHz channels and efforts should be made to ensure that equipment used meets the appropriate specification to ensure that adjacent channel interference is minimised. This of course is particularly important for busy BBS and node user access ports. My thanks go Martin G1DVU, the RSGB/DCC Mailbox Manager, for the above information.

So watch out, the time is nigh! The 'changeover' will of course be phased in on a local basis when the frequencies have been vacated by existing users. For example, two frequencies currently used by RAYNET are 144.825 and 144.850, and I'm told RAYNET will be moving to 144.625 and 144.650MHz, hence a carefully planned changeover will be needed. In the meantime the best people to contact to see what the local timescale is for the changeover in your area would be your local packet BBS or node SysOp or group.

MIR BACK ON PACKET

Following a period of absence, packet activity from the Mir space station is back again. R0MIR is, at the time of writing, currently operating on 145.800MHz. I'm told however that the personal bulletin board in the packet TNC on board Mir should not be used as a 'general' BBS by stations on the ground. It has a limited message capability and I'm told it's intended for use by the crew for personal messages only to and from them. I understand there have been a few occasions in the past where the message storage has become filled to capacity with third-party message, so that the crew haven't been able to receive messages for them by prior arrangement.

Ian G4EAN's HF and VHF/UHF data station

NEW PACTOR BBS IN BOLIVIA

A message from Saludos de Claus, CP4BT, tells me that his PACTOR BBS is now operation, 24 hours a day, on 14.079MHz mark frequency. Claus lives in Tomave, which is a small village on the highlands of Bolivia, 3840m ASL, a mountain to the south of him at 5000m ASL acts as a reflector. He uses an SCS PTC II modem with an Icom IC-735 running into a 4 element beam, and says he looks forward to stations connecting to his setup, the BBS uses his own call. Claus is also on packet, and I'm sure that a message to CP4BT @ DB0FRB.#BVV.DEU.EU will get you more information.

24HR GTOR ON 20M

I'm often asked if anyone else out there is regularly operational on GTOR, the mode pioneered by Kantronics. Well, Phil VK7PU has an operational maildrop running 24hrs a day for all GTOR users, and if required he can forward any messages and general daily bulletins at your request. The mark frequency is 14.0810MHz (the normal dial indication in LSB will be 14.0831MHz). Phil says if you would like to read general bulletins every day then please state your interest so these can be forwarded to the PMS on request, adding that should you want to experiment with the GTOR mode feel free to use this system.

WINEMAIL

The number of amateurs on Email as well as on amateur data modes is growing daily. I mentioned an amateur 'Email directory' in this column a while ago. With the *WinEmail* program which operates under Windows 3.1, 95 and NT you can browse all the international ham Email addresses. If you use Netscape 2.0 and above, you can freely download it from *http://www.ndi.net/~metro/kb2ljj* or for non-Netscape users, from *http://ndi.net/~metro/kb2ljj/mods/software/* If you'd like your Email to be included, the software author, John KB2LJJ, says he needs you to send him your details! The info he needs is;

1) Your name:
2) Email address:
3) Packet address:

John's packet address is KB2LJJ @ KB2LJJ.NJ.USA.NA or Email; metro@ndi.net

GB2ATG

Right from the 'early days' of 5.25in disks, Bob G0ARF has done a superb job in collating and distributing the GB2ATG news every month. Not only has he collected, collated and distributed the news each month, he also organised a small band of very willing stations to do the live transmissions on RTTY, AMTOR or PACTOR and also some of the live transmissions himself. Bob's now retiring, and I'm told the GB2ATG news is no more. I'm sure I join many other 'old timers' in thanking you for a superb effort Bob, and I hope you'll now have a bit more time to catch those last few elusive RTTY DX stations to add to your already very impressive RTTY DXCC score!

TAPR CD-ROM

Mike G6NCF, who's local to me, sent me a message to let me know of a new CD-ROM from TAPR (the Tucson Amateur Packet Group) in the US. It's their second CD-ROM, and contains a full 650Mb worth of files and information, including over 45Mb of general packet information and files, 138Mb of APRS maps and software, quicktime movies and RealAudio files on packet subjects, special interest software such as DSP and spread spectrum, and plenty more. The CD-ROM costs US$20 plus postage which sounds very reasonable. Mike's offered to let me have some more information when he receives the CD-ROM so I hope to let you know a little more soon.

CTRL-Z, END OF MESSAGE

Thanks for your many messages and Emails. I'm always pleased to hear from readers and I always reply to every message I receive, so do let me know what you or your local group are up to!

73 from G4HCL @ GB7XJZ.#48.GBR.EU

SATELLITE RENDEZVOUS

Richard Limebear G3RWL brings sad news on a satellite pioneer in this month's AMSAT-UK news

G2UK - Silent Key: It is with great sadness that we report the death of the former Chairman of AMSAT-UK, Dr. Arthur Gee, G2UK. Arthur died in hospital at Lowestoft aged 84 years. He was re-admitted to hospital after complications following a hip operation early in May. He leaves wife Marjory, son Richard, and daughter Marion. The funeral took place on 29th May 1997 at St. Michael's Church, Oulton, Suffolk. The family requested that any remembrance donations be sent to AMSAT-UK funds.

Arthur was an AMSAT-UK member from the beginning. He became Chairman in 1979, and resigned from office in 1992 because of ill heath. He was, up to three weeks prior to his death, operating through RS satellites, and will be remembered as the writer of the Satellite column in 'Radio Communications' for several years.

His interests were also far ranging even outside amateur radio. He was a skilled model-maker of sailing ships, Founder Member and Commodore of the Lowestoft Cruising Club, member of Royal Norfolk and Suffolk Yacht Club, and member of Waveney and Oulton Broad Yacht Club. He was an amateur astronomer and member of Norwich Astronomical Society and Editor of it's newsletter. He was also an enthusiastic steam-boat owner, and one time radio operator/medic to an expedition based to Orland Island off the coast of Sweden. His amateur radio callsigns date back to 1935.

Member of the London Wireless Club, now RSGB. Member of BARTG, RAYNET and ISWL. Co-Director of Data Publications and the now defunct Radio Constructor magazine. Medical Officer of Health to the old Suffolk Counties Hospital Area. He was well liked and a respected citizen of Oulton Broad, where he had lived for over fifty years. Arthur will be missed by many members of the amateur radio fraternity world wide. Rest in Peace Arthur. A good friend and adviser to a vast number of people.

OSCAR 10

It's still operational in Mode-B. Its currently available when in view but *please do not* attempt to use it if you hear the beacon or the transponder signals FMing as they have recently, but generally, once AO-10 hits darkness, it shuts down.

RS-10/11 TENTH BIRTHDAY

RS-10 and 11 were launched on Tuesday 23rd June 1987. Both are 'parasites' on COSMOS 1861, a navigational satellite. They each use 15 metres exclusively for uplinks, 10 metres exclusively for downlinks and 2 metres for both uplinks and downlinks. Various combinations yield up to five distinct possible modes of operation.

The primary payload was COSMOS 1861, a communications and navigation research mission. RS10 and RS-11 share the power and other support from the overall spacecraft system so there is only one spacecraft populated by at least three payloads: RS-10, RS-11, COSMOS 1861. But for some years now, only the RS-10 package has been in use on mode-A with RS-11 as a spare.

ANOTHER HAM ON MIR

Ham-astronaut Mike Foale, KB5UAC, took off on the space shuttle Atlantis on May 15, to swap places with Jerry Linenger aboard the Mir space station. He is scheduled to remain aboard Mir until September.

During the pre-flight press conference, Foale talked about ham radio and his stay aboard Mir. He said he's open to talk about anything and with anybody. "I really enjoy having slightly longer contacts than just the brief collections of QSOs we do on shuttle. As a long-duration crew member, I'm hoping that hams will allow me to talk longer with them, so I can have some contact with them and their countries and understand the people's conditions where they live as I fly over them."

DIGITAL/MICROSATS

WEBERSAT - OSCAR-18 is back in MBL (Microsat Boot Loader) mode. There are no picture transmissions taking place at the present time.

LUSAT - OSCAR-19 is operating normally and is reporting an uptime of over 690 days.

ITAMSAT - OSCAR-26 is currently transmitting telemetry and OBC status information on 435.822 MHz.

DOVE - OSCAR-17 is also in MBL mode. The telemetry is being sent in an abbreviated format. Dove controller WD0E explained several months ago that new software is being uploaded to the satellite. The format and content of the current data transmissions reflect the latest attempt in troubleshooting the satellite and uploading new operating software. The satellite is presently sending data from a RAM based version of the Microsat Boot Loader program. The first line in packet above contains data about

the operation of this software. The first characters in each item are the ID. Data values in hex follow the colon.

PHASE-3D

N3EUA has updated the Phase 3D RUDAK Web Page on the *amsat.org* Internet site using images generated by WA7GXD. Three new images show various RUDAK modules undergoing turn-on and testing in his lab in late March. The RUDAK page may be accessed at the following URL: http://www.amsat.org/amsat/sats/phase3d/rudak-u/

More updates are, apparently, on the way.

Amsat-SM gave £816 recently bringing the total up to £7,600 from the Swedes.

3C0DX DXPEDITION

The 3C0DX DXpedition has been called off. When they got there the immigration people would only let two of the dozen or so operators in ... so they turned round and went back. Shame; operation was planned for a whole week, 24 hours a day, transmitting, all bands, all modes including RS-10 Mode A and RS-12 Mode K.

S BAND

Folks building and testing S-band satellite equipment may be interested to know that there are active beacons on both DO-17 (2401.220) and UO-11 (2401.500). Dove is the stronger. The AO-16 beacon (2401.1428) is usually off and there are no current plans to activate it.

UO-11

G3CWV's monthly UO-11 report confirms continued reliable operations. The telemetry is nominal, the battery voltage has recently improved to around 13.9 volts, and the internal temperatures have continued to fall, due to solar eclipses. The battery temperature is now 4 degrees C, or 18 degrees below the full sunlight condition.

Clive mentions several recent enquiries about suitable software for decoding the ASCII telemetry received from OSCAR-11. The recommended program is TLM2.EXE by Craig Underwood of the University of Surrey. The program is fully described in the book *'Decoding Telemetry from the Amateur Satellites'*, by G. Gould Smith WA4SXM, essential reading for telemetry enthusiasts. Both the program and book are available from AMSATUK.

Listeners living in the UK may have an old BBC computer, which may be used for decoding OSCAR-11 without the need for any external interfaces or hardware. Clive holds the AMSAT-UK BBC library containing several suitable programs.

NEW PICOSAT

Space News, May 12-18 reports that UoS have won a $5.1 million contract from the USAF for a microsatellite platform that will carry four US-supplied experiments. The 65 kg PICOSat satellite will be launched as a secondary payload on a US-supplied rocket. The contract calls for the satellite to be ready for launch in November 1998, but the exact date will be determined by the launch schedule of missions whose launchers can accommodate the Surrey*f* built satellite. The contract is Surrey's first with the U.S. government, it also is the first satellite award to a foreign company under the Air Force-managed Space Test Program.

The PICOSat payloads are: an experimental space battery; a platform designed to stabilize optical sensors on a vibrating spacecraft; a Global Positioning System receiver; and an electromagnetic radio beacon. The later two experiments are intended to measure the electron density in the ionosphere.

JAY, N5QWL

NASA have announced that astronaut Jay Apt, N5QWL, is leaving NASA to become the director of the extremely prestigious Carnegie Museum of Natural History. Jay earned his Novice and Technician licenses in 1990 while training for his first spaceflight, STS-37. He's flown with SAREX on all four of his spaceflights (STS-37, STS-47, STS-59, STS-79).

Some of the more unique contacts on those flights have included Using SAREX as a contingency communications system when NASA's normal communications loops were down due to a satellite ground station problem, as well as using SAREX to talk to fellow astronauts training at Star City in Russia. Jay also used SAREX via ground stations in Russia to attempt to contact the Russian space station Mir.

NEW SOFTWARE

'The Station Program' is a complete ground-station control program, for Windows 3.1, WFW 3.11 and Windows 95. It provides real-time tracking of satellites, with automatic radio control. Ideal for the OSCAR operator. It was designed especially for users of analogue modes (e.g. voice and Morse). It is not the same as WiSP!

The software supports the Kansas City Tracker, AEA ST-1, DDE Rotor, TrakBox (Rotor), Icom CI-V radios (via CT-17) and Icom IC-IV (via UX-14/CT-17) interfaces, Yaesu FT-736R, (Kenwood TS-790 capability coming soon). It's great for analogue modes. Turn the dial and work through a satellite as easily as working on HF.

The latest version can be obtained from Amsat-UK of course. Please note that the Station Program requires a registration number to execute, this is also available from AMSAT-UK and all proceeds from the sale of registration numbers are donated to the AMSAT Phase 3D Project.

AMSAT-UK NEWS

The 12th AMSAT-UK Colloquium will be held at Surrey University, Guildford, Surrey, U.K., from Friday 25th to Sunday 27th July 1997. This year's event will comprise three days of technical and operational matters only; there will be *no* 'political' subjects. Information about the Colloquium is available on the World Wide Web pages at the University of Surrey on: http://www.ee.surrey.ac.uk/CSER/UOSAT/amateur/colloq97.html There will be the usual social events including; Command Station visits, Annual Dinner and Auction, Amsat-UK annual meeting, and other fun as well as the 'usual' Friday evening barbecue in the University grounds.

This year they have made a change to the booking requirements such that they will accept unregistered day attendees subject to space, but they will not receive a free lunch. As usual, facilities will be available for attendees who wish to arrive at UoS on the evening before the event starts and/or stay over Sunday night.

A healthy coverage of microwave-related material pertinent to the advent of the P3D satellite is hoped for, and there will be microwave test equipment available on the Friday evening for people to check their home projects.

LATEST KEPLERS

AMSAT-UK Keplers are put out on packet weekly, sent to *KEPLER @ GBR*. The latest satellite Keplers as provided to the magazine by AMSAT-UK are also available as a service to readers 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)*. A short version (1-2 pages with all amateur satellites, and a longer version (10-15 pages) with all satellites, including weather satellites, is available on the service. Note that you no longer need to request a specific document number, just follow the voice instructions.

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 information. SWL's are welcome. For those who use the WWW, Amsat-UK has it's pages at the following URL:- *http://www.mcc.ac.uk/AMSAT/*

HF HAPPENINGS

Don Field G3XTT brings news on the latest HF activity, and gives some hints on what to watch out for in the next few weeks on the bands

This year I decided to make a reasonably serious effort in the CQ *WPX* (Worked Prefixes) CW contest in May, and to do so in the 'low power, all bands' category. Low power, as defined by the contest organisers, means no more than 100W output. This is always an interesting contest because, unlike most of the major contests, it takes place out of the autumn/winter/spring season. There are relatively few hours of darkness, but double points available for contacts on 160, 80 and 40 metres.

Given this year that 20 metres was open throughout the night, with good signals from Africa and the Americas, there were some serious tactical decisions to made about when to change bands. There's also another tactical decision to be made, about when to take a break, because only 36 hours of operation are allowed out the 48 hours of the contest. Because of the "double points" rule on the low bands, I decided to take my breaks (and get some sleep) during the day.

In the CQWW contests in November and October, which are the most popular events in the international contest calendar, activity levels are incredibly high and 'countries' count as multipliers. So it is very hard work operating with modest power levels. In contrast, the WPX contest, while popular, is nowhere near as busy, and because it's prefixes rather than countries which count as multipliers, a rare American prefix is just as worthwhile as a rare country.

As a result, I found I could work some unusual DX during the contest with relative ease despite participating in the low power category (and therefore having to take a poor second place to some of the big European stations, some of whom have 1.5 or even 2kW licences). My DX included JT1CD (Mongolia), KH7R (Hawaii), NH2C (Guam), ZD8Z (Ascension Island) on 3 bands, and several other unusual ones.

I was also surprised to work some very loud Japanese stations on both 20 and 15 metres. Maybe the sunspots finally are staring to work their magic, although 10 metres didn't really open up other than to parts of Africa and South America. I ended with about 1250 contacts, mostly from 'search and pounce' operating, but with a few 'runs' where I was able to CQ and get a reasonable pile-up going.

Well known IOTA (Islands On The Air) expeditioner Franco I4LCK. Meet Franco and other IOTA enthusiasts in the IOTA Contest (26/27th July).

SCARBOROUGH REEF

I said last month that the BS7H Scarborough Reef expedition had closed down unexpectedly after just three days of operation. More background to this has now emerged, and is related to press reports around that time of tensions in the South China seas. Although Scarborough Reef is reportedly undisputedly Chinese territory, the Philippines claim that it also lies within their 200 mile exclusive economic zone (EEZ).

On April 28th, tensions were rising in and around the Spratly Islands, where the Philippine government objected to the presence of Chinese warships in an area where territorial claims have long been disputed. On April 30th, the day that BS7H commenced operations, the group were overflown at low altitude by two Philippine military aircraft. The next day, two Philippine warships arrived at Scarborough Reef, and Philippine personnel visited each of the three BS7H operating sites.

Apparently their visit was cordial, and they did not consider the amateur radio activity to be of an 'economic' nature and therefore in breach of the EEZ (which I'm told is mainly related to activities such as fishing and drilling for oil). However, they did object to Chinese ships remaining on station in the area.

As a result, the team's vessels felt that, rather than provoke an international incident, they should leave the area and, rather than leave the BS7H team behind on the reef, the operation was brought to a premature conclusion. This was no doubt the most sensible thing to do, but will have left amateurs around the world disappointed at not being able to have a fair crack at this rare one. No doubt prospects for future operations will now be in the hands of politics.

OTHER NEWS

Lee N5HG is now active from Tanzania as 5H3HG, and will be there until the middle of 1998. He plans to be on all bands 160 to 10 metres, on both CW and SSB. QSL to his home call or to WY3V.

Fernando EA4BB has moved from Zaïzre to Angola and will be there for 18 months. Look for him as D2BB.

Laurence, GM4DMA, will operate as GM4DMA/V5 from Namibia from 17th June until 17th August. Laurence and his wife Morag are well known in connection with providing radio communications for explorer Sir Ranulph Fiennes, and Laurence was also active some years back as VP8SB while working with the British Antarctic Survey.

A large group plans to operate from Willis Island (VK9W) from about the 11th September for twelve days, with a short operation from Holmes Reef

(which will be a new one for the *Islands on the Air* award) on the way back to Australia. The group will operate all bands and modes. Information is available on the Web as *http://www.keylink.com.au/odxg*

Tim N2PC is reported to be active as V73AT from the Marshall Islands and will be there for four to five years. QSL to K2CL.

The Annobon Island operation, due to have taken place in May, was put on hold because of problems with visas. It has been rescheduled for 11th to 21st October, so fingers crossed that there are no more hiccoughs.

Don't forget the *Islands on the Air* contest, scheduled for the weekend of 26/27 July. Operations notified so far include G3RTE/P from Lundy Island (EU-120), F/ON4BDS/P from the Glenans Islands (EU-094), Queen Charlotte Island (NA-051) by a group of Canadian amateurs plus N6VV, and several other operations. On the day there will no doubt be lots of island activity. Take a look, and give out some points! Not a contest one, but Frank F5GVH will activate Belle Isle (EU-048) from 18th August until 2nd September.

LIGHTHOUSE ACTIVITY

Mike GM4SUC has kindly sent me details of the Northern Lighthouse Weekend and Lighthouse Activity Weekend. This will take place on 23/24 August. Eleven Scottish lighthouses will be activated, and there will be other special stations operating from lighthouses around the world, from Denmark, Germany, Portugal, Spain, Brazil, Sweden, Norway, the US and other parts of the UK. Most of the Scottish stations will use special event GB callsigns. The events will take place from 0900 on the Saturday until 1700 on the Sunday, and activity will centre around 3.721, 7.051 and 14.221MHz on SSB and around 3.521, 7.021 and 14.021MHz on CW. Various awards will be available in connection with the activities, and I hope to carry details next month.

If you want totally up-to-the-minute DX information, W3UR now publishes 'The Daily DX' via Internet. For subscription information, see his Web page at *http://www.wdn.com/thedailydx/*

INFORMATION BULLETINS ON HF

Problems continue on the HF bands with the broadcasts put out by K1MAN and his associates in the US. These transmissions take place simultaneously on several amateur bands, and I understand these fire up on pre-advertised frequencies irrespective of whether these frequencies are in use already *(just like the GB2RS 'news' on several bands in the UK - Tech Ed)*. The transmissions cover amateur radio topics, but also include music and other items such as a religious element. More information is available on the Web at *http://www.carte.net/k1man/aara.htm*

K1MAN asserts his right to engage in these broadcasts on the back of the authority that the ARRL (American Radio Relay League) has had for many years. The ARRL has traditionally put out news and Morse practice 'broadcasts' at specified times just as the RSGB news is broadcast in the UK. But because of the size of the US, these transmissions are carried on several of the HF bands, and it is on 20 metres where particular problems occur, due to the narrowness of the band and the fact that the transmissions carry well outside the US borders. In true US fashion the dispute has been marred by lawsuits from all sides, but the ARRL itself has been reluctant to come out against K1MAN through fear of losing its own right to broadcast the W1AW bulletins.

I hope all this is resolved before the sunspots come back with a vengeance and we find 15 and 10 metres full of broadcasts (after all, if these parties have established some sort of legal 'right' then what is to stop others joining in the fray?). My own inclination is that, in these days of packet radio and Internet, HF broadcasts of this sort of are unnecessary and that the ARRL should set an example by discontinuing its own which, while they have clearly played a valuable role in the past, are no longer appropriate. After all, if every country's national society insisted on making such broadcasts every day on all HF bands, there would be no room left for the 'amateur in the street'. Let's hope sense prevails.

HF PROPAGATION

George Jacobs, W3ASK, propagation guru and columnist for the US CQ magazine, wrote last year that Cycle 23 could well be one of the best yet. In a more recent column, he looked at the latest figures from the Royal Observatory of Belgium, the world's official keeper of sunspot records, and concluded that the new cycle has started and the sunspot numbers are climbing. However, as I write this the very latest data shows that there is still a big gap between projected and actual figures for solar flux. In other words, 'old sol' may well have a great sunspot peak in store for us in a few years' time, but is keeping us in suspense for the time being.

HF VERTICAL?

For some time now I have been using a 9m roach pole as a quarter-wave vertical for 40 metres. I tape a wire to it, and sit it on top of a 2m post, with elevated radials. So I was interested to read in the Sunday Times that the latest toy in fishing circles is a 19m roach pole which, apparently, is light enough to hold horizontally with one hand! Being carbon based, it is also conducting, so I immediately had visions of a quarter wave vertical for 80 metres or, even better, four of them with phasing lines for gain and directivity. However, I guess it will have to wait a while as they apparently cost £10,500 each! Oh, well, I can but dream.

SERB REPUBLIC

From time to time on the HF bands you will come across stations using the prefix X5, X5EOL being a typical example. These stations are in the Serbian part of Bosnia-Herzegovina, which has its own government but no international recognition. According to an article by George Pataki, WB2AQC, which appeared in the January issue of CQ magazine, the X5 prefix was allocated on the advice of a consulting firm working for the government (who have also drawn up a list of rules for amateur radio, which are almost a carbon copy of the US amateur regulations). X5 was chosen simply because it is unallocated by the ITU.

Currently, if you work an X5 station it doesn't count for anything other than curiosity value, in exactly the same was as contacts with Palestine and with Seborga (in Italy, but with aspirations to be an independent state like San Marino). All these are examples of where amateur radio meets politics, but I can't help feeling sorry for those active amateur radio operators such as YU4EBL, with whom I have had many contacts in the past, who can now come on the bands only under an X5 call and are regarded pretty much as pirates.

HALL OF FAME

Each year at the Dayton Convention, CQ magazine inducts several new members of the DX *Hall of Fame* and *Contest Hall of Fame*. This year the new members of the *DX Hall of Fame* are Bob W6RGG, Bob W6RJ and Frank W8OK. The new *Contest Hall of Fame* members are Carl AI6V, Gordon W6RR, John ON4UN, Jorge LU8DQ and John K1AR. Congratulations to all. Not surprisingly, the *DXpedition of the Year* Plaque, also awarded at Dayton, went to the VK0IR Heard Island team. The VK0IR book and video are already available for $35 or 1000BEF from Ghis Penny ON5NT, or at the RSGB Convention in September for $30 each.

Finally, I have changed my Email address, but hopefully the new one will become permanent, and I am very happy to receive input via Email. So do drop a line to *g3xtt@lineone.net*

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

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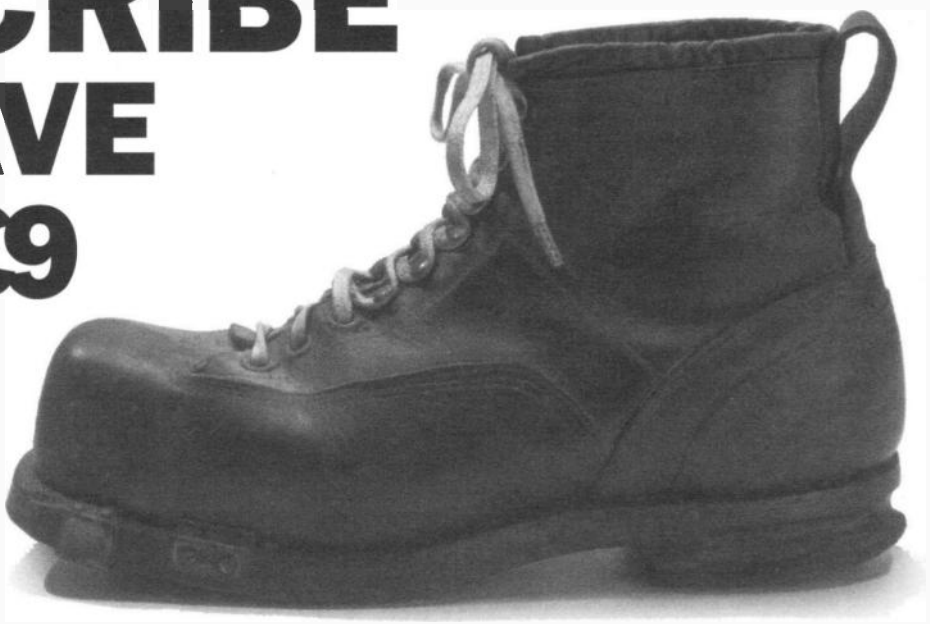

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CLUB NEWS

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 12th SEPTEMBER MUST REACH US BY THE 31st JULY 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 clubnews@qsp73.demon.co.uk*

Andover ARC meet on the first and third Tuesday of each month, 7.30pm, in the Village Hall at Wildhem (5km north of Andover). Planned club events/talks;
Aug 5th - Practical evening of Meteor Scatter listening
Aug 19th - Audio frequencies high & low, by Mike Homer For further details contact Terry G8ALR, Tel. 01980 629346 evenings.

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 28.350MHz, 8.30pm - 9.00pm SSB. Morse speed adjusted to the slowest sender. 2m FM every Tuesday 145.475 at 8.00pm. Planned club events/talks;
Aug 18th - Club barbecue
For further details contact Den Williams G0UMT, Tel 01237 471802

Aylesbury Vale RS meet on Wednesday evenings in the Village Hall in Hardwick, located off the A413 between Aylesbury and Buckingham. Club diary;
Jul 16th - HTML, by Mike G7FDL
Sep 3rd - Mini-talk night
For further details and meeting times, contact Gerry Somers G7VFV, Tel. 01296 432234

South Birmingham RS meet, 8.00pm, at West Heath Community Association, Hamstead House, Fairfax Road, West Heath, Birmingham 31. They have regular meetings for construction, on air etc., every Monday and Friday. Planned club diary;
Aug 6th - Visit by John Badger of Badger Boards
Aug 30th - Club stand at Telford Rally
For further details contact Don Keeling, Tel. 0121 458 1603

Bristol (South) ARC meet every Wednesday at the Whitchurch Folkhouse Association, Bridge Farm House, East Dundry Road, Whitchurch, Bristol. Club diary of events/talks;
Jul 23rd - Computer activity
Jul 30th - SBARC 'Bullseye' contest
Aug 6th - 70cm activity evening
Aug 13th - HF workshop for newcomers
For more information and meeting times, Tel. 01275 834282 24hr. Answerphone.

RSGB 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. All welcome, no need to belong to RSGB. Club diary of events/talks;
Jul 22nd - Possible trip to Madley Earth Station, Hereford (please let a committee member know if interested).
Aug 19th - Video night
Further details can be obtained from Robin Thompson G3TKF, Tel. 01225 420442

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;
Aug 19th - Barbecue
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, Alcester Rd, Burcot, Bromsgrove. The club run regular Night on the air/construction evenings. Planned diary of events/talks;
Aug 12th - DF hunt (on foot)
Aug 26th - Talk: Repeater Management or Spectrum Intruder Watch
Further details from Barry Taylor G0TPG, Tel. 01527 542266

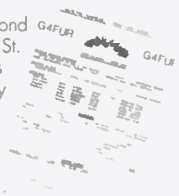
Buxton ARC meet at the Lee Wood Hotel, Buxton, at 8.00pm on the second and fourth Tuesdays each month. Club diary of events/talks;
Jul 22nd - Funny thing happened to me on the way to the radio club
Aug 12th - Dave's night
Aug 26th - Border Hike discussion
For further information contact Derek Carson G4IHO, Tel. 01298 25506, or G4IHO@GB7DAD

Carrickfergus ARC meet every Tuesday, 7.00pm, in Downshire Community School, Downshire Road, Carrickfergus. They run RAE and Morse classes. Planned club events/talks;
Sep 9th - Enrolment night for RAE, RAE resit and Morse classes
Sep 16th - Club restarts after summer break
For further deta ls contact John Branagh GI3YRL, Tel. 019603 67208

Mid Cheshire ARS meet every Wednesday, 8.00pm, at Cotebrook Village Hall, North of Tarporley, Cheshire on A49. The club hold regular on air/construction evenings. RAE and CW courses available. Visitors and new members welcome. Planned club events/talks;
Jul 30th - Annual barbecue at club HQ
Aug 6/13th - No meetings
For further details contact Ted Bannister, G0RBA, Tel. 01606 592207, via GB7PMB, or Email; *e.bannister@virgin.net*

Cockenzie & Port Seton ARC meet, 7.00pm, on the first Friday each month, in the Lounge Bar, Thorntree Inn, High Street, Cockenzie (located half way between old and new harbours). The club enter many national contests each year, other planned club events/talks;
Aug 15th - Junk night, Port Seton Community Centre
For further details contact; Bob Glasgow GM4UYZ, 7 Castle Terr, Port Seton, Prestonpans, East Lothian EH32 0EE, or @ GB7EDN, or Email: *R.Glasgow@edi0402.wins.icl.co.uk*

Coulsdon ATS meet on the second Monday each month, 7.45pm, at St. Swithun's Church Hall, Grovelands Road, Purley. Club 2m net: Sunday 11.00am on S20 initially, then to a working frequency. Planned club events/talks;
Aug 11th - Barbecue at the QTH of G4RWW & G6LX
Sep 8th - VHF aerials and feeders, Jim G4WYJ
For further details contact Club Secretary, Alan Bartle G6HC, Tel. 0181 684 0610



'Cats Whispers' newsletter of the Coulsdon ATS

Cray Valley RS meet on the first and third Thursday of each month, 8.00pm at the Progress Hall, Admiral Seymour Road, Eltham SE9. Planned club diary;
Aug 7th - Talk by G4OBE (tbc)
Aug 21st - GX3RCV QRV
For further details contact Tony G4WIF, Tel. 0171 739 5057 office hours only. Up-to-date information can also be obtained from the club Internet pages;
http://ourworld.compuserve.com/homepages/g4wif/index.htm

Crystal Palace and District RC meet on the third Saturday of each month, 8.00pm, at the All Saints Parish Rooms, Beulah Hill, London SE19 (opposite junction with Grange Road). Regular club net each Wednesday at 8.00pm on 144.7125MHz. Planned club diary;
Jul 19th - 7pm basic radio theory, 8pm The Naval Cadet Force
Aug 16th - On the air and barbecue
Further details can be obtained from Victor Johnston G1PKS, Tel. 0181 653 2946. Email: *Vjohns653@aol.com*

Dover RC meets at Duke of York's Royal Military School, Guston, Dover on a Wednesday evening, 6.30pm to 10.00pm during the school's term time. The club is a C&G examination centre for the RAE and NRAE, Morse & Novice training classes are held between 7.00 & 8.00pm at the school. The club also 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;
Jul 23rd - Operating evening at Langdon Cliffs
Aug 6th - Barbecue and operating from Walmer Beach
For further details contact Brian Hancock G4NPM, Tel. 01304 821007, packet via GB7YUH, Email: *Brian@Kentnet.co.uk*

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;
Jul 21st - Talk by Tony Jones GW4VEQ
Aug 4th - Members demonstrate their latest amateur radio acquisition or project
Aug 18th - Surplus equipment sale
Further details from the Secretary Tony Rees GW0FMQ, Tel. 01248 600963

Dundee ARC meet at 7.00pm every Tuesday at the College of Further Education, Graham Street, Dundee. Morse tuition is every Tuesday evening, the technical library and radio shack are also available to members. A club newsletter is published bi-monthly and a club net is on 3.640MHz at 14.00 GMT daily. Planned club diary;
Aug 12th - Visit to Radio Tay
For further details contact Alfred Martin GM7ONJ, 11 Langlee Place, Broughty Ferry, Dundee, Tayside DD5 3RP

Felixstowe & District ARS meet, 8.00pm, at Orwell Park School, Nacton, Ipswich. For club visits/meals etc., names must be given to Paul G4YQC at least a week in advance. Visitors welcome to attend any meeting. Planned club events/talks;
Jul 28th - On air experience for RAE students, G4YQC
Sep 1st - Underground location systems, G0ORG
For further details contact Paul Whiting G4YQC, Tel. 01394 273507 evenings

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;
Aug 19th - Junk sale
Sep 16th - AGM
Further details can be obtained from Mr. D. Moss G0DLM, Beechwood Lodge, Lightcliffe, Halifax HX3 8NU, Tel. 01422 202306

Halkyn & District ARS meet, 8pm, on the second and fourth Wednesdays at Halkyn Cricket Club, Nr. Holywell, Flintshire. The club is a newly formed radio society and they tell us a full range of activities is envisaged, but as with all new projects, it may take a little time to achieve. The Society welcomes all radio amateurs, short wave listeners and kindred spirits. They say they have a wealth of enthusiasm and expertise which typifies Amateur Radio. Further details can be obtained from Eddie Hewins GW3GSJ, Tel. 01352 780334

Harrow RS meet on Friday evenings at the Harrow Arts Centre. They hold regular 'informal' evenings in the bar from 8pm. The meeting room and time varies on formal evenings. Planned club events/talks;
Jul 25th - Mid summer junk sale (Rayners Room, 8.30pm)
August - Informal meetings only.

Hastings Electronics and RC meet, 7.30pm, on the third Wednesday of each month at West Hill Community Centre, Croft Road, Hastings. The club run RAE and Novice courses and is a registered City and Guilds examination centre. Planned club events/talks;
Aug 22nd - Bring your thing competition
Sep 17th - Engineering in Kuwait, by Jim Harris
For further details contact Doug Mepham, G4ERA, 8 The Close, Fairlight, E.Sussex TN35 4AQ, Tel. 01424 812350

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;
Jul 31st - Chairman's Night
Aug 12th - Visit to the Fire Station, Old London Rd, Hertford
For more information contact Don G3JNJ, Tel. 0181 292 3678. *Email; gx0tsal@aol.com Internet WWW: http://members/aolcom/gx0tsn*

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 welcome. Club nets are Sundays 1.955MHz 09.00hrs CW, 09/30hrs SSB, and Wednesdays 145.350MHz at 19.30hrs. Planned Club events/talks;
Jul 22nd - American supper
Aug 26th - My shack, a video diary
Further details can be obtained from Stuart Swain, Tel. 01705 472846

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;
Jul 31st - Fibre optic communication, G4RCH
Aug 21st - Introduction to the Internet, G7HJT
Further details from Jack Birse, G4ZVD, 178 Long Lee Lane, Keighly, W.Yorks BD21 4TT, Tel. 01535 212985

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;
Jul 21st - Night on the air
Aug 4th - Personal safety & PMR operation, G7GCK
Aug 18th - Members junk sale: commission to LRS
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;
Jul 22nd - Video night
Jul 29th - Surplus sale
For further details contact Ian Mant G4WWX, Tel. 0151 722 1178.

Loughborough and District ARC meet every Tuesday (term time), 7.45pm, at the Science Lab, Hindleys Community College, Shepshed, Leicestershire. The club normally have an 'On the air' evening on the first Tuesday each month. The club also meet on a Monday evening for construction, computers, operating and a general chat. New members most welcome. Planned club events/talks;
Jul 22nd - Car Rally, bring the family
Jul 29th - Golf competition
Aug 12th - DF hunt
Aug 19th - Computer evening
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;
Aug 12th - 2m foxhunt
Sep 9th - Oscar Phase-3D update, G7RVM
For further details contact Dave Hobro, G4IDF, Tel. 01905 351568 evenings & weekends, or Email: *DHobro@aol.com*

Midlands AX25 Packet Radio Users Group (MAXPAK), meet on the first Monday each month (when this is a Bank Holiday, the meetings are on the second Monday), 8.00pm, at the Perton Community Centre, Perton, near Wolverhampton. Non-members and visitors welcome (non-members 50p per evening to help cover costs). Planned events/talks;
Aug 4th - Natter night
Sep 1st - Know your PC - talk & demo
For further information contact Club Secretary Edward Loach G4ZXS, Tel. 01902 741877 (evenings), or via packet *G4ZXS@GB7MAX*

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;
Jul 23rd - Nicads, by Chris G3MWB
For further details contact the club secretary, Tel. 01635 863310

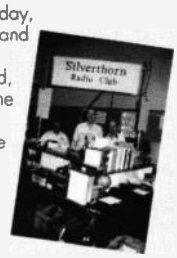
Nottingham ARC meet every Thursday, 7.30pm. in the Sherwood Community Centre, Mansfield Road, Nottingham. Visitors interested in amateur radio, whether as a transmitting amateur or SWL, are most welcome. Forthcoming events/talks include;
Jul 17th - Foxhunt
Jul 24th - Construction and activity
Jul 31st - Test your rig with Martin G6ABU
For further details contact Jo 2E1BSN, Tel. 0115 9691436

Salisbury Amateur Radio Society meet on the second and fourth Tuesday each month, 8.00pm, at The Scout Hut, St. Mark's Ave, Salisbury, Wilts. Prospective members and visitors are welcome. RAE tuition available. A club net is held 6.30pm daily, additionally, 20.30pm on Fridays, on S16 (V32) 145.400MHz. Planned club activities;
Jul 22nd - Club barbecue at the QTH of Rex G1SSZ
For further details contact Jamie G7WAA, Tel. 01722 334935 during office hours.

Salop Amateur Radio Society meet at The Telesports Club, Abbey Foregate, Shrewsbury every Thursday. They presently run a Novice course on Tuesday evenings (details from Tony M0AMP @ GB7PMB) and have regular on air/natter nights. Planned club diary of events/talks;
Jul 31st - Summer social
Aug 14th - 2m Fox Hunt
Aug 21st - Final preparation for Telford Rally
For further details contact Ian G7SBD, 56 Roselyn, Harlescott, Shrewsbury SY1 4LP, or @ GB7PMB
Internet: *http://www.clemalv.demon.co.uk/*

Shefford and District ARS meet every Thursday, 8.00pm, at the Church Hall, Ampthill Road, Shefford, Beds. CW practice from 7.30pm. All newcomers are welcome. Planned club events/talks;
Jul 24th - Barbecue evening, Somerfields Farm (A600)
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;
Jul 25-28th - Club camp
Sep 26th - Junk sale
For further details contact Andrew Mowbray, G0LWS/G1NPT, at above address, or from Dave G0KHC, Tel. 0181 505 1871, or packet to G1NPT @ GB7TUT. A programme of club events can be obtained by using REQFIL on file C:\CLUBS\SILVERTH\CLUBINFO.TXT from GB7TUT



The Silverthorn Radio Club stand at the London Show earlier this year

West Somerset ARC meet on the first Tuesday each month, 7.30pm, in Room GB7, Gibbs Block, West Somerset Community College, Minehead, Somerset. RAE and Morse instruction available. All visitors are welcome. Planned club events/talks;
Aug 5th - Telephone utility, guest speaker
Sep 2nd - Bring and buy
For further details contact Alan. C. Elliott, M0AOJ, Tel. 01643 707207

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;
Aug 14th - Barbecue & DF hunt set up and test
Sep 11th - Homebrew microwaves, G8PSF
For further details contact Dave Michael G0ASA, Tel. 0181 482 6795, Fax. 0181 807 5366, Email; *msm4dave@netcomuk.co.uk*

'Bandspread' newsletter of the Southgate ARC

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;
August - No meetings
Sep 1st - Natter night
Further details from Gordon Bryant G0TZV, Tel. 01384 395206

Stratford upon Avon & 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;
Jul 28th - Construction competition
Further details from Club Secretary Jeff Porter G4OHJ, Tel. 01789 773286

Surrey Radio Contact Club meet on the first Monday of each month at TS 'Terra Nova', The Waldrons, Waddon, Croydon, Surrey. Planned club talks/events;
Aug 4th - Barbecue at the QTH of Peter G3ZPB
Aug 18th - Natter night
Sep 1st - 12.5kHz conversion, by Denis G0OLX
For further details contact Berni Wynn G8TB,
Tel. 0181 660 7517

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'. Visitors are welcome. Club net; Sundays 8.00am 3.740MHz (+/- QRM), 11.00am 145.350MHz FM, 8.00pm 70cm Novice net on GB3HY. Planned club events/talks;
Jul 18th - Shack night
Jul 25th - Barbecue a the QTH of Phil G7TOI
Further details from Mike G0GNV,
Tel. 01444 241407

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;
Jul 18th - 1240 perambulation of Dartmoor, Mike Wright
Jul 19/20th - VHF/UHF RS power contest, Mardon Down
Jul 26th - Apple Pie Fair from Mardon Down
Aug 15th - Barbecue
Further details from Peter G4VTO,
Tel. 01803 864528 (day works No.)

Trowbridge and District ARC meet at Southwick Village Hall, Southwick, Trowbridge, Wiltshire for a main meeting every first Wednesday of the month, and a natter night every third Wednesday (except October). The club also run an RAE course (for details contact Chris G0HFX Tel. 01225 764874 evenings). Visitors welcome, fee 50p. Planned club events/talks;
Aug 6th - Equipment test evening with G0BBL
Sep 3rd - Talk by G3MQD
For further information contact Ian G0GRI,
Tel. 01225 864698 evenings and weekends.

Verulam ARC meet, 7.30 for 8.00pm, on the second and fourth Tuesdays each month (except December), at the RAF Association Headquarters, New Kent Road (off Malborough Road), St Albans. On the second Tuesday they have an informal/activity evening and on the fourth Tuesday the main meeting. Visitors welcome at all meetings. Planned events/talks;
Jul 22nd - Barbecue and radio station at Phasels Wood Scout Camp, Kings Langley (details Tel. 01923 265572)
Sep 23rd - SSB on microwaves
For further details available from Ian Forsyth, G0PAU, Tel. 01923 222284

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, they also have regular 'on air' evenings. The club net is on 2m FM on Mondays. Club diary events/talks;
Jul 22nd - Marine radar
Jul 29th - Provisional arrangements for Blakey Ridge
Aug 5th - FSTV demo
Aug 12th - Fox hunt
For further details contact John Carter G7JTH,
Tel. 01924 251822

Mid-Warwickshire ARS meet on the second and fourth Tuesdays each month, 8.00pm, at 61 Emscote Road, Warwick. Planned club events/talks;
Jul 22nd - The history of microwave links, by Harry Hyamson
For further details contact G8HRI,
Tel. 01926 424465

Wincanton ARC meet on the first and third Mondays (except bank holidays when second and fourth) in the Community Lounge, King Arthur's Community School, Wincanton, Somerset BA9 9BX at 7.30pm. Planned club events/talks;
Jul 21st - Open evening
For further details contact Jo Stella G6RCT,
Tel. 01963 31788

Wirral ARS meet, 8.00pm, at The Club Room, Ivy Farm, Arrowe Park Road, Wirral L49 5LW. There are 'activity nights' every first, second and fourth Wednesday evenings, lectures/talks every third Wednesday. 'Natter nights' are every Tuesday from 7.30pm and Morse tuition every Thursday evenings. Visitors welcome. Planned club events/talks;
Sep 18th - Thailand, its people and crafts, by Robert G3NTI Oct 15th - AGM
For further details contact John Phillips G3PXX,
Tel. 0151 336 4452, @GB7OAR, or Email;
vectis@nordee.u-net.com

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 D&W evenings every first and third Wednesdays at various other locations. Planned club events/talks;
Jul 23rd - Barbecue - Heswall Beach
For further details contact Phil G0JSB,
Tel. 0151 677 1947, or SP G0JSB @ GB7OAR

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 Membership Secretary Bill McGill, G0DXB, 14 Farquahar Road, Maltby, Rotherham, S.Yorks S66 7PD, Tel. 01709 814010 (Tues, Thurs & Fri, 7pm to 9pm. Sat/Sun before 9pm), or via GB7WRG
Internet: *http://www.bartg.demon.co.uk*

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, 'Greenhurst', Pinewood Road, High Wycombe, Bucks HP12 4DD.

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

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.aber.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. For further details contact 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 to 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, Condover, 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: http://www.rsgb.org

United Kingdom Radio Society (UKRS) are our second National Society. They can be contacted at Box 100, Meadow Street, Northwich, Cheshire, CW8 1FA. Tel. 01606 783270, or 0115 925 6597. Via Packet RADSOC@GB7OAR (please send as an 'SP' message) , Email: *admin@ukrs.org*
Internet: 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.

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. Rally organisers - if you have any good quality photos of your rallies to include in this feature we would be pleased to receive them.

JULY 20TH

1997 McMichael Rally & Car Boot Sale, The Haymill Community Centre 112 Burnham Lane, Slough. Doors open 10.00am, featuring computer

and amateur radio traders, large outdoor car boot sale (£10 per pitch on the day, no advanced bookings), Morse tests on demand and free parking. Refreshments will be available, with talk-in on 2m.There will also be many local clubs and other radio groups in attendance. Admission £1.50. For further details contact Dave G3SET, Tel. 01628 486554. Trade bookings, Tel. 01734 874870

JULY 27TH

Colchester Radio & Computer Rally with hobbies and leisure fair, St. Helena School, Colchester. Doors open 10am. Family event. For further details contact Frank G3FIJ, Tel. 01206 851189

Scarborough ARS Radio, Electronics & Computer Rally, The Spa, South Foreshore. Featuring the usual traders, radio, electronics, components, computer hardware and software. Doors open at 11am. Morse tests available on demand, but please remember the fee and two passport sized photos. For further details contact Ross Neilson, Tel. 01377 257074 after 6pm.

AUGUST 10TH

Flight Refuelling ARS Hamfest 97, Flight Refuelling Sports Ground, Merley, Wimborne, Dorset. Featuring the usual mix of traders, bring & buy, craft exhibitors, car boot sale and field events. Overnight camping facilities available for Saturday the 9th. Talk-in on S22, event running between 10.00am to 5.00pm. For further details contact Richard Hogan G4VCQ, Tel. 01202 691021

AUGUST 15TH

Cockenzie & Port Seton ARC Annual Junk Night, Cockenzie & Port Seton Community Centre, South Seton Park, Port Seton, E. Lothian. Bring along your own junk and sell it yourself. Tables will be provided on a first come first served basis (no charge for the table). Refreshments available, disabled visitor access. Admission £1.00. All money raised is donated to the British Heart Foundation. For further details contact Bob Glasgow GM4UYZ, Tel. 01875 811723

AUGUST 17TH

Cardiff Amateur Radio & Computer Rally, the Star Sports and Recreation Centre, Splott, Cardiff. Doors open from 10.30am to 3.00pm. Further details available from Stuart Robinson, GW0WMT, Tel. 01222 613070

8th Great Eastern Computer & Radio Rally, by Kings Lynn Amateur Radio Club at a new venue, Wallington Hall, between Kings Lynn and Downham Market, Norfolk. Features spacious indoor area with major exhibitors, outdoor car boot area (unlimited space available), Bring and Buy, free parking, talk-in on S22 and SU22, refreshments available, easy access for disabled. Opens 10.00am (9.45am for disabled visitors). For bookings or more info call Ian, G0BMS on 01553 765614 or packet @ GB7WNM or email *ian@g0bms.demon.co.uk*.

AUGUST 24TH

Galashields & District ARS Open Day & Rally will be held at the Volunteer Hall, St John's Street, Galashields featuring traders, bring & buy, raffle, plus bring & sell feature. Refreshments available. Doors open 11.00am - 4pm. Talk-in on S22. For further details Tel. 01896 850245, or 01896 755943 evenings only.

AUGUST 25TH

The Huntingdonshire Annual Bank Holiday Amateur Radio Rally will be held at Ernulf Community School, St. Neots, Cambridgeshire (near Tesco supermarket on A428). Doors open 10.00am. Admission ú1.00. Hot and cold refreshments available. Talk-in on S22. Featuring hall plus car boot sale on hardstanding area. For further details Tel. 01480 431333 (9.00am - 9.00pm).

AUGUST 31ST

The Telford Rally is 20 years old this year, and will be held as usual at the Telford International Centre, just off the M54 (signposted) in the town centre area. Featuring major dealers and flea market in two purpose built exhibition halls. We're told disabled visitors are well catered for. For further details contact Tony M0AMP, Tel. 01743 235619, or via GB7PMB

SEPTEMBER 6TH

The 3rd Northampton Radio Rally & Car Boot Sale, takes place in the heart of the Shires Shopping Village Showground on the A5, 2 miles north of Weedon. The organisers say; "bring the family, as they can spend the day in the olde worlde shopping village". Refreshments and toilets are on-site, car parking 50p. Car boot plot prices are: Cars: £7.00 pre-booked or £9.00 on the day. Vans: £9.00 pre-booked or £11.00 on the day. For further details contact Steve M0ARZ, or Paul G0HWC, Tel. 01604 32478

SEPTEMBER 7TH

Bristol Radio & Computer Rally, Brunel Centre, Temple Meads Station, Bristol. Featuring 100+ tables (table hire at £15.00 each), large Bring & Buy, under £30.00 Bring & Buy. Refreshments available. Doors open 10.30am to 4.00pm (disabled access from 10.15am), admission £1.00. For further details contact Muriel Baker G4YZR, 62 Court Farm Road, Whitchurch, Bristol BS14 0EG, Tel. 01275 834282 (24hr answerphone).

The Lincoln Hamfest will be held at the Lincolnshire Showground four miles north of Lincoln on the A15. Featuring trade stands, bring & buy, Morse tests (bring two passport sized photos), refreshments, bar and ample free parking. Overnight caravan parking available for Saturday 6th. Talk-in on S22 and SU22. For further details contact John or Sue on 01522 525760

SEPTEMBER 14TH

BARTG Annual Rally, Sandown Park Racecourse, Esher, Surrey. This rally is organised by the British Amateur Radio Teledata Group and is of general interest to all amateurs with most aspects catered for, but naturally there is an emphasis on Data Communications. Were told there is one major difference this year: 'DataStream 97'. This is a series of lectures covering various aspects of data communications in amateur radio. For general enquiries contact Ian Brothwell, Tel. 0115 926 2360.
Internet: *http://www.bartg.demon.co.uk*

SEPTEMBER 21ST

Central Lancaster Radio Rally, will be held at the Central Lancaster High School, Crag Road, Lancaster (the show will be signposted from Junc. 34 M6). Featuring three halls with all the usual traders, plus bring & buy. Refreshments available. Doors open 10.30am, admission £1.00. For further details contact Sue Griffin, Tel. 01524 64239, or 0374 290088

Peterborough Radio & Electronics Society East of England Rally, will be held at the Peterborough Showground, with easy access from A1, A605, A47. Featuring trade stands, radio car boot sale and other local attractions. Acres of free parking, catering and bar etc. Doors open 10.30am (10.00am for disabled visitors). Admission £1.50. Talk-in on S22 via G3DQW. For further details contact Vince G8NGZ, Tel. 01733 331211, or *g8ngz@compuserve.com*

RSGB Scottish Convention, the Royal Highland Exhibition Hall, Ingliston, Edinburgh. For further details contact Tom Menzies, GM1GEQ, Tel. 0131 445 3928

SEPTEMBER 28TH

Harlow & District ARS Amateur Radio, Electronics & Computer Rally the Sports Centre, Harlow. Featuring bring & buy stall, Morse tests on demand (bring two passport sized photos and usual fee), free car parking. Licensed bar and refreshments available. Doors open 10.30am (10.00am for disabled visitors). Talk-in on S22 and SU22 by G6UT. For further details contact Mike on 01279 303786, Fax. 01279 865092, or Len on 01279 832700, Fax. 01279 864973, or Email; *len.brackstone@virgin.net*

OCTOBER 5TH

Blackwood & District Amateur Radio, Computer & Electronics Rally, will be held at the Community Centre, Oakdale, near Blackwood, Gwent. Featuring traders and bring & buy. Doors open 10.00am, talk-in on S22.
Further details available from Norman GW0MAW, Tel. 01495 227550

OCTOBER 17TH/18TH

The Leicester Amateur Radio Show, will take place as usual at the Granby Halls, Aylestone Road, Leicester (off junction 21 of the M1). Featuring large trade presence in two exhibition halls. Refreshments available from the cafeteria and bar. For further details contact Frank Elliot G4PDZ, 40 Treasure Close, Glenfield, Leicester LE3 8LT, Tel. 0116 2871086

NOVEMBER 8TH

AMS '97 Computer & Electronics Show, Bingley Hall, Staffordshire Showground, Weston Rd, Stafford (A518 Stafford - Uttoxeter Rd). Featuring many trade stands covering radio, computing and electronics, plus large bring & buy. Doors open 10.00am to 4.00pm. For further details please contact Sharward Promotions, Tel. 01473 741533

NOVEMBER 9TH

MARS -Birmingham Radio & Computer Rally, takes place at Stockland Green Leisure Centre, Erdington, Birmingham. Featuring trade stands, free hampers draw, local clubs, special interests exhibits and large free car park. Doors open from 10.00am to 4.00pm. Admission £1.00. For further details contact Peter Haylor, Tel. 0121 443 1189 (Trade bookings Tel. 0121 422 9787)

NOVEMBER 15TH/16TH

London Amateur Radio & Computer Christmas Rally, Lee Valley Leisure Centre, Picketts Lock Lane, Edmonton, London N9. Doors open 10.00am to 5.00pm each day (9.30am for disabled visitors). For further details please contact RadioSport Ltd., Tel. 01923 893929, Fax. 01923 678770, Internet: *http://radiosport.co.uk*

NOVEMBER 23RD

Bishop Auckland ARC Rally, will take place at Spennymoor Leisure Centre. We re told this is a new venue with good parking and easy access to large ground floor hall, for both traders and disabled visitors. Featuring the usual traders, bring & buy, as well as catering, bar and leisure centre facilities. Doors open 11.00am (10.30 for disabled visitors), admission £1.00, under 14's free with an adult. Talk-in on S22. Further details available from Mike G0PRQ, Tel. 01388 766264

Bridgend & District ARC Radio & Computer Rally, For further details contact Maurice GW0JZN, Tel. 01656 864579

DECEMBER 7TH

Northern Amateur Radio Mobile Rally. This year is the 40th anniversary of the rally, which has taken place annually since the late fifties. The rally returns to its familiar venue of the Flower Show Hall, on the Great Yorkshire Showground, Harrogate. Featuring traders, large Bring & Buy and car parking on the Showground (special parking near to hall for disabled visitors). Drinks and refreshments available. Doors open 10.30am. For further details contact Gerald Brady, Tel. 01765 640229, or via packet G1UXP@GB7CYM, or Email: *woody@tangon.demon.co.uk*

DECEMBER 14TH

Verulam ARC Annual Rally, Watford Leisure Centre, Horseshoe Lane, Garston, Watford. Located off the A405 near junction 6 of the M1, and junction 21A of the M25. Featuring trade stands, bring & buy, grand raffle, cafÇ, licensed bar and free parking. Morse tests will be available. For further details, Tel. 01923 262180, or 01923 265572 (Trade bookings).

JANUARY 18TH 1998

Oldham ARC Mobile Rally, Queen Elizabeth Hall, Civic Centre, West Street, Oldham, Lancs. Featuring the usual traders plus bring & buy sale. Morse tests on-demand. Doors open 11.00am (10.30 for disabled visitors). Talk-in on S22 via GB4ORC, commencing 7.30am. Mobile contact prize up to 2.00pm. Refreshments and free parking available.
For further details, Tel. 01706 846143, or 0161 652 4164

FEBRUARY 1ST

The 13th South Essex Amateur Radio Rally, The Paddocks, Long Road, Canvey Island, Essex (The Paddocks is situated at the end of the A130). The organisers say this is one of the biggest and best rallies in Essex. Doors open 10.30am, featuring amateur radio, computer and electronic component exhibitors, bring & buy, RSGB Morse tests on demand (two passport photos required), home made refreshments, free parking with space outside the main door for disabled visitors. Admission £1.00.
For further details contact David G4UVJ, Tel. 01268 697978

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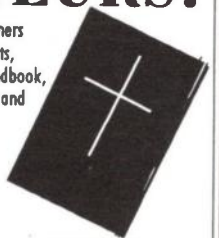
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FOR SALE

Yaesu FT-707 transceiver, 160m to 10m, good condition, ideal starter radio, £250. William Clayton, 54 Queens Road, Liverpool L6 2NG, Tel. 0151 207 1002

Realistic PRO-2035 home base scanner, 1000 channels, as new, virtually unused, still boxed, offers around £200. R. Hunter (South Shields), Tel. 0191 456 1032

Pye Europa, 7W FM ex-PMR radio, will easily modify to 144MHz, mod details included, £12. Mr W. H. Booker, 3 Hollybank Ave, Intake, Sheffield S12 2BL, Tel. 0114 2653592 after 5pm.

Sangean ATS803A with service manual, headphones etc., boxed as new, £60. Five element 2m yagi, only used in loft, as new, few months old, £20. Tel. Dave on 0141 632 5408

Yaesu FT-101ZD, excellent condition, manual, mic, spare set of new tubes, £325 cash. SEM TRN Zmatch Ezitune with SWR power meter, both instruments mint with user instructions, £60. F. Fernandez, 26 Gastons Rd, Malmesbury, Wilts SN16 0BE, Tel. 01666823765 evenings.

TS-940S plus ATU and Lowe mod, £800. TS-120V, excellent condition, £175. Mint TS-851E 70cm multimode, plus extras, £600. R7000 plus remote control, mint, £550. R7100, mint, £750. DX-100U, OK, £200. Want - IC-781. Ian (Capel St Mary), Tel. 01473 311665, or 0370 998420

Communications receiver: Realistic DX-200, 5 band, AM, CW, SSB, £50. S. Yeomans (Farnham, Surrey), Tel. 01252 710304

Alinco DJ580 dual band handheld with CTCSS, DTMF, extended receive, as new, still in box with full instructions and soft case, £250. Radio Shack DX-394 desktop receiver, still in box, unused, cost £350, accept £250. A. Harrison (Sheffield), Tel. 0114 2466457

Multireader MFJ462B, with manual, power supply and cable. Decodes RTTY, CW, SITOR, ASCII, AMTOR and FEC, will work with Epsom printer, accept £65. Frank (Warwick), Tel. 01295 670749

KW 2000B, KW 1000 linear, KW108 monitorscope, KW Match SWR, KW Pepmeter, KW E-ZEE Match, spare valves, manuals, £650 ono.W. Livens (Hertford), Tel. 01992 558493

Yaesu FT-650 multimode 6m and HF rig, 50, 28 & 24MHz, 100 Watt, AM, FM, SSB & CW, 12/240V, CW filter, excellent condition,£825. John (Colchester), Tel. 01206 240700 evenings or weekends.

TS-120S 100W HF radio, CW, SSB, digital readout, 500Hz CW filter fitted, with mic, power lead and manual, as new condition in original packing, £275. Joe (E. Mids), Tel. 01522 791633

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Kenwood TS-870S HF transceiver, used once, with instruction manual, £1,500, buyer collects. John G7WCA (Barnstaple), Tel. 0127171520 evenings.

Century 21D receiver, digital readout, nine bands, new filters, £85. L. Landricombe (Plymouth), Tel. 01752 705759

Trio 2500 2m handheld transceiver with complete car accessories, inc. linear, 30W preamp, fullwave magmount and many extras, all books, bargain at £240. Will meet half way on motorway. Colin G4STY (Porthcawl, S.Wales), Tel. 01656 784472

Yaesu FT-736 2m/70cm multimode base station with 6m module, CTCSS module, box, instruction and workshop manuals, £1,100 ovno. Leak Valve mono FM tuner, 88-108MHz, offers? Icom U16T 99 channel 70cm handheld, with spare desk charger and speaker/mic, £200. Stephen G7VFY (NW. London), Tel. 0956 544202 anytime.

KW 2000B with PSU, £170. Avo 8, £30. CR100, £35. Heathkit 'scope £30. KW E-ZEE Match, £30. Maplin Gold M/meter, £12. Two new 6146, £20. KW coax switch, £12. Heathkit GDO, £15. Eagle field indicator, boxed, £5. G2HKU (Sheerness), Tel. 01795 873100

Kenwood TS-690S HF and 6m rig, 50W, 1.8kHz filter fitted, boxed as new, £795. Also MFJ 784B tunable DSP filter, £145. A. Evans (Penzance), Tel. 01736 362809

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Spectrum Comms. 2m preamp RP25, £30. MacGregor valve R/C TX, Kantronics KAM all mode TNC V6 firmware, offers? NEC SCSI I/F card, £25. Hitachi SCSI CD-ROM, single speed, £25. 1Mb ISA video card, £25. G7VFY (NW. London), Tel. 0956 544202 anytime.

Yaesu FT-900AT HF transceiver, mint condition, 1 year old, hardly used, built-in ATU, £695. G4VKE (Cumbria), Tel. 01229 465359

Strumech tower, 40ft, complete with base post, slightly moded, only £150. Buyer collects. Dick G0BPS (Nr. Folkestone, Kent), Tel.01303 891210

Realistic DX200, 5 band, separate band spread dial, mint, with handbook, £50. Buyer collects. G8BSK (Southampton), Tel. 01703 552247

Eddystone EC958/5 HF receiver, 10kHz to 30MHz, filters fitted: 8kHz, 3kHz, 1.3kHz, 400Hz, £120. 386 computer, SVGA monitor, 90 Meg H/disk, ideal for packet, RTTY, SSTV, etc., £130. Buyer inspects and collects. G. Vine G3KLV (Nothampton), Tel. 01604 648091

FT-747GX, mint condition, never used mobile, with mic, 100W output, general coverage receiver, 1 to 30MHz, 32 memories, £350 ono. Collect or P/P extra. Ron G4DIY (St. Helens), Tel. 01744 757471 between 6pm and 9pm.

Yaesu FT-77 100W HF multimode mobile/base transceiver plus FC-700 ATU, leads and manuals, £450. No splits. Might exchange WHY? G4XPP (Co. Durham), Tel. 01388 747018 after 5.30pm.

WANTED

Yaesu FT-221 extender kit wanted. Please help this radio, it wants to come back to 'life'. William Clayton, 54 Queens Road, Liverpool L62NG, Tel. 0151 207 1002

Aerial rotator required. Also info on converting the Storno 5000 ex-PMR rig to 2m *(the Storno CQM 5114S conversion to 2m was featured in Nov 93 issue HRT if that's any help - Ed)*. All expenses paid. David (Glasgow), Tel. 0141 632 5408

Western Electronics 70TV 432MHz transverter produced in 1978. Good price paid. Would prefer mint and boxed, but WHY? Also any spares or U/S units of Yaesu FR-101 receiver and FL-101 transmitter. Pete (Bristol), Tel. 01454 887461

Matching loud speaker for HRO receiver, your price paid plus P/P. Peter G4VUN (N.Yorks), Tel. 01287 634397 9am to 5pm, works QTH.

Three inch image orthicon tube needed. Andy Emmerson G8PTH (Northampton), Tel. 01604 844130

FRV-7700, covers 150MHz to 170MHz, £40 plus postage offered. John Redmond, 38 Ochilview, Devonside, Tillicoultry, Clacks FK13 6JD, Tel. 01259 752937

EXCHANGE

Yaesu FT-101 general coverage transceiver, GWO with separate digital readout and Shure base mic with normal and VOX operation. Will exchange for 70cm multimode transceiver. Steve (Isle of Wight), Tel. 01983 563276

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Editorial Web site; http://www.qsp73.demon.co.uk

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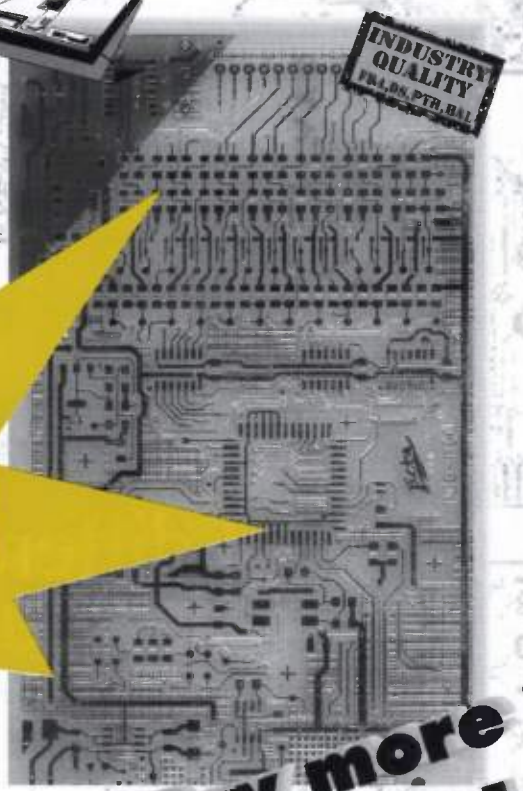

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