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HAMRADIO TODAY

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NEXUS

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IC-706

ALL MODE — £1,125



ICOM

An optional cable, OPC-581 or OPC-587, is required for separation.

HF
ALL BAND

50
MHZ

144
MHZ

Icom technology has once again produced a history-making first — the IC-706 HF/VHF all mode transceiver. This miniature marvel is the smallest of its class in the world. Covering all ham bands to VHF in all modes (including RTTY) it features a detachable front panel for versatile mobile operation. Operating versatility for use as a base station, for mobile operation or for portable operation.

• **Compact and feather light**

The IC-706 is incredibly small with dimensions of 167(W) x 5(H) x 200(D) mm. A mobile-sized transceiver packed with base station features. Excellent performance allows this transceiver to be used as your main rig for the HF and VHF bands. Of course many will prefer to use the IC-706 for mobile operation and on DX peditions. Whatever your choice you can't go wrong.

• **Covers 6 m and 2 m in addition to the HF bands**

In addition to being a full blown HF rig the IC-706 covers the popular VHF bands — not only 50 to 52 MHz with a full 100 W of output power, but also 144 to 146 MHz operation is possible at 10 W! Convenient HF functions such as IF shift, CW reverse, CW pitch control and more are available for 6 m or 2 m operation. A wide range receiver which covers HF to VHF continuously* is included. *Some frequency ranges are not guaranteed.



• When receiving on 2 m



• When receiving on 6 m

• **Detachable front panel**

The IC-706 sports a detachable front panel employing advanced technology. Both the main unit and detachable front panel have microphone connectors providing numerous mounting options in both a vehicle or a shack.

• **All mode operation including RTTY**

The IC-706 provides all mode operation (SSB, CW, RTTY, AM and FM) in all bands. RTTY capability is another first for a transceiver of its class. What's more, "real" RTTY operation is provided employing FSK rather than AFSK. RTTY tone frequency, offset for mark/space and polarization are all selectable.

SPECIAL OFFER! — INTRODUCTORY PURCHASE

IC-706 £1,125.00

Minimum Deposit £135

18 x £55.00

IC-706 £1,125.00

P/X Value £405
Balance £720.00

18 x £40.00

IC-706 £1,125.00

P/X Value £750.00
Balance £375

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CONTENTS

HAM RADIO TODAY

HAM RADIO TODAY VOLUME 13 NO.8 AUGUST 1995

REGULAR COLUMNS

HRT SOFTWARE OFFER 4
 Another superb ham radio software collection for just the cost of a blank disk

SCANNERS 29
 Bill Robertson looks at airband listening, Formula 1 monitoring, and spies on your scanner!

FROM MY NOTEBOOK 36
 Geoff Arnold G3GSR dispels the mysteries of circuit diagrams

QRP CORNER 38
 Dick Pascoe G0BPS shows how test gear for QRP can be useful and cheap

VHF/UHF MESSAGE 40
 Geoff Brown GJ4ICD shows how you can get VHF and UHF information in an instant

HF HAPPENINGS 42
 Don Field G3XTT takes a close look at 12m, and investigates a possible 'restart' suggestion for DXCC

DATA CONNECTION 44
 Chris Lorek G4HCL finds a new JVFX interface plus growing interest in the Amateur Packet Reporting System

SATELLITE RENDEZVOUS 46
 A hope for a new satellite launch in this month's AMSAT-UK news, compiled by Richard Limebear G3RWL

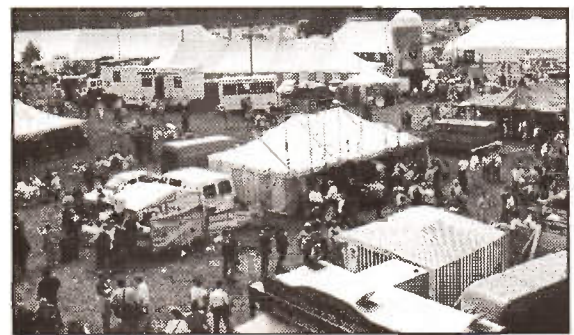
FREE READERS ADS 52
 Helplines, For Sale, Wanted and Exchange, published free

REVIEWS

MFJ-1278B DSP MULTIMODE DATA CONTROLLER REVIEW 16
 G4HCL tries the new Digital Signal Processor version of MFJ's multimode data controller

FORCE 12 C-3 HF BEAM AERIAL REVIEW 20
 Bob Harrison G4UJS makes his signal a 'force' to be reckoned with

AERIAL REVIEWS IN HRT 32
 Missed that review? Here's a list of the large number we've featured



Rally bargain hunting - a beginner's guide (page 33)

FEATURES

THE YAESU FT-290R MkI - AN OLD RIG MADE BETTER 23
 Dr. Ian Chin G10TWX shows how to improve the performance and operation of your set with a few easy modifications

RALLY BARGAIN HUNTING - A BEGINNER'S GUIDE 33
 Veteran rally-goer Steve Whitstable gives a streetwise guide to rally buying

CONSTRUCTION PROJECT

2-TERMINAL TEST OSCILLATOR (PART 1) 26
 Peter Cole DA1PE describes a 2-terminal test oscillator for inductance measurement

NEWS & VIEWS

CQ DE G8IYA EDITORIAL 5
 Time's running out for EMC compliance. Is anyone worried? Maybe not...

RADIO TODAY 6
 The latest Amateur Radio news

LETTERS 12
 Our readers have their say, no censorship here

HRT SUBSCRIPTION OFFER 39
 Make sure you get your favourite magazine each month, right through your door

CLUB NEWS/RALLIES 48
 Dynamic go-ahead clubs and voluntarily-run RAE course contact details. Is your club listed? If not, why not?

ADVERTISERS INDEX 58
 Who's 'in' Ham Radio Today, trader-wise

The Yaesu FT-290R MkI - an old rig made better (page 23)



HRT
 AUGUST 95
 3

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

This Month's Software Offer

Another superb ham radio software collection for just the cost of a blank disk

Each month, we offer readers the opportunity to receive a selection of the very latest ham radio PC software, supplied on a 1.44Mb high-density disk for just £1.00 inc UK p/p to you as an 'at cost' service. A new and different selection is featured every single month, prepared and copied for you free of charge, as a 'thank you' for reading the magazine.

This month, we've yet another bumper selection, designed to appeal to many readers. Here are the programs contained on this month's disk:

Microscan 1.3 by PA3GPY is a multi-tasking shareware program using Digital Signal Processing, for Fax, Radio Teletype, AMTOR-FEC and NAVTEX, which uses the same simple one-IC interface (as JVFX) as featured in the March 95 issue of HRT, an interface circuit is also featured on the disk.

Many readers have been asking "Where do I find all these fax stations on HF?". Well, the **Weather Fax Database** program, WXFAX V3.0, by Jan Nieuwenhuis contains a very large and up-to-date (May 95) listing of the many you can tune into! You can sort and list in order of frequency, station, callsign and country order, also included is general fax information, sample weather maps, a weather map identification list, etc.

Also on the disk are details and a computer-based graphics file for a **synchronous AM interface** for receiving weather satellites using JVFX software (see this month's *Data Connection* for more details).

If you're an existing or a budding DXer and would like to experience the 'other end' of an SSB pile-up, then **Voice-Pileup trainer** (VPED) V1.05i by JE3MAS is a freeware software that lets you do just that, using your PC's sound card. You can run an eight station pileup as long as you like with it, and you can even record your own DX stations for training.

Finally, if you'd like to decode Morse off-air using your PC without any external interface, then the freeware **FTMORSE** program uses your PC's sound card for just this, with reputed high accuracy even from HF off-air received signals due to the Digital Signal Processing techniques used.

Did you miss last month's offer?

With last month's issue, we offered another superb collection! Firstly, there was DXer by WA6JOO, for the HF or VHF/UHF **DXer**. This gives, for your (or any) location; TX/RX bearing and distance, sunrise and sunset times, Maximum Usable Frequency and Frequency of Optimum Traffic, and all locations sharing a common 'grey line', prints custom bearing/distance charts, there's also a grid locator function using either 6 digit (Maidenhead) or 4 digit coordinate systems, plus a complete **database** of all DXCC countries as well as other locations around the world, with the latitude, longitude, continent and CQ zone of each. Entries may be easily added, deleted or edited.

There's also a **weather satellite (APT) demodulation program** which uses your PC's sound card as the modem, no external interface needed - just connect your receiver to the PC!

Also on last month's disk, for packet-active amateurs using either a normal TNC, or a BayCom modem, or running a BPO node, there's the very latest suite of all three **G7JFF packet software** programs, see last month's 'Data Connection' column for information.

We also included a complete **HF spectrum listing** on the disk for several thousand broadcasting, commercial, and utility stations, which you can either print out or use with your favourite database (see last month's *Scanners* column for more details).

If you missed last month's offer, you'll need last month's 'corner flash' - back issues of each magazine are available. Details of earlier software offers are also available from the HRT Voicebank and Information service (Tel. 01703 263429, 24hr).

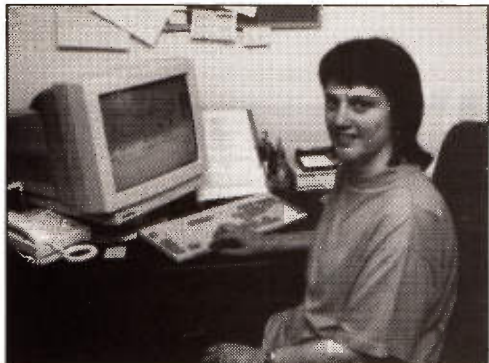
Next month, we're planning to include the 'Complete Ham' software in the collection plus lots more - don't miss it! Why not subscribe to make sure you don't miss out in the future? **Subscription and back issue hotline; Tel. 01858 435344.**

How to get your software

For this month's collection, supplied on a 1.44Mb HD PC disk and including UK postage and packing to you, send a £1.00 cheque or PO, payable to; **Mr. Steven Lorek**, together with your name and address (one or two readers are forgetting to include their addresses) and the original 'corner flash' from this month's 'contents' page, to; **Software Offer, P.O. Box 400, Eastleigh, Hants SO53 4ZF**. Overseas readers, including Eire, should send three US \$1 notes, or for airmail (if required) outside Europe four US\$ in notes. Other payment methods can't be accepted due to high banking charges - and **please do not** make your cheque or PO payable to any other individual or any company (as this is an 'at cost' service, we cannot pay to return letters, cheques etc. which do not comply with the above instructions).

Disks are sent by standard post, addressed to the reader in plain envelopes with just a return address on the envelope - i.e. with no indication that the contents are anything valuable or indeed what's in the envelope. To date, not one envelope, or contents, have been returned to us as undelivered or damaged. If however UK readers would like the added security of recorded delivery, just obtain a recorded delivery form from your post office, and correctly complete and enclose it with your order together with a further 55p (which is the current PO cost of this service). Please don't just send 55p and request recorded delivery - you must also send a completed recorded delivery form if you require this.

Queries regarding supply of these 'at-cost' disks should be sent to the above address with an SAE or IRC for reply. This is an 'at cost' postal service only, please don't telephone the Editorial staff or the magazine publishers (Nexus), as they can't answer your queries. Your disk will normally be placed in the post to you within 7-14 days of receipt of your request, please allow up to 28 days for delivery.



CQ de G8IYA

Editorial

Time's running out for EMC compliance. Is anyone worried? Maybe not....

A 'buzz-word' on many amateur's lips, and especially those amongst us in the field of commercial amateur radio equipment and kit supply, is 'EMC Compliance'. As you may have already read in Ham Radio Today in the past, this directive came into force several years ago, and it becomes mandatory from January 1st 1996. That's a few months away. The legislation means that virtually *nothing* electrical or electronic that's commercially available and which has an intrinsic function (i.e. it's not just a component part), including the one-transistor receiver kit little Johnny wants to buy to get started in listening, can be sold across Europe without meeting certain mandatory immunity and emission standards. Such equipment or its labelling can then have the 'CE' mark on it, to show it complies. If it doesn't, it can't be legally placed onto the market. If it is and someone complains, (or indeed if it has the mark and it doesn't comply) there's a whole string of nasty things that can befall the guilty party, including imprisonment of the responsible person in the firm concerned. It's not just a 'fine and a slap wrists' affair, it's a criminal offence.

Amateur rig specifications

There's already a rather thick document, an ETSI specification that I have here, which details the tests and emission/immunity levels required for commercially available amateur gear and kits. Will this spell the demise of small kit manufacturers in the UK? At least a couple of such manufacturers tell me it will. Large international firms instead will probably just increase the costs of their gear to cover the additional testing and development costs.

On the 'other side' of the coin, this directive has been known about, and

been in force, although not being mandatory, for several years. But how many amateur radio firms do *you* know of who've 'geared themselves up' for it for some time? The only one in the UK I know of at this time is Lowe Electronics, with their UK made HF receivers. It's also commendable that the voluntarily-run British Amateur Radio Teledata Group have just had their *Multyterm* data terminal unit, which they sell for the benefit of the group and amateur radio itself, type-tested for compliance. This now comes with a 'CE' mark. Also, if you looked closely at the photo of the new Realistic PRO-62 scanner receiver reviewed in last month's magazine (page 20, lower right photo), you'll see this also has the 'CE' mark, on it's rear panel.

'Bargains' to be had soon?

So it *does* look like *some* people, and *not* just amateur radio importers or the 'big' manufacturers themselves, are, finally (or, maybe, just in time!), doing something about it. But what of the others? Are we going to see a huge 'dumping' of electronic gear on the market at give-away prices at the end of this year?

Talking of 'end of the year bargains', it isn't just amateur gear, it's other gear such as Hi-Fis, TVs, computers, and so on that are also affected. They'll all have to comply with the various immunity standards, like not picking up your amateur signals.

Radio-free performance

Just yesterday, after winding up the tower and with my husband having just *one* three minute 20m QSO (ironically with a local special-event station, about 10 miles away in fact) neighbours from *both* sides of

our house came knocking at the door within seconds. One was getting SSB coming through on their daughter's multimedia PC, the other the same on the audio system and TV in their son's bedroom. A quick demonstration that 'our house' was clean (including a multimedia PC and TV both sitting right next to the transmitting rig and underneath the aerial system) was followed by a carefully worded phone call to the relevant local 'big name' consumer supplier in the high street. They had the cheek to try and say it was the transmitter's fault. I'd like to be charitable and think this was through total and complete ignorance on their part rather than an attempt at deception, but they were quickly corrected and quite rightly informed that computers and the like shouldn't pick up radio signals, quoting various extracts from the RA's 'interference sheet' to them. Just like our local friendly RIS chap officially told a large computer firm near to us, who were complaining they were picking up amateur packet signals on their PCs under test, and wanted 'something done about it'. Something was, they were told to fix their PCs.

Going back to the neighbour issue, all the units involved were Christmas presents from last December. Great, they're under guarantee - no problems in getting the shop to sort things out, as they should do, even if they were (illegally?) unwilling to initially do anything about it. What about *this* Christmas, when everyone's neighbours may be taking advantage of 'cut price' electronics goods before the 'deadline' a few days later? Not CE marked or compliant of course, just 'wide open' to picking up unwanted signals. It's a two-edged sword, isn't it?

Now, who was that HRT advertiser who was selling TVI filters and ferrite toroids cheaply?

Radio Today

RAYNET members honoured



At the Lord Mayor's Show and Festival of Transport, held on the Roodee Race Course at Chester on Sunday 14th May 1995, a presentation was made to recognise the efforts of three members of West Cheshire RAYNET in effecting the rescue of 12 year old Alfie McLelland, a young North Wales cyclist, from a swollen river, after plunging down a mountain side at the popular Loggerheads Visitor Centre near Mold, in December 1993. Clive Trotman GW4YKL

(President of the RSGB) gave an address praising their efforts, then presented framed certificates, incorporating a letter of commendation along with a personal keepsake each from Alfie, in the form of a small engraved plaque.

The three involved were Tony Lewis G6LBC of Chester, Graham Pemberton G7NEH of Tarvin and Peter Baston GW0PJA of Penn-y-fford. The company were also joined by the Lord Mayor of Chester, Councillor Gordon Smith, the President of the Chester Lions Club, Gareth Williams, and National Chairman of the Radio Amateurs' Emergency

Network, Ron Cowan. The Lord Mayor congratulated the three on their combined success in the rescue and for contributing of their hobby to the community for the benefit of others.



US licence test session this month

There will be a UK exam session for the US amateur licence, for all classes to Extra, on Saturday 8th July 1995. The venue is the St. John Ambulance HQ, Potash Terrace, Havant. Contact Paul A Steed, Extra Class Volunteer Examiner N3SSH / G0VEP, Tel.01705 371677 to book your place. The session will start at approx 10.00 a.m. local time. If you wish to attend please inform Paul or Betty on the above phone number, or Paul G0VEP on packet @ GB7HJP, Peter G0FIM on packet @ GB7HJP, or Paul / Betty / Peter on the local repeater GB3PC. It is planned to also include an 'on-demand' UK Morse test as well at the same place same time. Fees; US Licence Tests, £4.50 for whole session or US\$5.75, UK Morse test (please bring two passport photos); 5WPM £13.00, and 12WPM £18.00,

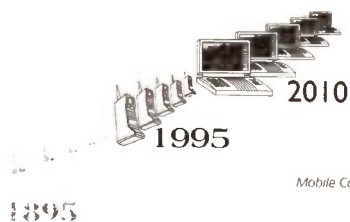
Pictured L-R, Gareth Williams Chester Lions, Tony Lewis G6LBC, Graham Pemberton G7NEH, Peter Baston GW0PJA, GW4YKL, and Gordon Smith Lord Mayor of Chester. Photo; David Mullock G7GFC

RA launch spectrum strategy

The Radiocommunication Agency's Technology Minister Ian Taylor recently launched the Agency's Strategy for the *Use of the Radio Spectrum*. This comprehensive and bound document is the first of an annually updated strategic plan, and focuses on areas with major economic and strategic impact

- broadcasting, mobile communications, fixed and satellite communications. One interesting possibility detailed within its pages is that of allocating AM and SSB to the 27MHz Citizens Band allocation in the UK. If you'd like a free copy, just drop a line to the RA, or give them a ring (contact details following 'Club News' in Ham Radio Today each month).

A Strategy for the Use of the Radio Spectrum



Young Amateur of the Year

The search is on for the Young Amateur of the Year! Nominations are being sought for individuals under the age of 18 who have shown promise in radio construction, operating, community service, encouraging others (e.g. through the Novice licence scheme) or school projects (e.g. organising a school amateur radio club). Once again, the radio communications industry has been very supportive of this award and have provided prizes of cash and radio equipment for the winner and runner-up. Nominations should be made on the appropriate form and should arrive at RSGB HQ no later than 31st July 1995. Further details and application forms may be obtained from Marcia Brimson at the RSGB (contact details following 'Club News' in Ham Radio Today each month).

Special event stations

GB5SY: The Scarborough Special Events Group will commence their summer season of special event stations by celebrating the 150th anniversary of the opening of the Scarborough to York Railway line, during the weekend of 8th-9th July 1995. George Hudson's York and Midland Railway Company built the 42 mile line in less than a year and sparked the dramatic development of the resort as a tourist destination. Fifty years ago a carnival atmosphere swamped the town, on the 7th July 1845 when the 'Hudson' and 'Lion' steam locomotives, drawing 35 first class carriages, completed the journey between the coast and the county's capital city. The special event station will be on the air as part of a



Pictured L-R, Jim G0NXX, Peter G3JBR, Roy G4SSH, Phil 2E0ABI and Andrew 2E1AUZ of the Scarborough Special Events Group

weeks' celebrations, culminating in a series of trips between Scarborough and York by the steam locomotive 'George Stephenson'. A special full coloured QSL card will be issued to celebrate the occasion and will be number 11 in the Group's series of commemorative QSL cards. Operation will be around 3.725MHz and 7.055MHz SSB on the HF bands, plus a CW station and 2m and 70cm activity. Callsign GB150SY has been requested from the RA. Further information can be obtained from Roy Clayton G4SSH, 9 Green Island, Irton, Scarborough YO12 4RN.

The Air Training Corps. will

be running a HF Special Event Station at the 1995 Royal Tournament at Earls Court from 18th to 29th July, callsigns **GB4ATC**, **G3ATC** and **G8RT**. It will be on the air between the hours of 1100 and 2200 local time for the duration of the Tournament. Air Cadets will be on hand to pass and receive greetings messages. Alongside will be a demonstration station operated by Air Cadets using their own allocated Air Cadet frequencies, and arrangements are being made for Cadets to communicate with aircraft. For further details contact Malcolm Wood, 12 Lime Tree Walk, Enfield, Middx EN2 0TJ, Tel. 0171 438 6053, or 0181 363 0727

RAE & Morse courses

The Glenrothes and District ARC in Fife, Scotland, are planning to run a course to prepare candidates for the Radio Amateurs Examination to be held in May 1996. The course will be from 7.00pm to 9.00pm Monday evenings beginning late September. A second course in Morse code will be run during the same period on Tuesday evenings from 7.00pm to 9.00pm and provides training for beginners and those amateurs wishing to improve on the basic 12WPM required for the 'A' licence. Both courses will be held at Balwearie High School in Kirkcaldy. Contact Ken Horne GM3YBQ, Tel. 01592 265789 evenings, or T. McGill at Balwearie High School, Tel. 01592 640335 mid September for further details of enrolment. *Please also see Club News for other clubs offering voluntary-run RAE and Morse courses in your area - Ed.*

We've also been informed of a Local Authority organised RAE course due to start in the Bristol area, at Twyford House, Shirehampton starting September 18th. This will be held on a Monday evening between 7.15pm and 9.15pm for two terms (30 sessions). The cost of the course is £63.60 plus £5.00 registration fee, over 60's benefit from a discounted price of £47.70 plus £5.00 registration fee, and those on benefits just pay the registration fee of £5.00. For further details call Liz on 0117 9683112 (office hours) or Chris on 01454 616267 (evenings, weekends and answering machine).

Special event stations needed for the Historic Churches Cycle Ride

Harry G3NGX tells us that he is trying to get together a group of amateurs who'd be interested in running a special event station from their local church, to coincide with the annual Church Cycle Ride, or CROW (Cycle, Ride Or Walk) on Saturday 9th September. The purpose in the CROW is to raise funds for the restoration of historic churches, often in beautiful places, but with small village congregations often unable to raise sufficient funds themselves for major structural repairs. For the event, cyclists, walkers, and horse riders, normally obtain sponsorship from their friends of say, 'x' pence per church visited, and then try to visit as many as possible during the day and earn a grand total. Usually the proceeds are collected by each church and split between a local project and the county trust for the benefit of other churches.

Many churches have high points suitable for suspending an aerial, such that at least one end can be quite high. This should give a good signal on 40m and 80m. A 2m quarter wave and a handheld are also rather useful for opening the local repeater, should the visitors not be impressed with SSB voices from far away. 23 counties are known to run the CROW and hopefully will do so in 1995. Harry says; "If you are an amateur, cyclist, walker, church member, or other and are interested in having a go" to please contact him. He will try to link three or four amateurs into local teams if possible and arrange coordination of callsigns, to see how many stations they can put on the air, with GB, GX or /P callsigns from local churches on 9th September. For more details, contact Harry Hogg G3NGX, Crossways, Ferry Road, South Stoke, Reading, Berks RG8 0JL, Tel. 01491 872919

THE BERKSHIRE SPONSORED CYCLE RIDE

GB5CR

GREYFRIARS CHURCH, READING
NGR SU712738 WAB SU77, BERKS.

TO RADIO

Confirming our MHz. QSO

On at GMT

Ur signals RST

Tx/Rx

Ant Input w.

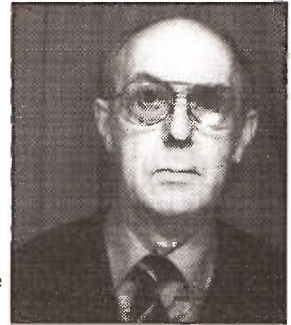
PSE QSL VIA R.S.G.B. or G3NGX QTHR



Leicester amateurs honoured

At their recent Annual General Meeting, one of the oldest radio societies in Great Britain, the Leicester Radio Society, known to be in existence since at least 1913, honoured two of their older members. Frank Elliott G4PDZ of Glenfield was created their Honorary Life President. Frank has been a member of the Leicester Radio Society for many years, and is well known as the organiser of the Leicester Amateur Radio and Electronics Exhibition which has been held at the Granby Halls, Leicester for the past 24 years.

Bob Peace G8SOZ of Great Glen, was created their Honorary Life Vice-President. Bob has also been a member of the Leicester Radio Society for many years, and is well known for his tutoring and coaching would-be radio amateurs through their courses, thus enabling them to pass their Radio Amateurs Examination. We at Ham Radio Today congratulate both Frank and Bob and wish them all the very best for the future, and we're sure all our readers do to.



Frank Elliott G4PDZ

Barry ARS shack officially open



Glyn Jones GW0ANA, Chairman of Barry ARS, hands scissors to Clive Trotman GW4YKL to cut the tape and declare the shack open. Watching with interest is Councillor Colin Dunkley Major of Vale of Glam Council



Brian Vodden GW3WBU (known affectionately as Willie Baker United) with Clive Trotman GW4YKL.



Members and guests at the official opening of Barry ARS Radio Shack

Thursday May 18th marked a new era for the Barry Club, when the Mayor of the Vale of Glamorgan together with Clive Trotman GW4YKL (President of the RSGB), presided at the official opening of their radio shack. In Clive's speech he recalled the time years ago when the Barry Club was a flourishing well-attended concern, and that he was very pleased to learn that after some years in the 'doldrums' and at one stage almost extinct, it was now staging a comeback. A new management team ably led by Glyn Jones GW0ANA has in the space of barely 7 months revived the club's fortunes, and found a venue in beautiful surroundings at Sully on the Bristol Channel coast barely three quarters of a mile from the spot where Marconi made history in May 1897 by exchanging radio messages across the open water. The shack was formerly a disused storeroom, and was converted with the assistance of club members to aid plans masterminded by Jorge GW0AGA the incumbent Shack Manager. We're told the future looks very promising with lots of interest being shown, membership increasing, and emphasis being placed on future activities to reflect aspects of our hobby which perhaps in the past had tended to become neglected.

Operating and Novice transmitter books

Two new operating aids have been published by the RSGB. The RSGB *Prefix Guide* carries on the good work started by the late Geoff Watts. It is the definitive guide to identify those tricky callsigns so often used by special event and contest stations, not to mention the new countries which pop up from time to time. The guide is available at £4.75 post free.

The VHF Contesting Handbook, compiled by the RSGB's VHF Contests Committee, includes sections on choosing a site, equipment, aeriels and recent rule changes. The handbook should appeal to contesters of all levels of ability and experience and is available at £4.00 post free.

Practical Transmitters for Novices is a new book primarily aimed at Novice licensees, but which will have wider appeal. The book contains a selection of easy to build transmitter designs suitable for the UK Novice bands, including transmitters for 160m DSB, 80m CW and 6m FM. It also includes a large selection on the Microwave bands and so the book would be suitable for the experienced amateur who wants to get going on microwaves. We plan to have a review of this book shortly in HRT. Further details on all of these are available from the RSGB (contact details following 'Club News' in Ham Radio Today each month).

Costa Verde award

After creating the ruling committee for DX activities, the Clube CB Costa Verde, through this committee, tell us it presents its first radio award for HF and VHF amateurs, SWLs, and CB users. The club tell us the present administrative division of Portugal divides it in three types of geographical entitles: districts (22), which are composed by councils (305), which in their turn are divided into parishes (4154). The Diploma de Portugal (Portugal Award) is made available to all radio amateurs by the Clube CB Costa Verde. To obtain this award, each candidate must present evidence of contacts/receptions with at least ten Portuguese districts, being one district in each of the following mentioned regions: Mainland Portugal, Azores archipelago, and Madeira archipelago. There are also endorsements for 100, 150, 200, 250 and all the 305 Portuguese councils, available at the time of request of the award or later, when evidence of contacting more councils is available. The award is available for each candidate in each one of 7 categories:

HF (10, 12, 15, 17, 20, 30, 40, 80, 160m)
VHF (2m)
CW (Telegraphy, all bands)
Digital (RTTY, AMTOR, PacTOR and Packet, all bands)
Satellite (all modes)
SWL (all bands, all modes)
CB (11m)

Station log photocopies or QSL cards are accepted as evidence of contacts, as long as they correctly give the date, frequency and mode. QSL presentation is however mandatory for CB contacts, in this case QSLs must be personalized, with indication of sender's address and a clear mention of the receiver. Requests should be addressed to; Clube CB Costa Verde - Ruling Committee for DX Activity, P. O. Box 4403, 4007 Porto, Portugal, together with name and address of candidate, category(ies) of award and necessary evidence. The award's price is US\$4.00 for Clube CB Costa Verde members and US\$5.00 for non-members. The club however tell us that applicants who "at the moment of request of the award present evidence of contacts with all councils, will receive it completely free of charge".

Appleton plaque unveiling

A plaque commemorating the pioneering work of Sir Edward Appleton, discoverer of the ionosphere, has been erected at Kings College, London. The plaque was unveiled on 24th March by Appleton's daughter, Mrs. Rosalind Appleton-Collins, in the presence of several VIPs including radio amateurs and RSGB officials.

WAB group provide lifeboat

At this year's Drayton Manor Rally, the WAB (Worked All Britain) organisation presented a cheque for £12,500 to the Royal National Lifeboat Institution. This donation was a result of the WAB's Silver Jubilee Appeal as promoted in Ham Radio Today recently, and will provide a Class D Lifeboat to be named "C John Morris DFM G3ABG" in memory of the WAB's founder.



Pictured L-R
Adrian Keeble
G4HPU (WAB
Silver Jubilee
Award Co-
ordinator),
Mrs Veda
Morris
(Widow of
G3ABG),
Anthony
Oliver (RNLI),
and Arnold
Mathews
G3FZW
(Cannock
Chase ARS).

New callbook for Windows

As we recently revealed in our London Show guide, Skyview Communications have produced a UK callbook on computer disk. The news is that the RSGB have now 'taken on' this callbook, and are distributing it through the Society. SkyCall comes in four 3.5in diskettes and will run on any IBM-compatible PC, with an 80386 or better processor running Microsoft Windows 3.1 or 3.11, and a minimum of 4Mb RAM and 8Mb spare hard disk space. All 55,000 UK callsigns are included and records can be accessed by callsign, name or postcode (or just part of these, e.g. G3X**). In addition to these rapid searches, the use of the standard language SQL (Structured Query Language) allows much more complex searches to be made. Names and addresses may be exported in a neat multi-line format for use on QSL cards or club mailing lists. For further details contact Marcia Brimson at the RSGB HQ, details in Club News each month.

TRADE TOPICS

'PowerTalk' from SGC

SGC, Inc. tell us they're pleased to unveil their new 'PowerTalk' control head. This is a full featured ADSP-SNS control head for SGC's Model SG2000 or SG-2000SP transceiver, and incorporates adaptive digital signal processing and spectral noise subtraction to provide unsurpassed signal quality on the HF bands, with user friendly operation via LED indicators. SGC say the unit



reduces unwanted noise, in addition, the operator can adjust the frequency range by means of upper and lower corner frequency controls, and can then adjust the centre frequency up or down via the knob control. The result is clear signal quality. The SNSTM is claimed to subtract noise in the spectrum where voice modulation is not present, further enhancing the signal to an unsurpassed level. A notch filter feature also allows

up to 5 tones to be suppressed simultaneously. The introductory price for the SG-2000 PowerTalk is US\$2495.00. For additional information or to receive a brochure, contact SGC Inc. P. O. Box 3526, Bellevue, WA 98009 USA Call: INT+ 1 206 746 6310 or fax: INT+ 1 206 746 6384.

Dual band handheld from Alinco

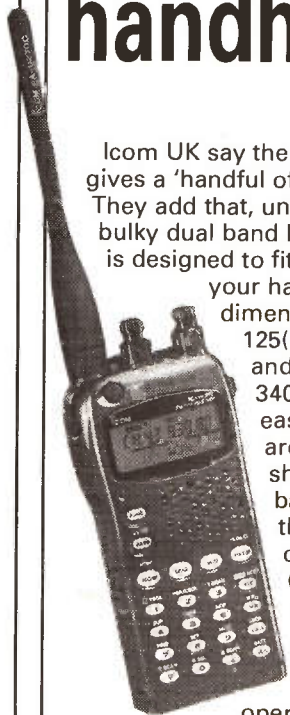
Launched this year at the Dayton Ohio Hamvention was the new DJ-G5 compact dual band handheld from Alinco, which is now in production and is due to replace the successful Alinco DJ-580 in July this year. The UK selling price is provisionally fixed at £479.00, and



the new model incorporates many new features including a new high efficiency MOSFET power module which maintains high output even with low battery voltage, 200 memory channels are included, together with Alinco's exclusive channel scope display, CTCSS tone encode

and decode are also built in. Further details from waters and Stanton Electronics (Tel. 01702 206835).

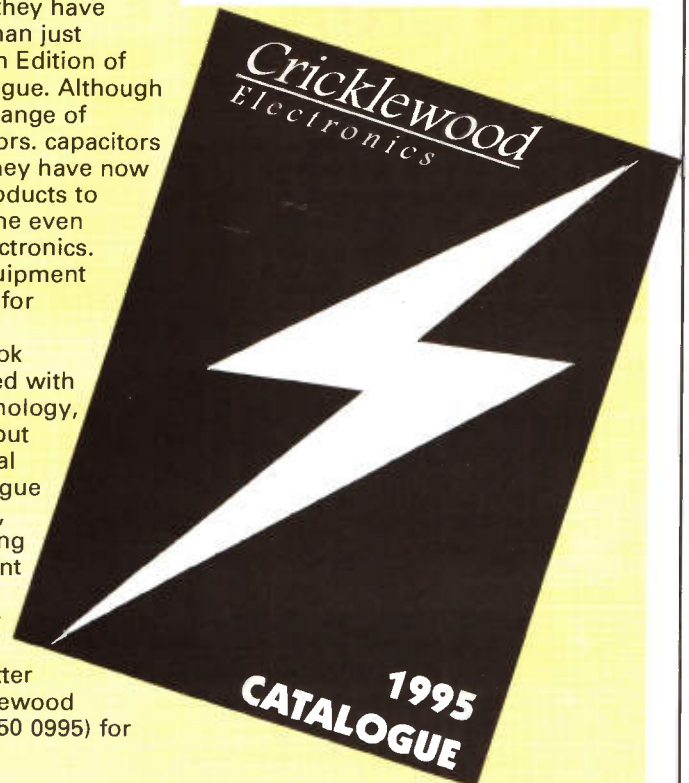
Slimline Icom handheld



Icom UK say the new IC-W31E gives a 'handful of performance'. They add that, unlike many other bulky dual band handhelds, this is designed to fit comfortably in your hand, its slim dimensions of 57(W) x 125(H) x 31(D) mm and light weight of 340g allow you to easily carry it around in your shirt pocket. It basically offers all the performance of the IC-Z1E (reviewed in HRT June 95) but in a single handheld unit, including dual band operation, numerous memories, alphanumeric display and more, living up to the phrase "good things come in small packages". Further details and prices from Icom UK, Tel. 01227 741741.

Cricklewood Catalogue 1995

Cricklewood Electronics say that for many years they have been supplying high quality electronic components to engineers, hobbyist, teachers and scholars. In order to attract a wider public, they have included much more than just components in the 17th Edition of their Electronics Catalogue. Although they still stock a wide range of semiconductors, resistors, capacitors and connectors, etc., they have now also included many products to attract the eye of anyone even faintly interested in electronics. The Tools and Test Equipment section has something for everyone involved in electronics, and the book section has been revised with emphasis on new technology, especially computers (but not forgetting traditional electronics). The catalogue price is £2.50 post paid, and HRT readers working for Schools, Government Depts, Limited Companies, etc. qualify for a free copy if they send for it with their letter heading. Contact Cricklewood Electronics (Tel. 0181 450 0995) for your copy.



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LETTERS

Letter of the month

Dear HRT,

Howdy! As a visiting Ham from America I am at a loss over here. I thought all repeaters were on the 1750Hz tone. But after reading your magazine, I find out that I could have brought my radio with me instead of leaving it back home. What a pity!

So what can I do about the next time I'm over here? Who do I see about getting a reciprocal licence to get on the air over here? Do I request a form at customs or what? See what I mean about being a pity! I'd like to be able to talk to the locals, but without a reciprocal, I can't!

Otherwise, I'd be happy to enjoy my new family. But I do miss the security of my radio! One doesn't realize how important the radio can be in one's life until you don't have one available to use. By the way, the reference to my new family is the reason why I'm over here. I came here to get married! Details will be available in a book which I am writing with my new wife.

Now to address certain other parts which I read in your letters column. Please don't make the same mistake as we did in America. The FCC can't rectify their mistake over the no-code licence. That's how I got into the fraternity anyway but we have had problems back in my area due to certain Hams who seem to think they can do anything they please while on the air. Our club has enacted certain

measures to rectify this, but it may stifle new Hams from enjoying the pleasures of 'Hamming'.

As the Secretary/Treasurer of the Waycross Area Repeaters Association, I must keep track of all members, both paid and those wishing to join. We have had to enact a security code for the autopatch. Only members may have the access code. But this hasn't stopped certain persons from trying an illegal access. But this isn't the main reason. The main reason concerns the fact they use illicit language, i.e. profanity.

I guess what I am trying to say is that we must do everything with the attitude that we are being monitored by everybody and not just those who can take action against us. As an American, I find anyone who is polite to be refreshing. Rudeness can be infectious. Which is why I am so amazed at the people over here! Your drivers are so polite as to be distracting to me!

Well, got to go for now. Off to see more of your country! If any of your readers wish to contact me in the states, please feel free to do so. It may take me a bit of time to get back to them as I'm on a disability pension. But I will write back when I can afford it!

Do let me know how to get on the air while I'm here, so I can talk to your readers personally! I look forward to my return and being able to talk to as many Hams as possible!

Sincerely,
Wesley Glenn Johnson, KD4YUR,

P.O. Box 1093, Waycross GA 31502-1093, USA

Editorial comment;

We've had a 'no-code' licence (the 'Class B') in the UK for many years now, far longer than the 'equivalent' no-code VHF/UHF-only licence in the US. Even so, the problems with profanity and other bad operating standards on repeaters in the UK has been going on for some time. It isn't anything new. From the numbers of Novice, i.e. 'beginners' licences, in the UK, this licence having been introduced just a few years ago (unlike the US!), the no-code class of Novice vastly outnumber the 'with code' Novices. However, the operating standards of our Novices, as far as we and many other amateurs have heard, are impeccable. Which shows an 'easy' route into amateur radio doesn't always mean poor operating standards, in this case it seems to indicate exactly the opposite. If you'd like a reciprocal licence, just contact the Radiocommunications Agency in the UK, the details follow 'Club News' each month - they'll be pleased to send you an application form for a reciprocal licence. Unfortunately, you can't pick one up at the customs point, and (like the US) it has to be applied for in advance. We look forward to welcoming you back to the UK Wesley, in the meantime the US\$15 we've sent you for the 'letter of the month' might help a little towards the eventual licence cost!

£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 (normally paid during the month following publication). 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. 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 names and addresses plus callsign if held. Reader's views published here may not necessarily be those of the magazine

"TONE" BURST



by GOMEN



South African Rules?

Dear HRT,

I am writing to you to see if you can be of any help. In this country we are not allowed to pass on third party messages as the rules state. But as I am a Class B licence operator and I can use HF bands under supervision, I have asked other HF operators but I cannot get any information with regard to South African rules.

As my sister lives in South Africa and she is not a licence holder, could you or any of the magazine readers help me out as to the rules with which she would be able to talk to me on HF bands. At the present moment we send each other letters, or very rare the occasional telephone call which costs a lot of money just to speak for two minutes.

Please keep up the good work as the articles on reviews, projects, and features are very good.

George Bowers.

Editorial comment:

Can any readers help with 'first hand' information? We'll be pleased to pass the information on. In the meantime, the South African amateur licensing authority can be contacted by a letter to the Senior Manager, Radio and Terminal Equipment, Private Bag X74, 0001 Pretoria, Republic of South Africa, or Tel. 00 27 12 293 1171 (if you want to spend a bit of money!). Alternatively, the national amateur society there is the South African Radio league, PO Box 807, Houghton 2041, South Africa.

Minimum order charges win less friends

Dear HRT,

On the subject of minimum orders etc. I am a person who responds to a helpful word or gesture, and oppose those people who put business first and the customer second. After all, the customer *is* the business.

To give you an example of what I am talking about. I called Microvitec, who make monitors, to get the pin-out to one of their monitors I got from a radio rally. The person on the phone was very helpful, she passed me to a technician who gave me the information I needed. I called Hitachi for a service manual for an oscilloscope, they checked on it and called me back with a very reasonable price. I called a large well known computer manufacturer for help with a used computer and they would not speak to me, not until I registered as an owner and paid £45, they would not give any help or answer any questions. I have no need to tell you who I will go to if I need a new monitor, or a scope, or who I will not go to if I need a computer.

If I send off for something which only costs a couple of pounds and it arrives within a couple of days along with a catalogue, my next order may be a lot more. If I am faced with a minimum order, another company gets my business. Fair enough, it costs money to be nice, there are plenty of people wanting to spend hundreds of pounds, why worry about the customer that may come back again and again only spending a few pounds each week. Is this how the corporate giants were formed? I doubt it.

Dennis H. Barber, G0UFS/KB8GCF

No planning permission needed?

Dear HRT,

Planning permission is a very sticky business, I know, being a Parish Councillor, many planning applications come before the Parish Council. Yet I have never seen an application for any commercial towers that have sprung up in my vicinity, i.e. not my parish, yet both are within a straight mile. They are certainly not as gracefull as amateur radio masts or towers, they are downright ugly, and sprout aerials like a porcupine. If you ask, you will find that those responsible for these commercial radio telephone structures do not apply to parish, district, or county councils for planning permission, they go straight to the minister concerned. Permission is granted without fuss or concern about the environment, or that they might interfere with amateur radio. I cannot prove it, but I get phone call signals and voices on my HF radio transceiver, plus many other wierd signals that are certainly not RTTY, SSTV, Packet or other authorised amateur radio signals.

So to D. Browne G4XKF, go to your local district council or parish council meetings and ask why you are refused permission. Michael G3VOO, you should go to the USA, you would be shot down in flames. Amateurs have greater preference than we have, they only have to apply if they live in towns or the suburbs, in the country no planning permission is required.

J.H. Clifton, G0UIU

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MFJ-1278B DSP Multimode Data Controller Review

Chris Lorek G4HCL tries the new Digital Signal Processor version of MFJ's multimode data controller



The 'hype' on the HF bands today, whether it be on CW, SSB, or data modes, seems to be that of the advantages (or otherwise!) of adding digital signal processing to your receive setup.

But what is it? Well if invoked at the 'audio' stage of your receive setup, it's simply audio filtering, such as high-pass, low-pass, and maybe notch controls. In other words, audio shaping. "There's nothing new about that" you may say. Quite right, if you think of 'traditional' analogue means. However, by using the power of digital processing, an analogue signal can be digitised, processed as needed using digital (rather than analogue) techniques, and then 'reconverted' back to analogue form. So-called 'brick wall' filtering. i.e. perfectly shaped filter responses with near-vertical lower and upper filter responses, can be obtained, plus selective rejection of repetitive signals such as unwanted data and timebase noise. Which is why some DSP filter 'add-ons' for your rig can,

almost miraculously sometimes, pull signals right out of background noise and QRM.

"Just the thing for weak signal data work" you probably think. Reading the title of this review would have given this away! Yes, some current data modes employing certain DSP techniques *will* get through in very weak signal conditions when 'traditional' communication modes would *never* stand a chance, even with extremely skilled operators at each end. I deal in this professionally each day, setting up such systems for aid and rescue agencies around the world.

Offerings

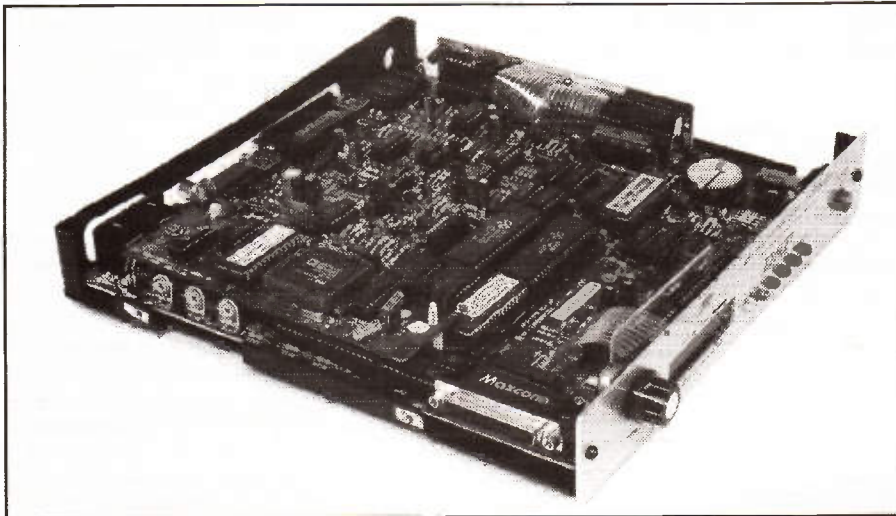
So when I was offered the chance to test this new controller, I almost bit the supplier's hand off! It isn't cheap at just under £400 in the UK, so it needed a close look. The manufacturer's advertising information states "You won't believe your eyes when you see

solid copy from signals buried in QRM". Well, I *have* seen this before on some data modes, and I've thus *had* to believe it. But the MFJ-1278B with DSP seems to go a lot further by employing such techniques also for SSTV, FAX, packet, CW, AMTOR and the like. Let's see what's offered:

The controller provides facilities for both HF (300 baud) and VHF (1200 baud) packet, with a built-in modem disconnect header to allow internal fitment of 2400 baud or 9600 baud modems for optional higher speeds. AMTOR and PacTOR data modes, as often primarily used on HF, are also in there, together with keyboard-based CW plus a CW contest memory keyer complete with automatic contact serial numbering, you can also plug in your iambic CW paddle key if you wish. For other memory applications, a built-in packet mailbox with 32k memory is fitted, this also being accessible on PacTOR for others to leave you messages on. It's expandable to 128k or 512k memory by plug-in options.

Colour SSTV (Slow Scan TV) transmit and receive is fitted, with facilities for Robot 72 and 36 second colour frames, plus 'Scotty' and 'Martin' colour types 1 and 2, together with Robot black-and white SSTV using 8, 12, 24 and 36 second frames. As well as this, packet 'pictures' can be transmitted and received using a 'screen grabbing' system, although in the UK at least the more common PCX, GIF etc. picture formats tend to be used for this with normal packet file transfer protocols, which the unit can of course also accommodate.

You can use the unit also for fax and weather fax, both HF ('wire photo' type) and satellite (APT - Automatic Picture Transmission)



formats, with a 16 grey level reception facility. Baudot RTTY and ASCII communication is also available, using narrow (170Hz) or wide (850Hz) shifts, and either 'low' tones (as used in Europe) or 'high' tones (as the Americans seem to favour). NAVTEX reception capabilities complete the picture. This system broadcasts shipping information such as weather forecasts, search and rescue information etc. on MF (just above 500kHz), of interest to anyone near a coastal resort as well as boat owners themselves.

Interfacing

The unit has connectors for two separate radios, i.e. your HF rig plus a VHF or UHF rig (or indeed a VHF/SHF weather satellite receiver), with software-controlled switching between the two. You'll need some form of terminal, or computer in 'terminal emulation' mode, to communicate with the data controller via its RS-232 port, a 25 way D-type connector being fitted for this. A couple of purpose-made programs are optionally available to run on your PC (more of these later) to provide the full-

colour SSTV capabilities and the like. However, for black and white fax and SSTV pictures (plus 'packet' pictures if you use this facility), you can directly plug an Epson compatible printer into the parallel printer port fitted on the side of the unit. This facility can be useful for, say, unattended use or where you may not want to have your computer 'tied up' all the time on the unit.

Further connections are provided for direct FSK (Frequency Shift Keying) and CW keying outputs to your rig, plus a CW keyer input,

receiver audio inputs and outputs, and a 12V DC power input to use with the supplied plug-in AC wall adapter.

Getting going

The supplied 407 page instruction manual, (which states on its front cover; "Caution; Read all instructions before operating equipment"!) is accompanied by a useful, and rather more sensibly sized, 61 page 'Fast-Start' guide which gives connection information and basic instructions to get you going. So, I duly read that, plus *some* of the rather thicker accompanying volume. I then wired up a couple of leads for my HF multimode rig and VHF FM rig, and was on the air in a couple of hours.

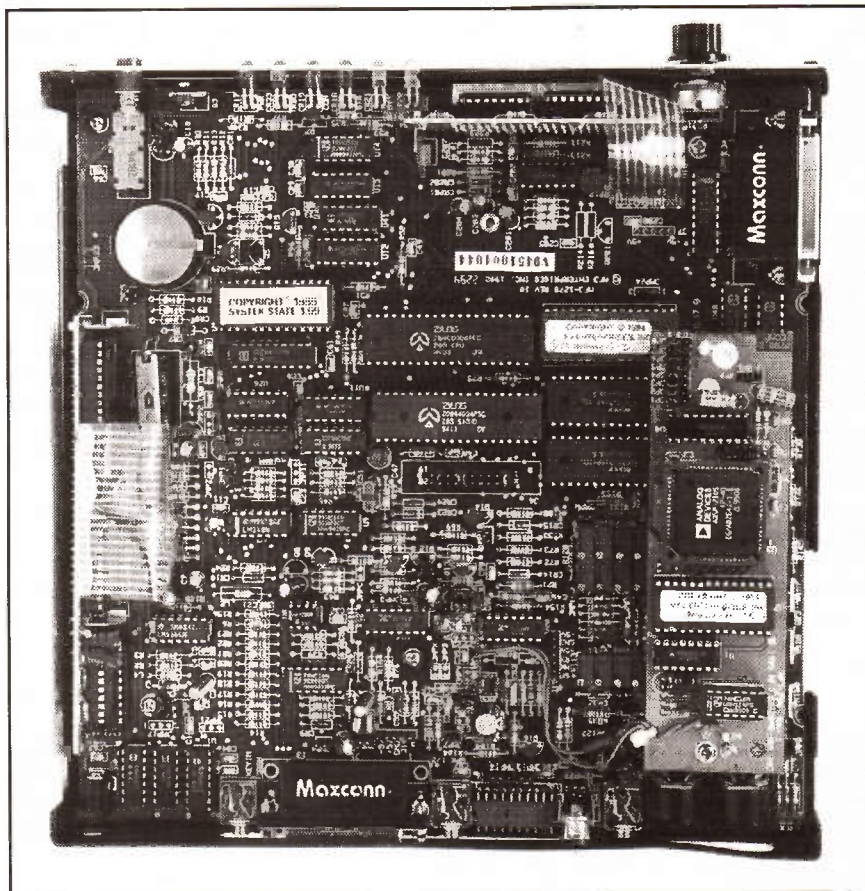
MFJ supply suitable leads with the correct plugs ready-wired at the controller end, all you need do is fit suitable connectors to the other ends to suit your rigs. The unit also automatically detects your terminal's RS-232 parameters, so on switch-on I just needed to press my computer's 'enter' key a few times for the unit to come up with its sign-on message with the same parameters.

After this, I quickly managed to have my first packet contact, downloading the day's message

listing from my semi-local BBS. Well, that was the easy stuff over with, as you may have guessed I didn't have many problems in getting 'up and running' with the 'basics'.

For tuning signals in on HF, the unit has a 20 segment LED bargraph tuning indicator, combined with a 'DCD' (Data Carrier Detect) LED to indicate a valid signal. I found this combination quite easy to use, and again I was receiving off-air signals of various forms within a short space of time.

On HF, I used my Yaesu FT-990 and switching in its own digital high



and low pass filter systems made just a little, but a barely noticeable, difference to the off-air received data accuracy. This suggests the data controller's DSP filter seemed to be doing its job reasonably well. Due to the wide-ranging nature of the unit's capabilities, I could fill many magazine pages with the off-air results I achieved, including several pages worth of SSTV and fax printouts. But let's just say that it

long error-free listing from a middle-east amateur station using this mode) it didn't compare to the performance I achieve from PacTOR units equipped with 8-bit A/D converters, as in the 'original' PacTOR hardware design by the German team. Signals buried in the noise *do* (eventually!) come through 100% with such units, but this *wasn't* the case with the MFJ controller which invariably took a great deal

multi-grey level SSTV, the MFJVU program letting you to view and print these pictures. This package costs £34.95, but if you want greater flexibility the 'Multicom' program at £69.00, also with an RS-232 lead, can be supplied. This adds a text editor, a packet routing system for automatic 'node hopping' to a distant station, and possibly most interestingly the ability to use the controller's 16 colour SSTV and fax facilities including conversion to and from standard PCX files. I found this quite easy to use, although the copy protection does *not* allow you to back up your computer's hard disk without first transferring a 'token' back to the program disk, then re-installing this before you want to run it again. Although I can understand the need for this, I found it a real pain in use. Alternatively, if you return to the UK importers the disk from Multicom Software, with payment of £10 towards costs, MFJ can 'hard program' your call sign or name into the software and thus make it copyable and allow you to back up your valuable programs, as any sensible user would want to.



kept me very, very well occupied for many, many hours when tuning across the various amateur, marine, and various 'utility' bands on HF. Just take a look at any 'utility' frequency listing book to get an idea of the vast amount of stations out there.

One quite useful function of the unit when 'tuning around' for signals is an 'Automated Signal Analysis' facility. Initiating this after you've tuned a signal in gives you a 'best guess' (sometimes quite accurately) of what the signal is, i.e. RTTY, AMTOR, packet etc. plus the baud rate. Entering 'OK' on your keyboard will then switch the unit to that mode and baud rate, to let you (hopefully) start receiving straight away. Very useful, something which I believe is present only on one other multimode data unit on the amateur market.

A closer look

In taking a closer investigation on amateur band modes, although I found PacTOR operation satisfactory, with QSOs across the world (just today I downloaded a

longer to try and pull the information through on receive. This however could be assumed to be a critical, although quite valid, test, as the PacTOR mode is one that can have this A/D facility 'built in;' to its data controller. After performing a number of such checks and measurements, I believe the system in the MFJ unit can best be described as a 'good compromise' between the large number of modes of operation offered by it.

Software

During most of my review tests, I purposely used my 'normal' packet terminal software to control the unit, i.e. to test the capabilities of the unit itself rather than any clever PC software features. But to help you get going, MFJ can supply a TNC 'starter pack' for the MFJ-1284 with MFJCOM, MFJVU and a number of utilities, plus a ready-made 25 to 25 way RS-232 lead in the same pack to link to your computer. MFJCOM is 'specific' to the MFJ multimode controller and TNCs, and lets you send and receive binary and ASCII files as well as two-level fax and

Conclusions

The inclusion of a DSP filter in a multi-mode data terminal such as this is a welcome progression, and probably a 'logical' sign of the times. I know of no other such controller with such fitted apart from rather expensive DSP only units. I found it seemed to 'clean up' signals on air by substitution with the DSP filter in my existing receiver setup, although the performance on PacTOR was rather poorer than I'd have expected. The lack of PacTOR II (the latest version of this mode) is also a disappointment. However, the unit possibly makes up for this with its large array of other operating modes, which should keep any inquisitive radio data enthusiast busy for quite some time to come.

If you already have an MFJ-1278B but without the DSP unit, the good news is that a plug-in 'upgrade' unit, the MFJ-780, is available to do this.

My thanks go to Waters and Stanton Electronics for the loan of the review MFJ-1278B with fitted DSP.



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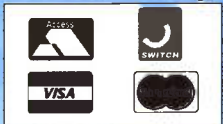
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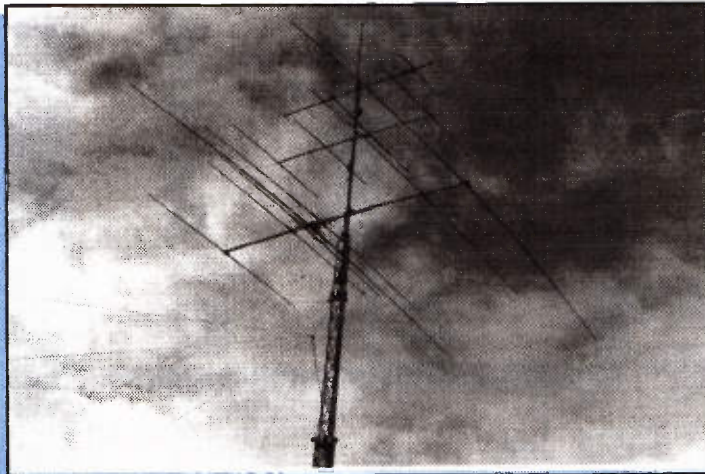
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'Force 12' C-3 HF Beam Review

Bob Harrison G4UJS makes his signal a 'force' to be reckoned with



The C-3 on tower with 4 element 6m beam from Eagle and F9FT 9 element 2m beam

loss Multiband ADaptable) design, which had no areas for high maintenance or potential loss, such as coils, traps or phasing systems. This aerial is described as being strong, lightweight, and computer designed not only for the basic electrical performance but also for mechanical strength, durability and low profile. Apart from the C-3 7 element aerial I've tested here, there are many other aerials available from Force 12, including a compact 2 element yagi for 40m.

combination of three individual beam aerials: 20, 15 and 10m. The usual method for combining several monoband beams is to stack them vertically on a common mast support. However, this will not result in the best performance, mainly because the aerials can't be separated sufficiently to prevent interaction and a consequent loss of gain. A better solution is to stack them horizontally in a sequential manner, so that each one will enhance the other. This is the essence of the C-3 design, which was proven on several other designs and is indeed the basis of the Log Periodic Aerial. This is called "forward stagger" in the Force 12 patent write-up. The most complex section in the C-3 is the design providing for a single feeder to excite the three aerials.

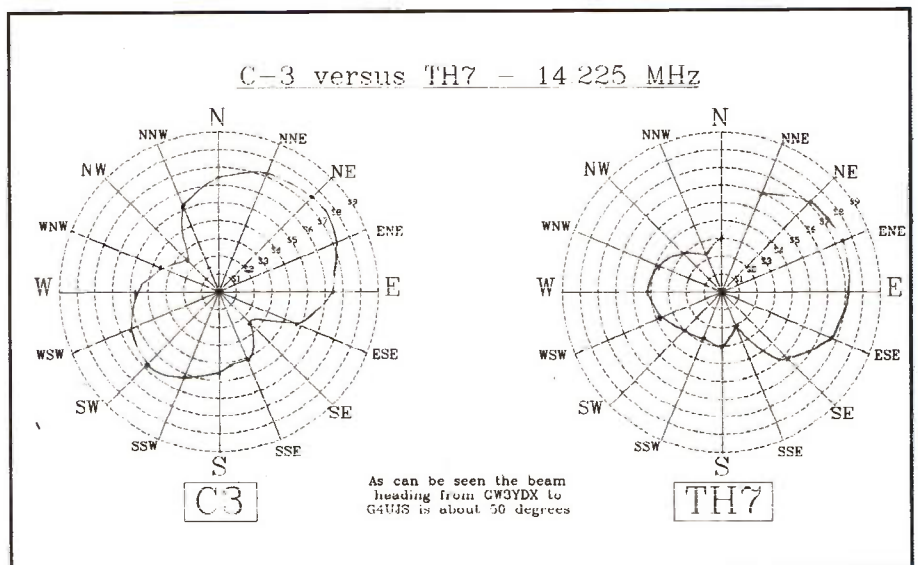
The 20 and 15m beams are two element Yagi designs, with the parasitic element as a reflector. The 10m aerial is set up with the parasitic element as a director. The 15m reflector is positioned ahead of the 20m reflector so that the 20m reflector does not interfere with the 15m reflector operation. The 10m

I've been looking for some time now for a new HF beam to replace my old and faithful tribander, the Cushcraft A3S. As a tribander, the A3 had worked well, I also had the 40m rotary dipole option on the A3 but was never too 'taken' with that. Naturally I was looking for a beam that had tremendous gain, compact size and sensibly priced, well isn't that what everybody is looking for? I was told that everybody has one in Cloud Cuckoo Land although I've not worked that country!

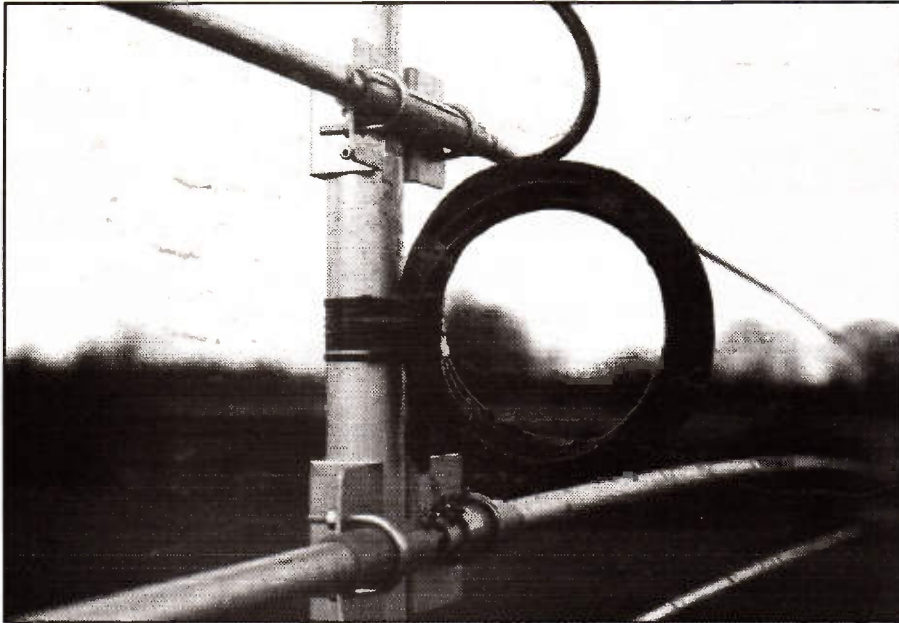
A new UK company in the amateur aerial supply field told me of the new C-3 beam from Force 12, which had a very impressive-sounding performance. I was naturally very sceptical as the quoted performance seemed too good to be true. So, the next available weekend I visited the company who had kindly allowed me to use their station for a 'side by side' aerial comparison. On arrival, the various tower-mounted beams I saw were certainly impressive, and large aerials look small when they are up at those sort of heights. The Force 12 certainly looked small with a two element 40m beam above it. The aerial I had come to see is known as the 'Strike Force Classic 3-Band, C-3'. The C-3 is said to be of 'NOMAD' (NO

C-3 features

The C-3 is a triband Yagi designed for direct operation in the 20, 15 and 10m amateur bands. It will also operate on the 17 and 12m bands with a VSWR that can be matched by the tuners in most rigs, or by an external tuner. The C-3 is really a



C-3 v TH7 15m



RF Choke at feed point

aerial is out in front of both the 20 and 15m aerials and makes use of their elements as 'pseudo reflectors'. The single feeder is made possible through the use of an 'open sleeve' driver system.

The 20m driver element is the one to which the coax is attached and the 20m Yagi is designed for approximately 50 ohms at the feed point. The spacing and length of the 15m rear driver are adjusted to achieve 50 ohms on 15m, and the 2:1 VSWR bandwidth covers the band. To cover the band on 10m required an additional 10m front driver. The 15 and 10m drivers are excited parasitically.

The mechanical design of the C-3 utilizes pre-aligned element-to-boom brackets and 'pop' riveted elements. The manufacturer states that the riveted elements can be installed temporarily for expeditions and special event stations by using a stainless rivet without the mandrel. Simply put the rivet in the hole, wrap a piece of black tape around it and it's ready to go. The elements and boom are designed to present a low profile and withstand 80 mph winds (the boom is actually designed in excess of 100mph), and certainly the aerial has survived some major blows at GW3YDX's station when installed at 30m.

All the elements are insulated from the brackets and boom, and the driver element is split in the centre with a solid fibreglass insulator. Since the driver is balanced and coaxial cable is unbalanced, a 1:1 balun or an RF choke (of 6-7 turns of coax 200mm diameter) should be used.

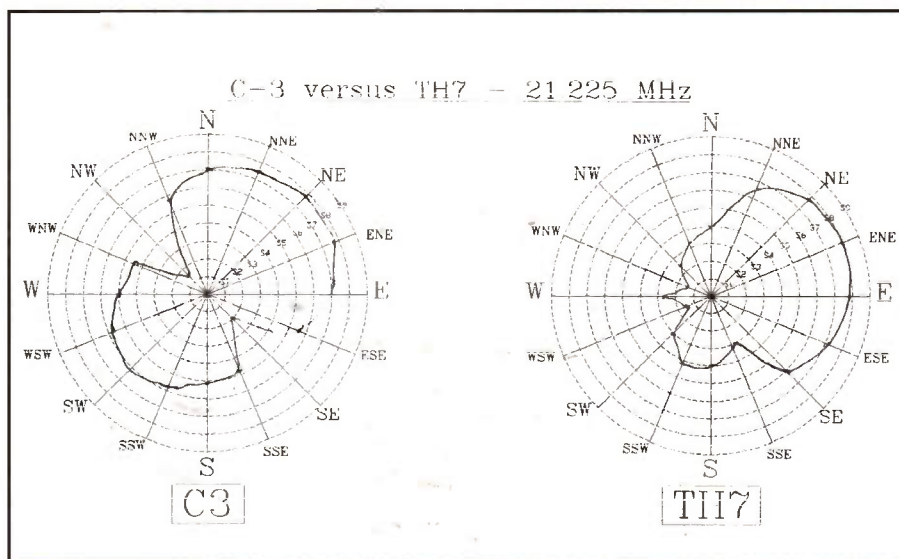
'Easi-on' mounting

The mounting system is incredibly easy to use. It's the so-called 'Easi-On' mount which is so unique and useful it's not surprising its design has had a patent applied for! Two plates are provided which have identical bolt patterns. One is attached vertically to the mast, with a bolt through the top, centre hole, being held in place by the mast and protruding outward. The second plate is attached to the boom. When the aerial is raised, the boom plate is placed over the bolt and the aerial is immediately held in place by the bolt and after the lock washer and nut are on, the aerial is secure.

In use

Well enough about the aerial, does it work? I used two beams (the C-3 and a TH7) for a comparison, both were up at approximately 30m. The TH7 was fed with about 75m of LDF4-50 heliax and the C-3 was fed with about 100m of H100. It was a Saturday afternoon and only 20m was anything like open, so I pointed both aerials at the States (short path) and listened to a few stations and switched between the aerials. No difference! Can the C-3 really equal the TH7? A little more tuning and then I found some Californians (long path) with no apparent difference on receive, so I called in and asked for some signal reports between the two aerials. The results were very interesting, the C-3 actually came out on top by a tiny bit, but it always at least equalled the TH7.

I then did a number of ground-wave tests, and recorded signal strengths from a constant-carrier test signal at various beam headings, apart from 10m where I couldn't get a strong enough signal. The front to back of the C-3 wasn't as good as the TH7 as I'd expected. This can be an advantage sometimes, but a poor front to back ratio is generally thought of as being a bad point.



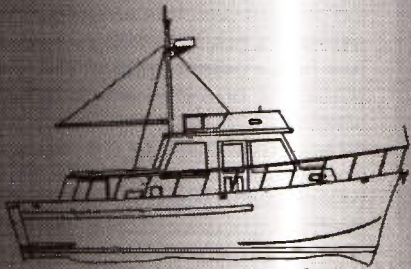
C-3 v TH7 20m

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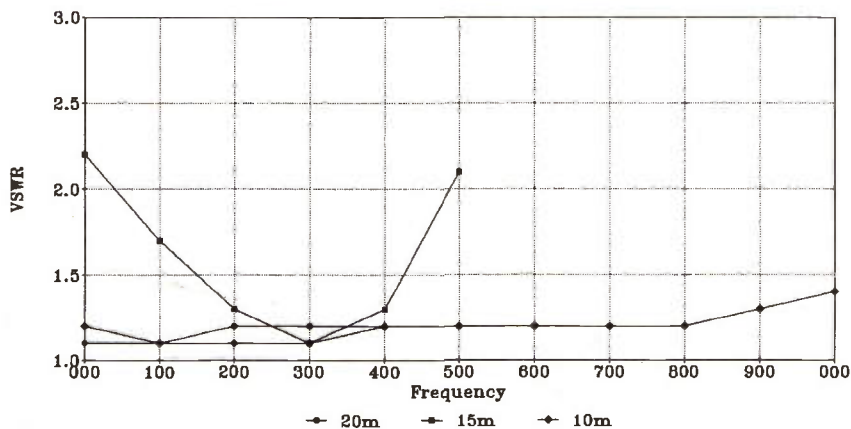
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Force 12 C-3 VSWR Curves

FT1000 internal SWR meter @ 50 watts



VSWR Graph

Assembly

After I'd received my own aerial, I found the assembly instructions were sufficiently detailed, although I'm sure I could have managed without any as it was so straightforward. The 'pop' riveted element method is a very good idea,

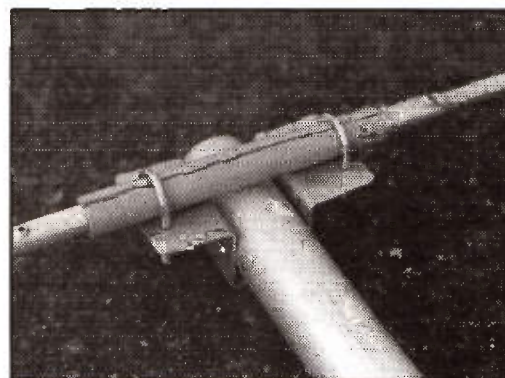
and makes for a secure positive joint. The Easi-on mount worked a dream and the aerial was soon up, however be warned, as with all aerials its easy to over tighten the 'U' bolts and damage the aerial. Although the C-3 is generally a larger aerial than the Cushcraft A3S, and is on a 5.5m boom compared with the 4.25m boom of the A3S, it looks smaller

when in the air. This is due to the low profile elements and the total lack of big bulging (and lossy) traps.

Good reports

The reports I received using the beam on 10, 15 and 20m when compared with other Europeans the DX is hearing were very encouraging! I'd certainly feel happy to recommend this aerial to anyone who is looking for high performance in a relatively small package at a sensible price.

My thanks go to Vine Antenna Products for help in the supply and testing of the reviewed beam.



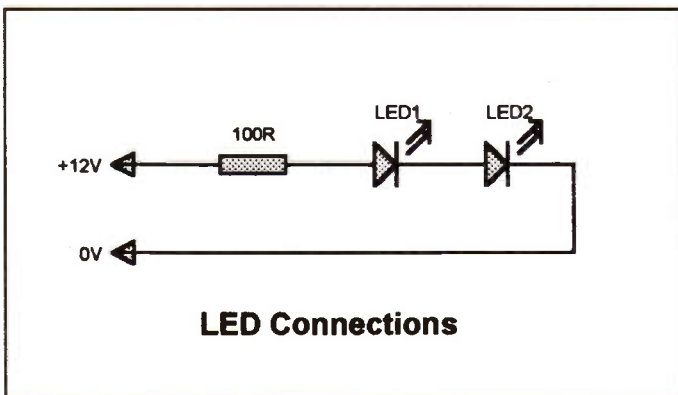
Element Insulation

Yaesu FT-290R MkI, An Old Rig Made Better

Ian Chin G10TWX shows how to improve the performance and operation of your set with a few easy modifications

The Yaesu FT-290R MkI is a multimode 2m 'port a pac' providing 2.5W on FM, SSB and CW, powered by eight internally fitted 'C' cells or from an external 13.8V DC supply. This transceiver was introduced to the UK in the early 1980s and has since been superseded by the MkII. However, judging from the number of amateurs I have spoken to, the MkI still remains a very popular transceiver for portable, mobile or base station use. I was fortunate to chance upon one on the secondhand market in 1992, a good specimen fitted with a muTek preamp and complete with the rig's optional manual and circuit diagram. This together with its use of discrete components, made it possible to modify. The set was in full working order, except for the LCD display light, a common finding in rigs this age, as bulbs do have a limited lifespan. I decided to rectify this, and this spawned improvements, which I would like to share with you. I have decided to divide this into three sections; display light, receiver, and transmitter modifications.

Display light



This is the most difficult modification as the LCD module is very inaccessible, I appreciated why the previous owner left it unrepaired! The original light source is a single miniature 12V bulb located in the display module itself. I decided to use two hyperbright (300mcd) green LEDs instead, as LEDs have a much longer lifespan (almost indefinite) and would not need replacing again. Also, they use only about 20mA of current, versus 65mA for a bulb, they generate less heat and the use of two LEDs, one either side of the LCD display, give a more even illumination.

The aim here is to remove the LCD module and this can only be done by disassembling most of the front end of the transceiver. To

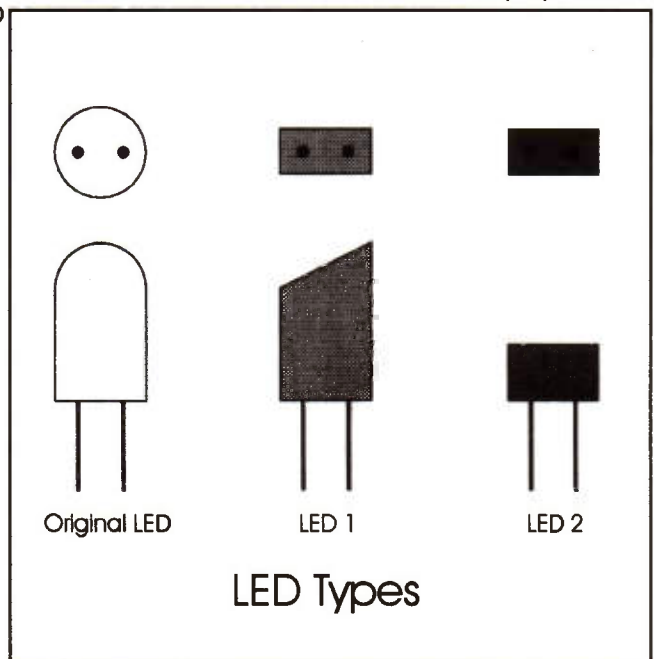


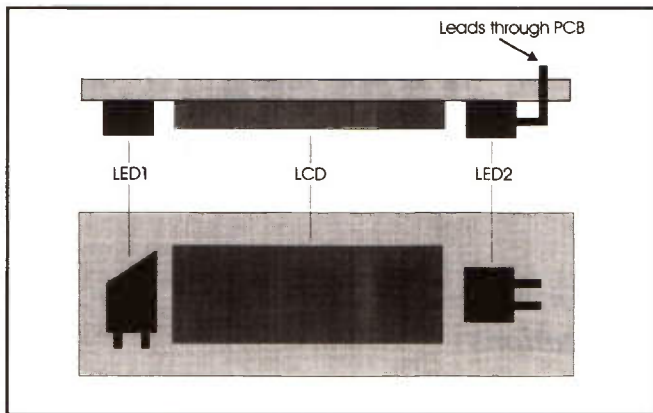
do this, first remove the rig's top and bottom covers, then the two side bars. The front panel is held by four screws to the metal chassis. Remove these and store carefully (note; the screws are of different sizes).

Remove the single screw holding the S meter to the front panel, then unsolder the coax cable to the telescopic aerial sleeve, plus the earth connections to boards A and B.

On the battery compartment side, identify the toneburst wire (red/white striped) to board A. Unsolder this and very gently move the whole front panel away from the main chassis, taking care not to break any of the wire connections that join to the main board.

Boards A and B are joined to each other and to the LCD display module





will not function until totally connected back in). If some parts of the LCD display disappear, you will need to retighten the two screws that are on the module. For those wishing a more simple fix, just use one LED, i.e. LED1. Refit the module, it should work and you shouldn't ever have

to replace the LCD illumination again.

by SIL connectors and brass hexagonal pillars and screws. Undo these (I found a 4.5mm miniature spanner very useful here), and ease boards A and B apart just enough to gain access to the display module. Finally, undo the hexagonal pillar and SIL connector, desolder the 12V DC lead to the module (red is positive, black is negative) and remove the LCD module., this module is about 45mm by 28mm. Undo the two screws that hold the cover to it and the single bulb is evident on one side.

The LEDs in their original 5mm size are too large to fit into the space vacated by the bulb and should be filed or sandpapered down to size. Prepare LED1 and LED2 as per accompanying diagram. LED1 fits into the space of the original bulb, and LED2 on the adjacent side of the LCD. LED2 needs two small holes drilled into the PCB to allow its connections through. In doing so, be careful not to drill through existing PCB tracks. Mount as shown, checking the correct polarity of the LEDs, joining them in series with a 0.25W resistor.

Before refitting the module, apply 12V DC to the module and check that the LEDs light up (note that the LCD

Receiver modifications

An ideal receiver should be sensitive, selective, and have a negligible noise level. In a superheterodyne set with numerous stages of amplification, as is with the FT-290, the total gain of the rig is the sum total of the gain of all the individual stages. The total noise figure of a receiver however, is given by the formula;

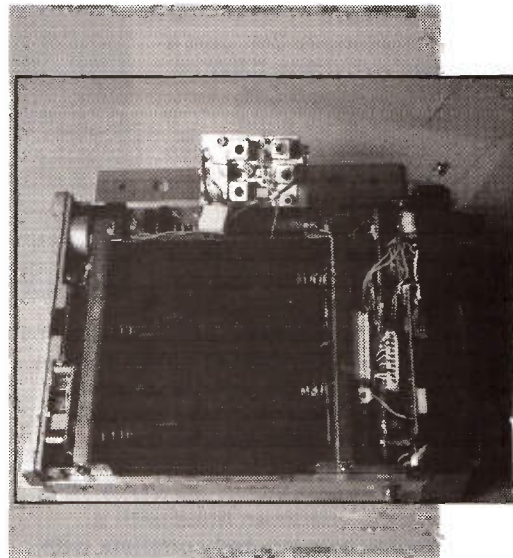
$$F_{total} = F_1 + \frac{(F_2 - 1)}{G_1} + \frac{(F_3 - 1)}{G_1 G_2} + \dots$$

where F_1 is the noise factor of stage 1, F_2 of stage 2, etc. G_1 is the numerical gain of stage 1, G_2 of stage 2, etc.

A typical stage in the front end may have F_1 to be 3 and G_1 to be 15. It can be seen that the total noise factor of the whole receiver approximates to the noise of the first stage. Hence the best place to improve the signal to noise ratio is at the first stage. This would be the RF amplifier Q1001 (3SK59Y) in the

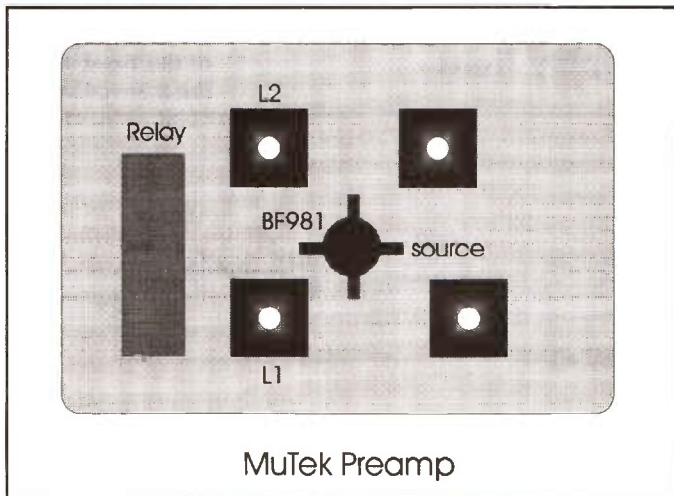
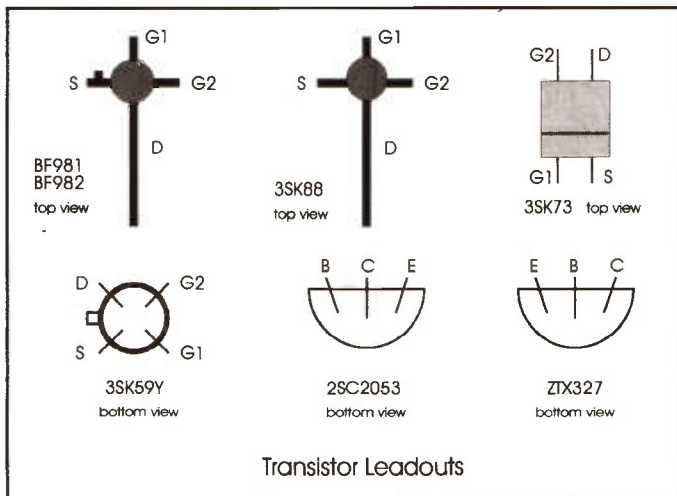
original set, or the muTek preamp unit if this is fitted. Mine had the muTek unit so I started there.

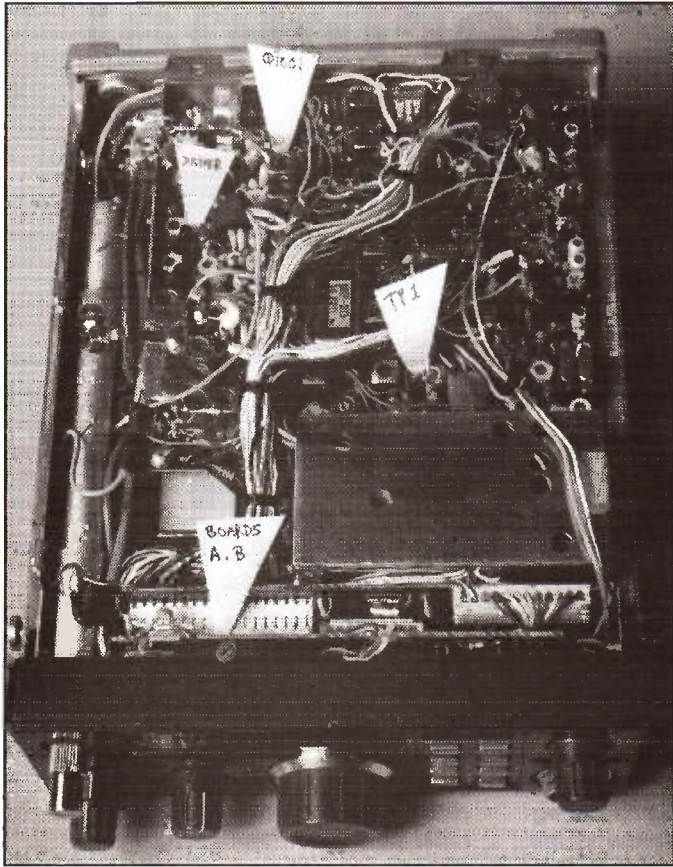
To locate this unit, remove the aluminium side bar on the right hand side of the transceiver, and both the top and bottom covers. The unit is located beside the battery compartment and is secured by two screws. Remove these and lift it out, note and label the three coaxial connections and two wire ones. Desolder and remove the unit completely. The original unit uses a BF981 dual gate MOSFET, note its



Battery compartment side of FT-290

position and leadout on the PCB. The source lead has a small appendage to it. Remove the BF981 and replace with a BF982, which has a lower noise factor and higher gain. Refit the unit and tune for maximum sensitivity. To do this, connect the transceiver to a signal generator, or tune to a weak strength station, a distant repeater will do. Adjust coils





same method described above. Replacement of Q1001 yielded only about a 2 S point improvement.

I'm told that some later models of the FT-290R Mk1, use a 3SK73 as Q1001. If a BF982 is difficult to obtain, I suggest trying a 3SK122L. The BF961 has been suggested by one component supplier as a replacement for BF982, although I haven't tried it. Both the leadout configuration of the 3SK122L and BF961 are the same as the BF981, the longest lead being the drain.

L1 and L2 with a nylon trimming tool. As with all ferrite cores, do not use a metal tool as this will detune the coil or even fracture it.

Tune for maximum S meter deflection (*initially - but always finally for best signal to noise ratio on a weak signal - Tech Ed*). A more refined way is to tune for minimum AGC (Automatic Gain Control) voltage. To measure this, connect a high impedance voltmeter to the set, with the positive lead to test point 1 and negative lead to ground. It should read 1.84V with no signal input, dropping to about 0.3V with a strong signal. Tune L1 and L2 for minimum voltage. If it fails to peak, you may need to change both coils, from a 0.14 μ H to a 0.09 μ H one (Toko MC120 3.5 turn close wound).

Replacement with a BF982 and a change of L1 and L2 brought about a 4 S point improvement in my set. For sceptics of S meter readings, I did measure the sensitivity of the set and this was found to be better than 0.10 μ V for 12dB SINAD, which exceeds the minimum specifications of modern day transceivers.

In units without a muTek preamp fitted, replace Q1001 (3SK59Y) with a BF982 or BF981. You will also need to retune the input and output coils of Q1001 after doing this, using the

Transmitter modifications

Connect to the transceiver, a 13.8V DC supply, a power meter and dummy load of 50 ohm. Key the PTT on FM mode. You should get at least 2.5W on the high power setting, and about 0.5W on the low power setting. If you do get these, I suggest you go no further.

I however your set does not give these power levels, refer to your users manual. It may be a simple matter of readjusting the automatic

level control (ALC) settings for both high and low levels, by adjusting the appropriate presets. If these are adjusted to give maximum and you still fail to achieve the desired power levels, try tuning the variable capacitors TC01 to TC05 and coils TO4 to TO6, all in the transmitter section.

I found that by replacing the driver transistor 2SC2053 with a ZTX327 gave better results, with a maximum power level of 4W on the high power setting, and 2W on the low power setting. I recommend that you return the power levels to the 2.5W and 0.5W settings, by way of the ALC presets, in order to preserve the final PA stage. The PA output coil L10 is very susceptible to structural change, do not tamper with it, or you might get a distorted transmitted signal on SSB.

Conclusion

All the above modifications are inexpensive, although time consuming. I do feel it made my FT-290R Mk1 a better rig at the end of the day and I hope readers will be equally pleased. Finally, I would like to thank my fellow members of the Carrickfergus Amateur Radio Club for their help in measurements and alignment of my transceiver. The components are available from most component suppliers, see HRT display and classified ads for details of these.

The author has told us he will be happy to provide a help service for readers, please write to; Dr. Ian Chin, No.14, Jalan 12/19, Petaling Jaya, Malaysia, enclosing 3 IRCs if a reply is required.



Project - A 2-Terminal Test Oscillator

Peter Cole DA1PE describes a 2-terminal test oscillator for inductance measurement

Anyone who is interested in home construction will at some time or other have the need to measure the inductance of small coils. This can be a difficult problem, as commercially made equipment of sufficient accuracy is often far too expensive for occasional use in an amateur workshop. The simple LCR bridges that are affordable generally only work at audio frequency, and are notoriously inaccurate on their low inductance ranges. The result of this is that coil construction is often so hit-and-miss that for many applications the home constructor has to use expensive ready made coils, which could have been wound at home from materials costing a few pence if test facilities had been available.

The method of measurement described here is an inexpensive solution to the problem that I have been using for over 40 years. It uses the coil under test in parallel with a known 1% capacitor to form the tuned circuit for a 2-terminal test oscillator. After making allowance for circuit strays, the total circuit capacity and the oscillating frequency can be entered in the standard resonant circuit formula to calculate the inductance of the coil accurately enough for all normal purposes.

Using this method has the

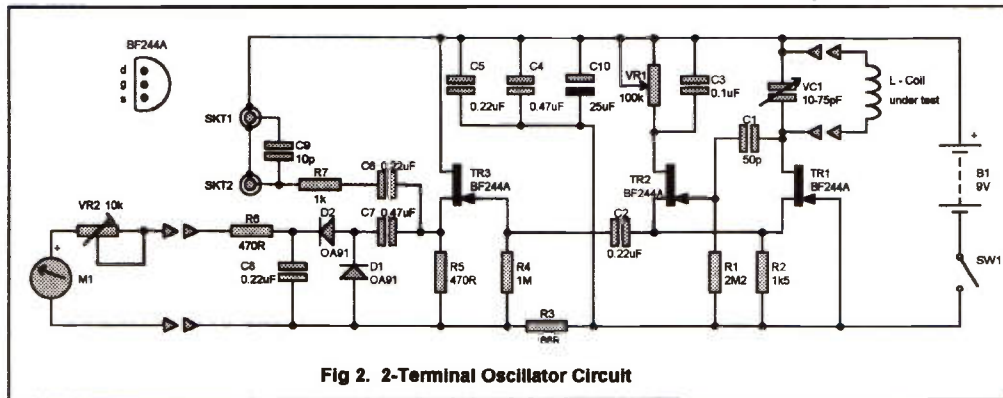


Fig 2. 2-Terminal Oscillator Circuit

advantages that a) coils can be tested in a practical circuit at the operating frequency and b) measurements are just as easy to make on toroids and sealed coils such as IF transformers as they are on open coils. An additional bonus is that the circuit can be used for a variety of other purposes such as a signal generator, a dip meter or to measure small capacitors.

The 2-Terminal Oscillator

Fig.1a shows the basic circuit of an FET source coupled 2-terminal oscillator, which is the semiconductor version of a valve circuit that was

popular in the 1950s. This circuit, which was derived from an early radar pulse generator called a cathode-coupled multivibrator, forms a very active tuneable oscillator that can be made to work reliably from low audio frequencies up to the VHF and UHF ranges.

The great advantage of this circuit, and the thing that makes it so useful as a test oscillator, is that it doesn't need any sort of capacitive tap, inductive tap, or feedback winding to make it work. Simply connect a parallel tuned circuit across the two test terminals, apply power, and away it goes. The only criteria are that the tuned circuit has a realistic LC ratio (a minimum of 1-2 pF per metre of operating wavelength is a

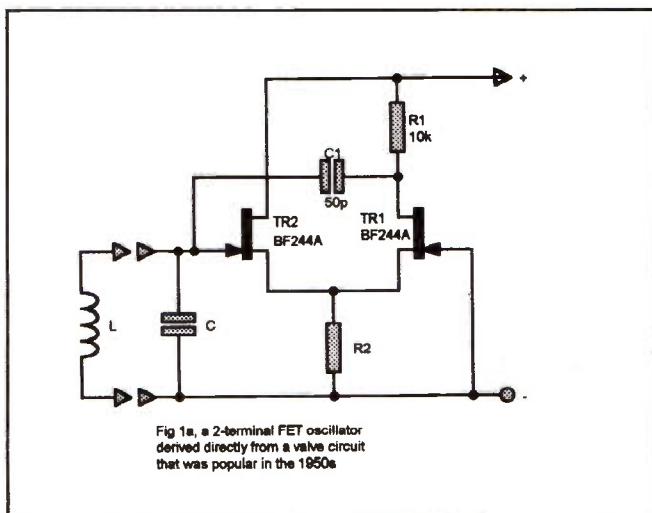


Fig 1a, a 2-terminal FET oscillator derived directly from a valve circuit that was popular in the 1950s

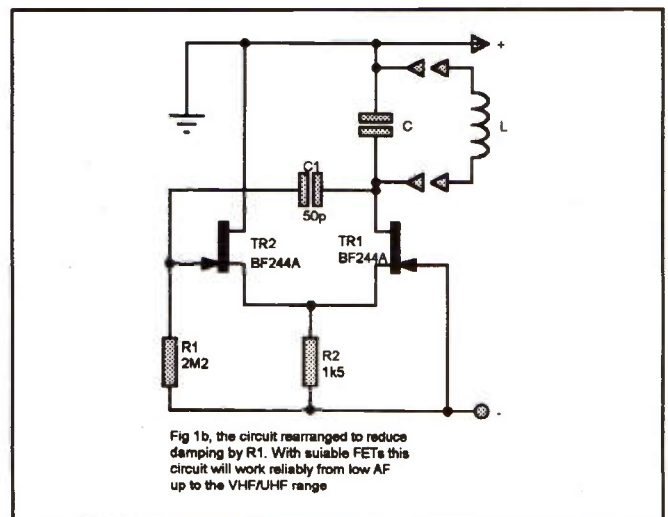
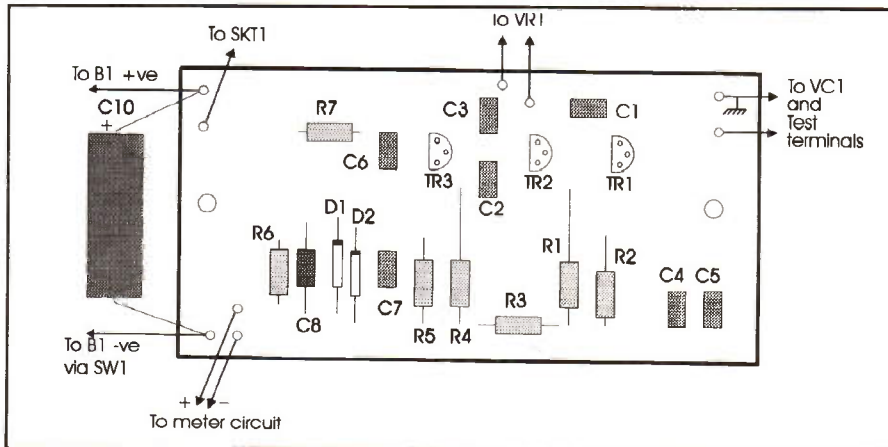
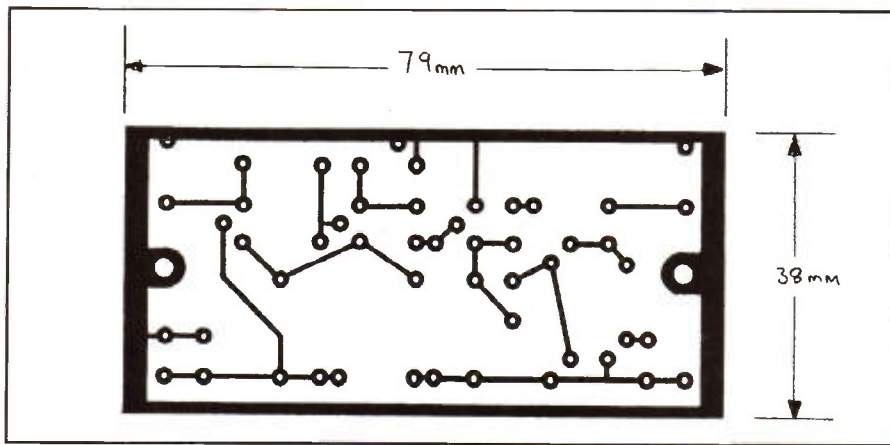


Fig 1b, the circuit rearranged to reduce damping by R1. With suitable FETs this circuit will work reliably from low AF up to the VHF/UHF range



good rule of thumb for the capacitor value), and is made from good quality components.

Operation of the circuit itself is quite straightforward. TR2 in Fig. 1a is an FET source follower that is directly coupled to the common gate FET amplifier TR1 by way of their shared load resistor R2. C1 provides a positive feedback path from the drain of TR1 to the gate of TR2 and this maintains oscillation at the resonant frequency of LC so long as the loop gain of TR1, TR2 is enough to overcome circuit losses.

Fig 1b is the same circuit rearranged to allow R1 to be increased in value from 10k to 2M Ω . This reduces damping of the tuned circuit which in turn extends the frequency range and gives more consistent operation with low-Q coils. The improvement given by this simple change is quite significant, as with cheap general purpose 2N3819 FETs my original circuit oscillated up to 15MHz whereas the modified one worked to over 25MHz.

The BF244A FETs suggested in the parts list are suitable to 30MHz or more, but operation at higher frequencies than this calls for VHF type FETs. Out of several readily available types that I tested, the best were J310s (listed as VHF/UHF oscillators/amplifiers) with which the oscillator worked from a few hundred Hz (with a homemade ferrite pot-cored coil plus 1 μ F) up to 60MHz with a small hairpin loop tuned by 25pF (the stray capacity of my test oscillator).

Practical Circuit

Fig.2 gives the practical version of the tester, where TR1 and TR2 are connected as in the oscillator circuit of Fig 1b. VR1 is an amplitude level control, that has been added mainly to allow the circuit to be used as a dip meter as explained later.

Output from the oscillator is taken from across the common source resistor R2, via C2, to the source follower TR3. This is used as a buffer amplifier to feed the output and monitoring sockets SKT1, SKT2 and the RF level metering circuit formed by D1 and D2. R7 is an isolating resistor included to minimise the effect on the metering circuit if a low impedance load is connected to SKT1. The value of R7 is not critical as long as it is at least twice the value of R5. Likewise the value of C9 is not important and this can be varied to set the level of signal fed to the frequency counter, if one is used.

Construction

The prototype was built on a 0.1 inch matrix board, and this was used to produce the PC board layout shown. Thus it should be a simple task to copy the layout back onto matrix board if you don't want the bother of etching a PCB.

Construction of the test oscillator is

quite straightforward, as there is nothing critical about the components or layout except for the wiring to the tuning capacitor and the collector of TR1. These connections must be of thick wire or braid, and kept as short as possible so as to reduce the chance of parasitic oscillations which can give false readings on a frequency counter.

Transistor holders are recommended for the FETs. This makes it possible to experiment with different types and also allows the circuit to be used as a simple tester for small-signal N-channel FETs. This is easy to do by replacing TR1 with the FET to be tested and checking for oscillation. But don't forget that the PCB shown is designed for use with BF244A FETs, and look up the leadouts of other types before you plug them in (e.g. the gate and source of the J310 are reversed to those of the BF244A).

The oscillator itself should be built into a well shielded enclosure, e.g. a small diecast box as suggested in the parts list. This makes a compact, rigid unit so that when used as a dip meter the coil can be coupled to circuits in 'hard to reach' places.

Choosing the best value for the variable capacitor (VC1) is a trade-off between providing wide frequency coverage for use as a tuneable oscillator, and good bandwidth for other measurements. These factors are also influenced to some degree by the quality of the tuning dial, but the suggested 10-75pF has been found to be a fair compromise when used with an 8:1 vernier reduction drive.

Coil and test sockets are very much a matter of availability and personal preference. I use a B9G valve holder and a pair of 2mm wander sockets only because they suit existing coils. Otherwise I would have chosen standard terminal posts which are more versatile as they accept wires, spade terminals or wander plugs.

M1 is a small edgewise VU meter of about 250 μ A FSD (mine was rescued from a scrapped cassette recorder). As it is not used to make any critical measurements, the exact FSD and scale calibration of the meter are not too important. What is important though is that the pointer moves freely without sticking and it is wise to check this point carefully before cutting holes in an expensive diecast box to fit a salvaged meter.

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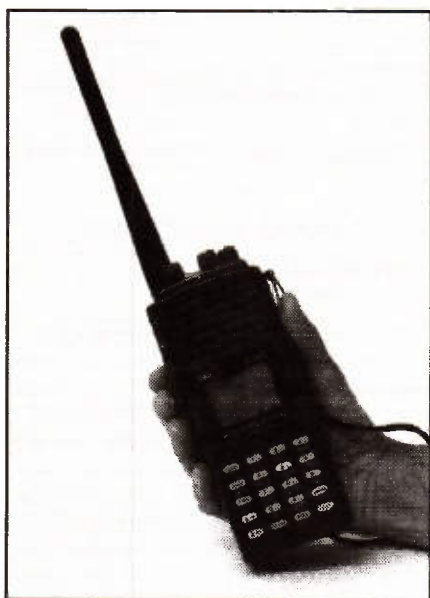


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SCANNERS

Bill Robertson looks at airband listening, Formula 1 monitoring, and spies on your scanner!



A message I received asks "Does anyone know how to reset a Fairmate HP-200?" Apparently the batteries in the set in question went flat whilst it was being programmed with additional frequencies, the scanner then giving a strange flashing display. When the batteries were recharged, the display went back to normal and many functions appeared to operate as usual, but the set refused to receive any signals.

The good news here is that the reset procedure for the AR-1000 will work fine for the Fairmate HP-100 and HP-200, these sets being made by the same manufacturer. This procedure is covered in the 'AR-1000 information' document which I mentioned in this column some months back, and which is still available from the HRT Editor in return for an SAE. Unfortunately this is several pages long so I can't reproduce it here, although it means opening the set up and shorting out a link, then entering a number of frequency limits plus offset frequencies. Just drop an SAE to the Editor if you'd like a free copy!

Weather satellite scanning

Scot Jones says that he can pick up a weather satellites very well on 137.58MHz using Wide FM on his scanner, but asks if anyone knows of any software that he can use to decode the information? JVFAX is one such program, which is readily available (e.g. from HRT's software service), and does the job quite well. You'll need an appropriate 'AM' A/D converter, plugged into your PC's serial port for this, to correctly decode the amplitude differences from the orbiting weather satellites (see this month's 'Data Connection - Ed). If you have a PC fitted with a sound card, a possibly easier option is to use the weather satellite decoding program included with last month's HRT software collection. Unfortunately, although the magazine's front cover said this was featured, the disk offer text inside the magazine missed it out - although recipients of the disk will find it certainly was included!

Formula 1 communications

Darren Guiden says he lives not far from the Silverstone racetrack,

Formula 1 frequencies (see text)

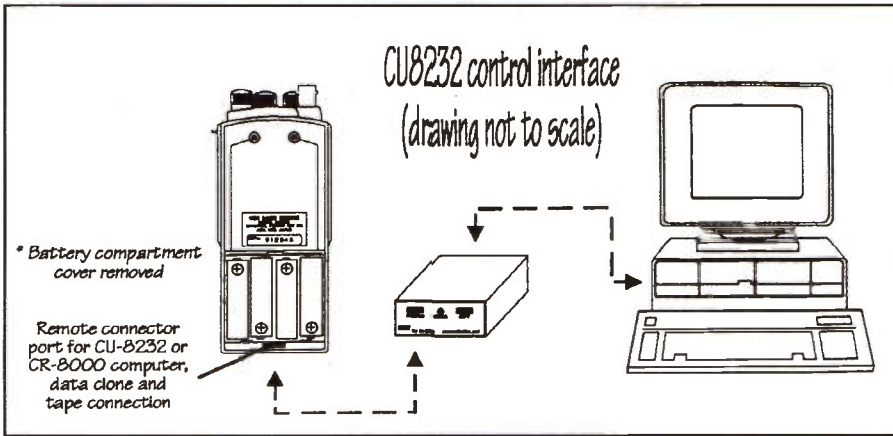
Team	Base	Mobile
Ferrari	455.2350	
Ferrari	456.6150	
Ferrari	465.2350	
Ferrari	466.6150	
Ligier	457.3125	
Lotus	460.3250	
Lotus	462.4250	456.9250
McLaren	419.9875	
McLaren	415.9875	
Minardi	457.0250	
Minardi	457.0500	
Various	456.9750	456.4750

and although he can receive speech traffic from the Formula 1 drivers the signals are encrypted, asking if anyone knows how to de-encrypt it. As Formula 1 is very much a competitive sport, with large amounts of money at stake, I'd imagine the encryption techniques used would be highly secure. In other words, not using just 'simple' speech inversion, but the 'full works' with rolling-code scramblers and the like - the type professional security forces use. If, however, 'simple' inversion is used then an equally simple audio inverter circuit can be used (kits for these are readily available from dealers such as Ramsey Electronics in the US - Tel. 00 1 716 924 4560 - their's is priced at \$29.95) although do remember it's illegal to intercept such communications in the first place!

Air show listening

Kevin Wright asks if he can openly wander around the Mildenhall Air Show with his AR8000 scanner, or whether the police or US Air Force MPS would do something about it. Well, I was at RAF Fairford at their Air Show a while ago armed with my Icom ICR-1 scanner, openly listening to the Red Arrows. The frequencies in use by the team were even displayed on a large notice for the benefit of scanner users! All I can do is to advise discretion, although with 'encouragement' such as this being given by the organisers to tune in, I wouldn't have thought there would be too many problems! Once again, it's technically illegal, it just depends whether a 'blind eye' is turned as often is. I read that, a couple of years ago, at the Mildenhall Air Show not only did the security personnel ignore scanner

The CU832 can provide a PC link to the AR-8000



users, there was a dealer's stall at the show selling airband receivers and doing a roaring trade.

RAF frequencies

Regarding such military airband listening, but away from airshows, it's been asked "Do the RAF start to get a bit cagey when asked about their "tactical" frequencies, for military as opposed to routine civil, or is their policy to divulge most, and just reserve a few discreet ones?"

The answer to this is that RAF do have certain tactical frequencies which they use for training purposes, and these *aren't* publicized to the best of my knowledge. But the RAF do make a lot of their publications available to the likes of you and I. If you'd like a prospectus of their available charts, approach plates, frequencies and so on, just drop a line to No. 1 AIDU, RAF Northolt, West End Road, Ruislip, Middlesex HA4 6NG and you may be pleasantly surprised. My thanks to Dave in Peterborough for this information.

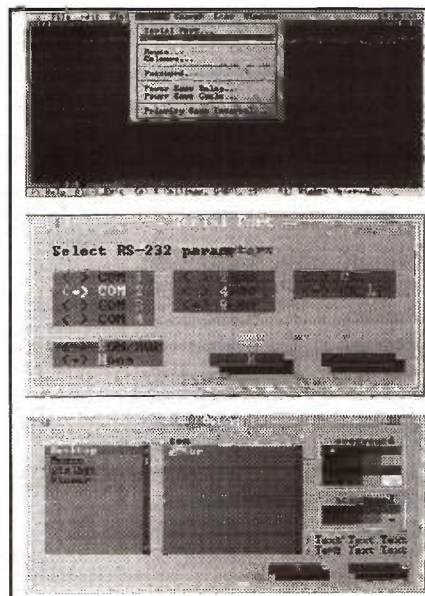
Cheap scanner?

I'm often asked "What's the cheapest scanner available that you'd recommend?" For occasional listening, where I know the frequencies I want to listen to, I personally use a Bearcat BC-50. This is an easy-to-use 10 channel handheld unit, which covers VHF low and high bands (68-88MHz and 136-174MHz) plus UHF (380-512MHz) quite nicely. It doesn't have airband or 900MHz coverage, and a limitation is that it has no 'search' capability - just 'scan'. In other words, it'll only receive, and scan, the frequencies you've programmed into the set, using the keypad.

I've heard that Tandy have been selling a variant of this, the PRO-41, for just £50, at that price it seems quite a bargain!

Spies on your scanner

If you listen on the HF (short wave) bands, you may have come across the so-called 'numbers' stations'. These are high powered stations which just transmit repetitive lists of coded numbers, obviously for reception by portable radio users around the world. These stations have been covered in the *Scanners* sections of Ham Radio Today a couple of times in the past, but these signals continue to intrigue listeners. Are they spies? Are they simply transmitting weather or shipping information? I'm told that HRT has even been interviewed by the BBC World Service on this subject, with a member of GCHQ in the same interview claiming these transmissions were giving shipping



PC Manager for DOS

information for boats on the Rhine. But as the stations don't identify themselves and send coded information, the idea of covert spy information broadcasts seems more likely! For example, why the same old languages - like English and Spanish?

The ENIGMA association covers just this, ENIGMA standing for "European Numbers Information Gathering and Monitoring Association". If you're interested in this subject, you can get a sample of their interesting newsletter by sending a 29p stamp or 2 IRCs to: ENIGMA Newsletter, c/o BRC, 17-21 Chapel

Street, Bradford, West Yorks BD1 5DT.

AR-8000 computer control

I've seen a number of messages on the amateur packet network, and the Internet, asking about a PC interface for the AR-8000 scanner. The good news here is that AOR in the UK can supply the CU8232 interface for this very purpose. You can use a simple terminal emulator with this, such as Windows 'Terminal', or the IDCCOM program included on the front cover disk with the March 1995 issue of HRT, to control the AR-8000. A 50 page manual comes with the CU8232 interface and gives details on the commands needed. Contact AOR (UK) on 01629 825926 for more information.

If entering strings of two-letter commands, as needed for this, isn't to your liking, then *PC-Manager for DOS*, also available from AOR, is a management software package which lets you configure the memory, search, and auto-mode bandplan data in your AR-8000. So, for example, if your listening habits change (or if you haven't enough channels in your scanner to store everything you want to listen to!) then with a simple upload/download your problems could be that bit less. It's also available from AOR (UK), RRP £49 inc. VAT, to whom my thanks go for the supply of a copy fort evaluation. Now, all I need is an AR-8000!

That's all for this month. If you have any questions on our hobby in the radio listening field, please do get in touch, by post, fax, or email, c/o the Ham Radio Today Editor, and I'll be pleased to reply through this column.

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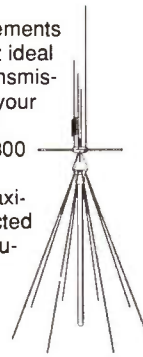
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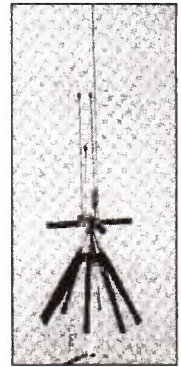
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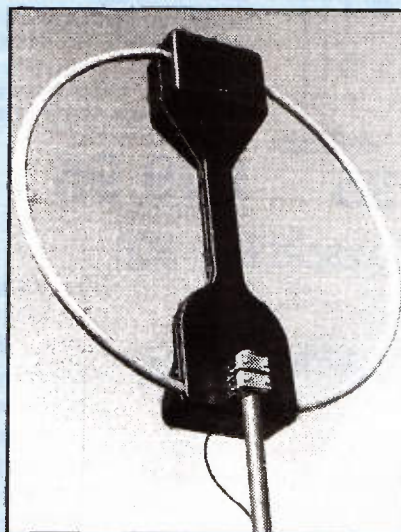
Aerial Reviews in HRT

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Description

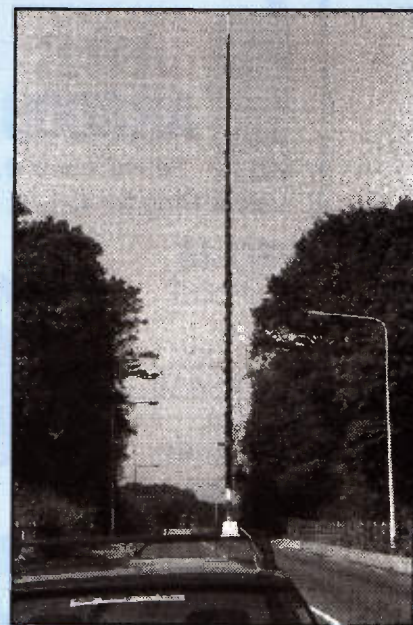
Issue

Altron HF Compact Yagi.....	Apr 87
Ant.Products Silver-70 70cm Yagi Beam.....	Dec 83
AOR DA3000 discone and WA5000 active aerial.....	Jun 92
AOR LA320 HF loop aerial mini review.....	May 93
AOR WA7000 base receiver aerial.....	Jun 93
Capco AMA3 Magnetic Loop Aerial.....	Apr 89
Comet CHL-21J/CHL-23J dual band mobile aerials.....	May 89
Comet CX-902 2m/70c/23cm aerial and diplexer.....	Jan 92
Create CLP-5130 Log Periodic Yagi.....	Apr 89
Force 12 C-3 HF Beam.....	Aug 95
Garex Portable Scanner Aerial.....	Jan 94
G-Whip HF Multiband Aerial.....	Jun 87
Hustler 6-BTV HF Multiband vertical.....	Oct 94
Jaybeam DB4-4/6 4m/6m dual band yagi.....	Sep 87
Jaybeam MM3 Minimax HF Beam.....	Oct 87
KLM KT-34A HF Beam.....	Jun 92
MFJ HF Loop Aerial.....	Jan 94
MFJ-259 Aerial Tester Review.....	May 94
Minimax HF Aerial.....	Oct 87
Outbacker Mobile HF Aerial.....	Jan 94
Phoenix 2m Beam.....	Jun 93
Pro-Am GM270 2m/70cm glass mount mobile aerial....	Mar 94
Pro-Am TGSBNC glass mount wideband aerial.....	Mar 94
Royal 1300 Discone.....	Sep 88
SRW 'Cobwebb' HF multiband aerial.....	May 95



MFJ HF Loop

Outbacker
Mobile HF
Aerial

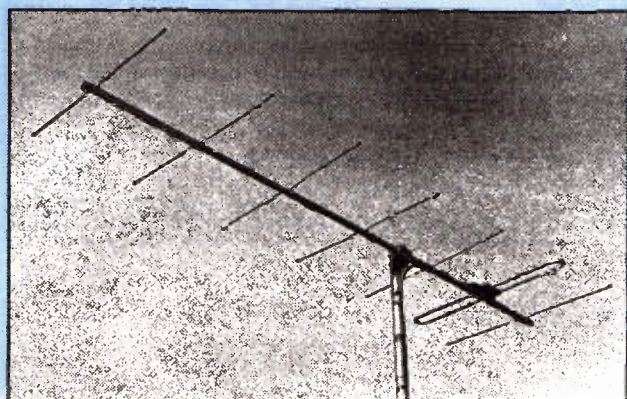


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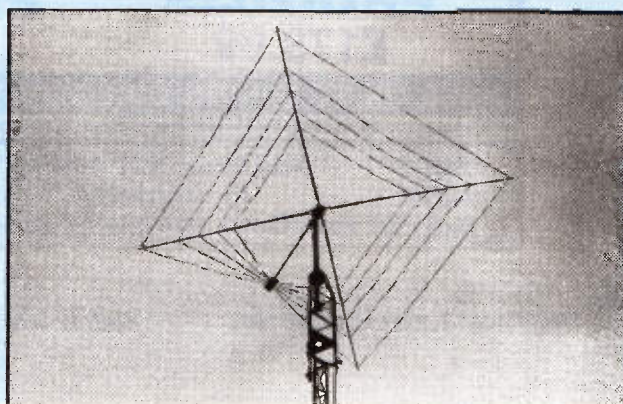
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Phoenix
2m
beam



SRW
Cobwebb



Rally Bargain Hunting - A Beginner's Guide

Veteran rally-goer Steve Whitstable gives a streetwise guide to rally buying



Radio rallies are often the traditional 'bargain hunting' venues for radio amateurs and listeners. Although often considered a summer-only activity, as they were in the early days, the 'traditional' rally usually finds a number of radio traders either in a field, or (more appropriately for the English weather) in marquees in a field, or a school or large hall, all displaying their wares for you to buy. Together

with these you'll also often find individuals either taking small tables to sell their surplus gear, or a 'car boot area' where virtually the same happens.

With low overheads by the organisers (a field usually doesn't cost that much to hire), many a happy time is had by visitors, some of whom invariably carry away several large boxes back to their cars. But how can you be sure you're getting a bargain, and not just wasting your money?

Make it worthwhile

The first rule is to try and make your visit worthwhile, even if you don't actually come away with anything. Rallies are often

visiting places for amateurs from different regions, so don't be shy. Either wear a *large* callsign badge for those 'chance' encounters with amateurs you may have worked often but never met face to face, or better still arrange over the air to meet them somewhere at the rally. That way, you'll go away with at least a memory.

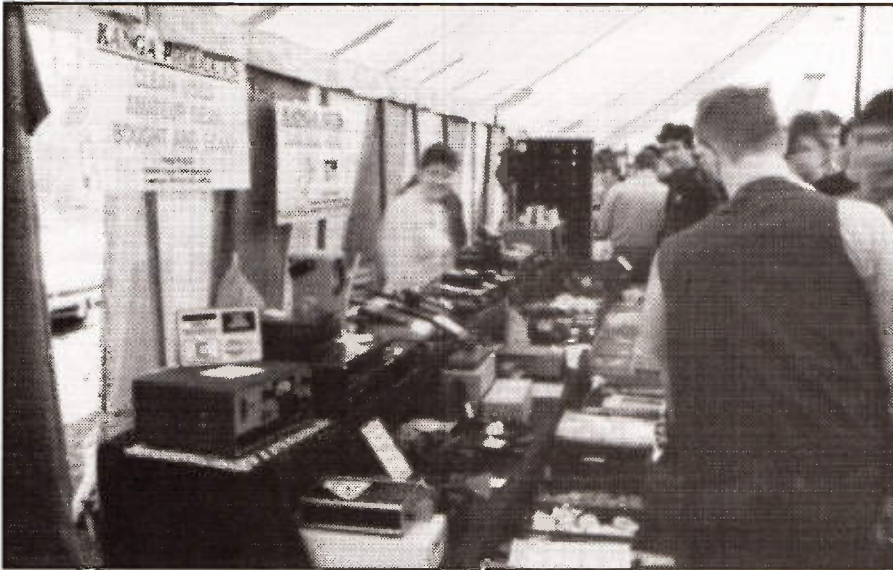
The second rule is that, if you're travelling, why not share a car with others, with each person 'chipping in' with the transportation costs? Alternatively, if the venue is appropriate like a country house or a nature reserve, take the family along and make it a 'day out' as well.

Once you're there

When you arrive, make a note of where you've parked the car, and if you're travelling with others, or in a coach, arrange when you can return (at one or more pre-arranged intervals throughout the day) to 'unload' your purchases. This will save you the difficult decision of whether to buy that large item and then have to carry it around with you for the rest of the day!

If you already know what type of gear you're after, whether this be 'junk box' parts for home construction, software or computer bits, ex-PMR gear, or of course a receiver or transceiver either new or secondhand, then try to have a quick 'scout around' the rally first. Make a mental note of the locations of the stalls selling what you're interested in, and get an idea of the 'going rate'. Of course if what you're looking for is quite rare and you happen to find it, you may want to





'jump in' before someone else buys it first. But in this case it's often a 'seller's market', so be happy and don't worry too much if you find an identical piece of gear elsewhere at the rally after you've had your 'look around'.

Decisions, decisions

So, you've had your 'recce', now on to the business of buying. If just one dealer has what you want, then it's quite simple, go back there. Alternatively if you find what you're looking for at several stalls, then it's decision time. Price is often the first consideration, and the asking price as usually marked on the gear is often a pretty good indication of price differences between stalls. Yes, you *can* often 'bargain', but if many dealers are selling the same thing, then you can bet they know very well what their 'competition' are selling at. They wouldn't do themselves a dis-service by artificially 'marking up' prices, thus risking their potential buyers going to another stall with the lower price marked.

The next thing to consider is *who* you're buying it from. If it's an expensive piece of gear, especially secondhand, can the dealer offer a back-up service? Who *are* they in any case? If I had a choice between buying an expensive new rig from a 'box-shifter' stallholder who doesn't display his name and who I've never heard of when he does tell me, or an established amateur radio dealer albeit selling at a slightly higher price to cover his overheads, I know who I'd choose. Each to his own.

Secondhand and surplus

If you're buying surplus or secondhand equipment, either radio or computer, you'll need some form of assurance that it works as described. Ex-PMR gear often can't be guaranteed by the very nature of why it's being sold. However if you see a small pile of identical ex-PMR rigs on the stand, it's a safe bet it really *is* 'surplus' gear made redundant by new technology, and not a 'one-off' rig that someone gave up repairing in the workshop.

In any case, you need to ensure that it's complete, i.e. there are no 'missing bits'. Remember a box may look nice on the outside, but the receiver, transceiver, or whatever could have been used as a 'parts' source. Take a look inside if you

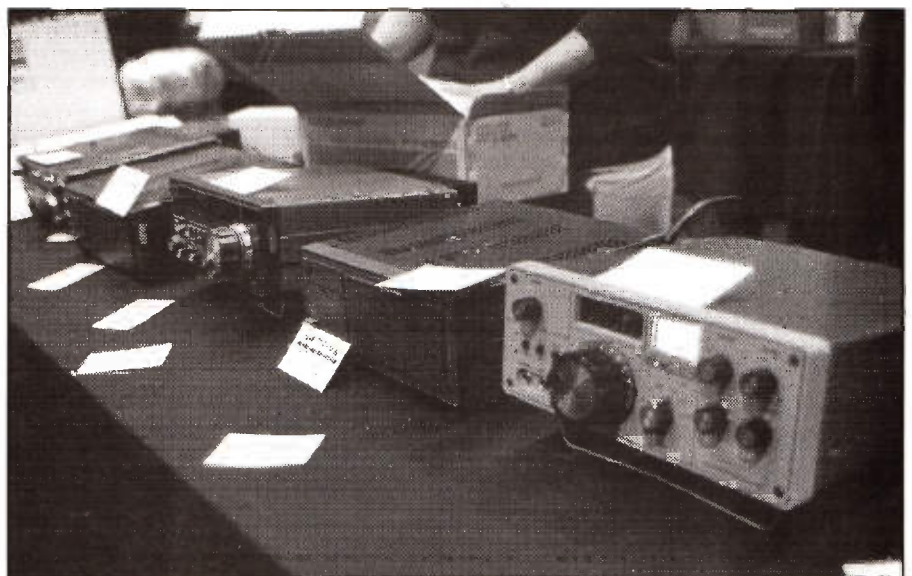
can, and check that items such as the mains transformer (if fitted), or other such obvious parts are all still there!

If you're buying a secondhand amateur transceiver or receiver from a dealer, you'll probably have an extra assurance with a written guarantee, sometimes of a period of, say, three months. If this is offered, make sure you leave with the guarantee in your hand as well as the set. Also, check exactly *what* it covers. Is it parts only, parts and labour, and what about carriage costs? Buying from a local dealer, one you don't have to travel far to visit, can often give you better peace of mind here.

Computer bits

With the ever increasing interest in computer-aided stations, it isn't surprising that many stalls at radio rallies are dedicated to new and surplus computer gear. As for *new* computer gear, again check that you get a guarantee before parting with your money, and that you're actually buying what you *think* you're buying. 'Pentium upgradable' and 'RAM expandable up to 32Mb' means just that, it's possible, but it isn't in there for the money you're paying.

Secondhand computer gear, especially plug-in boards and disk drives, are a different matter. Here, make sure you know *exactly* what you're getting, and that it's compatible with what you want to fit it into. Surplus hard drives, besides being possibly 'dodgy' if they've been removed, need the correct driver card to work. You may not be





you'll often have to offer something in return. Like saving the dealer time and cost. For example, the 'classic' bargaining time for an unsold, heavy, and bulky piece of equipment is near the end of a rally. The dealer may not relish the thought of having to hump it back to the van, then hump it out again at the next rally. Here you can help each other by offering him a deal with *you* humping it back to *your* vehicle instead!

But in most cases, especially for more expensive and easily sold gear, you may need to offer something else in return. If the dealer usually accepts payment for a transceiver or computer at the displayed price with a credit card, he'll have to pay the card company a commission of around 2% or so. Offering cash might save you this percentage if the dealer is willing, as most are, to pass this onto you. Payment by cheque with a guarantee card may also get you a better deal, although most businesses are charged by their bank for each cheque paid in, thus cash often still gets the 'best deal'. Any guarantee also costs the dealer money, at least in terms of the 'risk' he takes in having to pay to repair it in the future. Which is why a one-

year guarantee with a rig rather than a two year or longer guarantee will usually bring a better price. Don't be tempted to accept no guarantee, especially from an unknown dealer, unless you can afford to lose the money! Credit cards do however give you added protection against purchases over £100 if you buy a 'dud', which cash doesn't do.

So give a bit of thought to *who* you buy from, and *how* you pay. In all cases, get a receipt, and if appropriate, a guarantee. If the goods are described as 'working', make sure this is also stated on the receipt. If a receipt is refused, stay well away! You may even care to contact the rally organiser if you find this happens. At some time or other they'll be taking bookings for next year's event, and no-one wants 'dodgy fly-by-night' dealers there.

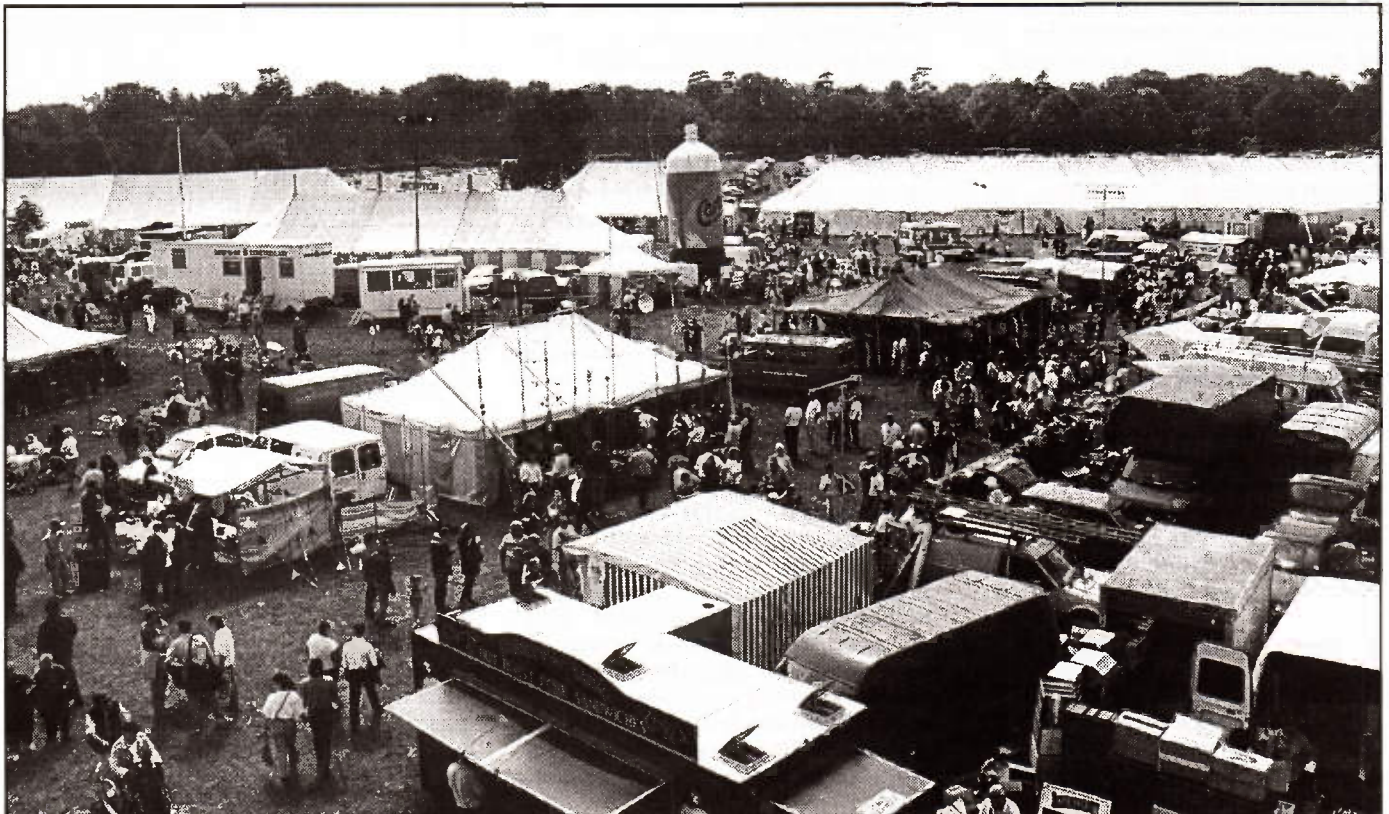
Have fun

Above all, *enjoy* yourself at the rally, have *fun*. Meeting others, bargaining, seeing what's on sale and hopefully coming away with something nice, even if just the memory, should be enjoyable. If you follow the tips I've offered here you shouldn't come away unhappy, or be suddenly disappointed when you get back home and you try your new rig out. Happy rally hunting!

able to use a bargain XT type drive to add to the one already have in your 286 or 386 machine. Also, remember that something neatly wrapped in a plastic bag doesn't mean it's new, or working, - it just stops you and the weather from damaging it too much!

Bargain time

You've now decided what to buy, and either from which stand or from a 'short list' of the stands selling what you're after. Now comes the time to find the 'real' cost. The displayed price in each case is always what the dealer would *like* to sell it for, and in some cases it's the *only* price. If you want to bargain for a lower price,



From My Notebook

Geoff Arnold G3GSR dispels the mysteries of circuit diagrams

To old hands like myself, who have spent upwards of 50 years involved in radio and electronics as a hobby and a profession, the immense variety of symbols and conventions likely to be encountered in circuit diagrams don't usually cause too much trouble. For the beginner, though, they can sometimes be baffling in the extreme.

There are, of course, recognised national and international standards - in the UK there is British Standard 3939 (and its European (IEC) and international (ISO) equivalents), a vast multi-volume work which will set you back several hundred pounds for a set. However, I think that the only places likely to follow such standards in their entirety are drawing offices working on defence projects and the like, where the contracts will demand that all drawings be produced to the relevant standards.

Technical colleges like to teach their electronics students to use and recognise BS3939 exclusively, ignoring what they will encounter when they get out into the real world. There are plenty of drawings still in service which were drawn to different standards. To this day, all technical magazines, books and journals have their own ideas about what circuit diagrams should look like, each laying down what is known in the publishing trade as a house style.

To avoid the cost of having circuits redrawn (and the possibility of introducing errors in the process), magazines will also use drawings which have been produced elsewhere - from manufacturer's data sheets, for example - even though they may vary widely from their own house style.

By now, you should be convinced that we need to be versatile in understanding circuit diagram symbols and conventions. So let's look at some of the common variations - I could not hope to

embrace them all. For this month, I shall confine myself to the basics of R, C and L.

Resistors

Since the earliest days of radio and electricity, the most widely recognised symbol for a resistor has been the zig-zag (Fig. 1a), graphically illustrating a chicane through which the current must force its way. The actual number of zig-zags drawn has varied somewhat over the years (those house styles again), from 2 points one side and 3 the other, up to around 10 or 12 each side.

Around the 1930s, a special symbol was used to indicate a non-inductive resistor. That symbol (shown in Fig. 1b) is intended to convey the resistance wire being folded back on itself, so as to cancel out the self-inductance of the winding. You'll encounter this in places such as the 1938 edition of the Admiralty Handbook of Wireless Telegraphy - still a useful source of basic theory, even after all these years.

When electromechanical drafting machines began to make their appearance in drawing offices, the old familiar zig-zag resistor posed some problems for the machine's control system, which simply did not like sloping lines. The result of this was that the British Standards Institute decided to adopt a new resistor symbol - the simple open rectangle (Fig. 1c). All very well for the machines, but a darned sight harder to sketch freehand in a hurry.

The rectangular box resistor was just one of a number of concessions made to the shortcomings of those drafting machines, and the computers and their printers which followed. But more of that later.

The symbol for a variable resistor is the general symbol with the addition of an arrow (Fig. 1d). An arrow is used with a number of different types of component symbols to denote variability. To denote pre-set resistors - those intended to be adjusted initially for correct working conditions in a circuit and then left alone - the T-headed arrow is used instead (Fig. 1e). I've always assumed the cross-

bar of the T is intended to represent the slot in an adjusting screw, although I've never seen it explained anywhere.

For a potentiometer - a resistor intended for use as a variable potential divider, the movable tapping is drawn as an arrow-headed line, (as in Fig. 1f). You will sometimes see on a circuit diagram a version of this symbol in which a second arrow is drawn parallel to the zig-zag element. This

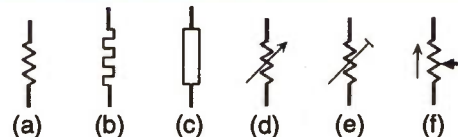


Fig. 1

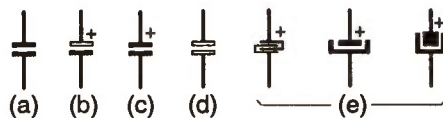


Fig. 2

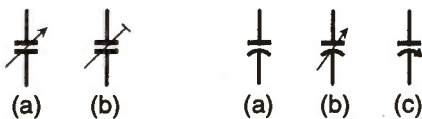


Fig. 3

Fig. 4

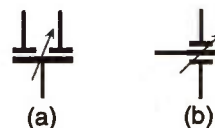


Fig. 5

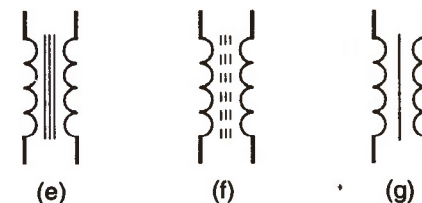
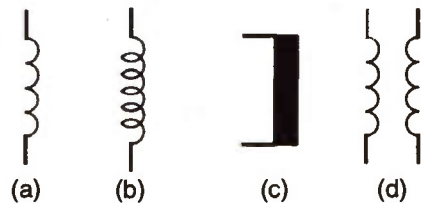


Fig. 6

arrow by convention shows the direction of movement of the tapping point with clockwise rotation of the control knob. Although the direction of movement may be obvious with simple circuit stages such as volume controls, it is not always so, particularly in things like tone controls or notch filters situated in negative feedback loops. There, the addition of this arrow can be a very great aid to understanding the circuit operation.

Circuit references for fixed resistors are given as the letter R followed by a number, commencing from 1. Variable and preset resistors also are sometimes identified by the letter R and a number in the same series. Alternatively, they may have the prefix VR (variable resistor) followed by a number in a series beginning again at 1, or RV (meaning resistor, variable; this tends to be more in military equipment). Very occasionally, you will find the prefix PR used for preset resistors.

Capacitors

If you thought that the possibility of meeting three different symbols for a resistor was a lot to cope with then, as the saying goes, you ain't seen nothing yet!

The general symbol for a capacitor - two short parallel lines representing the two plates (Fig. 2a) - has remained unchanged over the years apart from variations in the thickness (or weight) of those lines. The trend now (again to make life easier for drafting machines and computer printers and plotters) is to make all the lines on a circuit diagram the same thickness.

For polarised capacitors, such as electrolytics, it has long been the norm to identify which plate is which on a circuit diagram by drawing the positive as an open rectangle of the same overall shape and size as the negative as in Fig. 2b. If all the lines on the drawing are the same weight, that option is no longer available, so the positive plate is identified simply by the adjacent + sign, as in Fig. 2c. The same + sign is often used as a belts and braces indication on the box positive symbol, as was shown in Fig. 2b.

Incidentally, the symbol with two open rectangles for plates (Fig. 2d)

depicts a reversible electrolytic - a large-value component for use on AC supplies, as in motors and the like. BS3939 doesn't seem to have a special symbol for this component, so presumably you are intended to use the general symbol instead.

There have been several other symbols used for electrolytic capacitors, including the three shown in Fig. 2e.

Variable and pre-set capacitors (Figs. 3a and 3b respectively) are depicted in similar fashion to variable and pre-set resistors.

Some of the capacitors on circuit diagrams originating in the USA are identified by a different symbol, one of the plates being drawn as a curved line, rather than a straight one. For ordinary fixed capacitors the curved plate will be the outer foil. Long-time readers of this column may recall that I explained that capacitors in which the plates consist of two strips of metal foil on opposite faces of a dielectric material such as paper or plastic, wound up into a spiral so as to occupy the smallest possible space, will always have one plate (the outer foil) surrounding the other, screening it from external electric fields. To minimise pick-up of stray noise or interfering signals, that outer foil is always connected toward the earthy side of the circuit.

For electrolytic capacitors, the curved line will indicate the negative plate, and a + sign may be drawn next to the positive plate as an additional identifying mark.

For variable capacitors, the curved line again indicates the earthy side (Fig. 4b), which for air-spaced tuning capacitors will normally be the moving plates. A variant of this symbol, in which the arrow-head meaning variability is drawn on the end of the curved plate (Fig. 4c) is sometimes encountered.

Special variable capacitors such as differential (Fig. 5a) and split-stator (Fig. 5b) types have their own distinctive symbols which portray their basic function.

Circuit references for fixed capacitors consist of the letter C followed by a number. As with resistors, variable and preset capacitors may either be numbered in the same sequence as the fixed ones, or may be prefixed VC and numbered separately. Trimmer and padder capacitors around tuned circuits will sometimes be prefixed

CT and CP and also numbered separately.

Inductors

There have been three general symbols used to depict the windings of inductors. Two of them (Figs. 6a and b) are simply variants of the same symbol, one drawn with open loops and one with closed loops, and are pretty self-evident in their meaning. Fig. 6a is much easier to draw by hand with pen and stencil than 6b. The third (Fig. 6c) is something entirely different, and obviously another product of the drafting machine and computer era. I have only ever seen this one in circuit diagrams originating from mainland Europe.

Transformers are built up from two or more of these windings (with a common connection in the case of an auto-transformer), and may have an air core, and iron core, or a dust-iron or ferrite core, (see Figs. 6d, 6e and 6f respectively). Under BS3939, this useful differentiation between the symbols for the two basic types of magnetic core has been swept away in favour of a single line (Fig. 6g) if a core of any type is fitted.

Presettability - usually achieved by means of a moveable dust-iron or ferrite core - is indicated by that same T-headed arrow. Variable inductors are encountered less frequently, and will usually be depicted by a special symbol according to their construction and mode of operation. For example the roller-coaster in which a stationary contact provides a tapping point on a rotatable coil, and the variometer in which two series-connected coils are arranged so that one can be rotated inside the other, with their mutual inductance either aiding or opposing the combined self-inductances. Both these types are nowadays found only in transmitter PA tuning stages.

Circuit references for inductors consist of the letter L followed by a number. Transformers are identified by the letter T followed by a number, but you will sometimes come across IF transformers in superhet receivers in which each primary and secondary winding is also given its own L number.

Next month, I shall be looking at the circuit symbols and references for some more components, including switches and relays.

QRP corner

Dick Pascoe G0BPS shows how test gear for QRP can be useful and cheap

Although this article will be published in the summer, I am sitting in the shack in late April writing it. The shack door is open, the sun is shining and the birds are singing, so am I. Only a few more days and I shall be on a big bird heading out across the big pond towards Dayton, Ohio. One of the biggest rallies in the world beckons, I missed the pilgrimage last year and to my great delight was informed that I was also missed. The highlight this year will be the QRP Banquet which was first held last year and proved a huge success. The Editor has given me a few rolls of film, so a report on the show will appear a little later in the year. Talks from several big names in the QRP field are expected at the banquet too.

What test gear?

I am occasionally asked what test gear I have in the shack and what the casual builder should have to assist in making homebrew gear. Of course the equipment that we would *like* to have bears no relationship in most cases to what equipment we can afford.

The bare essential of any constructor's shack should be a good multimeter, and there are several available at quite good prices. Quite often we are not really interested in whether there is 5.3V at a particular point, but more interested that there is a voltage at the point in question. This is where the analogue meter comes into its own. Seeing a needle kick is often guide enough. The digital meter is often slightly more accurate, but will not give this 'kick' guide when used.

In my own shack I have both, my Avo 8 Mk5 was picked up at the McMichael Rally boot fair some five years ago in mint condition for £50, they still fetch that today. My Avo M2005 digital meter cost a lot more and was also found at a rally.

A good receiver for the bands required is also a boon. Many checks can be carried out by listening to various parts of projects. Simple things that can be built at home, such as an RF probe, can be used to great benefit. Costing pence they recoup this the first time they're used.

I have often mentioned "The Sheds" when discussing the annual QRP

gathering at Rochdale. Chris, the owner, has a profusion of test equipment which sees daylight once a year at the QRP Convention. An invitation to visit him and browse through his 'stock' was not to be missed. My audio signal generator, the Marconi TF200B, is a huge beast by modern standards, but it works, and works well, and at £40 a snip! The highlight was a comment from a Dutch friend that he knew someone who had a manual for one of these. A photocopy arrived a few days later free of charge. Now isn't that what this hobby is all about?

The same Dutch friend on his last visit brought with him an oscilloscope that was surplus to his requirement. A neat, as new unit in its own solid leatherette case, it looked good. A Phillips PM3200 'scope is only 15MHz bandwidth, but enough for my modest needs. Complete with the test leads, probes and attenuators, at £60 a snip.

Another rally find was a frequency counter. The Racal UHF 9915 operates from 10Hz right through to 520MHz, which covers all the HF bands through 6m, 4m, 2m and the whole of the 70cm bands, all this for a mere £80. OK it's old, but it works very well. Why be fussy when most of us can't afford to spend loads of money on the hobby? I build gear because I want to and I want to ensure it works properly.

The one piece of test equipment I don't have (yet) is a spectrum analyser. I do know that an amateur local to me has designed a simple VHF one, and a message yesterday told me that he had redesigned it to cover HF as well. No details yet, but I may have one on the bench sooner than I expected.

Almost all builders I know can manage on the simplest of all, the multimeter, the scope and the counter are the only essentials. Everything else is a bonus, but don't dash out and buy these today, shop around at the local rally. Several traders sell used equipment and at often very good prices. But do follow my oft-repeated advice; ask if it works! Ask what guarantee is given. If the seller doesn't give a guarantee, then my advice is walk away. It may be that he tells you that it works and will offer a money back warranty, check to see if his name and address is displayed on his stand, if not, walk away. If you do buy, do get a receipt and the guarantee in writing.

A telephone call from Southern Italy reminded me about the death of some components around in any quantity. This chap wanted to buy a few variable capacitors and some Toko coils amongst other things. Where can you buy a reasonably cheap variable capacitor these days? The odd ones seen at rallies are usually very expensive, and often without the quarter inch shaft to fit the knobs that I have. The stubby trimmer capacitors are of no use because they are too short. Oh well, bring back the varicap diode.

Of aerials and things

At the end of each summer I make a point of checking my feeder and the connections therein. During the prolonged gales on the SE coast I lost all my aerials. I remember sitting at the computer writing this column, whilst the wind battered my beams to shreds against the tower. The sun today brought out the aerial in me and so down came the tower and out of the garage came the replacement alloy bits.

A quick check of the feeder brought my comments of last year to mind. A good solid 1:1 SWR on one length of cable into a dummy load showed that the cable was OK, but a small nagging thought made me strip back the outer cover a few cm and remove the PL259. Green corrosion covered the inner core, and the shield was black. Water everywhere. The power wasn't reaching the far end of the cable, I was just trying to boil a few drops of water! My 5W of RF ended up as microwatts at the other end of the cable. Oh well, back to that drum I bought last year at the Luton Dunstable Downs boot fair. Even the slightest loss in feeder will be viewed with horror by the QRP man. It is bad enough sticking with low power levels without losing most of it in the feeder! We demand that our squirt of RF get to the aerial, to be radiated for all and sundry to collect.

This then beggars the question; what happens to all those CQ calls that go unanswered? Do they randomly wander the universe until they are heard? Perhaps by some alien creature on another planet who doesn't know the code?



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So, until the next few gales my aerials are back in action with 2m, 70cm and the HF doublet back in action. It was nice to hear 80m again. 3.560 lives!

SSB works for Rune

A great letter arrived from Rune, an SM0 who can't use CW because of a car accident some years ago. He is an avid QRP sideband operator and has several awards to his merit. Using a simple vertical aerial for the 10m, 15m and 20m bands, he has gained 255 countries with his 'squirt' of RF. He tells me that his 254th was 9M2DJ in Malaysia with a 5-2 given, his latest being XX9X (Macao), who offered a better 5-3. His best DX is VK5FOX who he has worked several times. His historic roll includes, 5W QRP WAZ in 1984 (first SM), QRP WAC in 1978, 2000m QRP Award 1980 (1st in SM). G-QRP 100 countries 1980.

Rune likes to sit around the usual SSB QRP frequencies and may be found on 14.285 and 21.285. Rune also asked for a sked and suggested a time and date. Typically, I was busy that day and time driving north to a wedding in Lincoln. Peter G3PDL and his YL Diana decided to tie the knot

and we were invited along with almost all the other members of the G-QRP Club.

Construction tip

I have just heard of a great way of making coils that works for both HF and also will be ideal for the VHF/UHF bod. At VHF/UHF we are often told to get a certain drill bit size to wind the coils on, and then separate them according to the part of the band we are involved with.

This new idea does that but in a slightly better way. We find a bolt of the correct diameter (and as of this I can imagine that builders will collect a stock of the standard sizes) and wind our wire around the threads of the bolt in such a manner that they follow the grooves as they wind up the thread. We count the number of turns required and then use a glue gun to weld them in place on four sides, this is important! If we now let the glue harden, and then unwind the bolt from the wire, we will be left with an air spaced coil held in place with the glue! If it is essential that the spacing can be moved then perhaps a slightly larger gauge of wire may be used and then stretched to form the longer coil. Many

gauges of wire lend themselves to this type of use, of course this may also be used at HF as well.

Readers may even remember my comments about shotgun cartridges. The 12 gauge is ideal as a coil former with a plastic case and a brass base, the 410 gauge can also be used for less 'L' where required.

A great message on email from Rich Arland K7YHA who is in the 'Been there, done it, got the T-shirt' league regarding aeralis for the QRP enthusiast. He states that, just because we tend to use simple equipment, there is no actual requirement that we use simple aeralis. He has worked the world with dipoles, verticals and simple wire aeralis. "Haven't we all" I hear you cry. But he states, quite rightly in my opinion, that if you can afford the tower and the stacked monobanders, then go for it. Your small signal will be radiated in the best direction with not only a stronger signal, but less off the sides and back. This of course equals less interference.

That's it for this month. Please send all your QRP related news, views, photos etc., to me at; Seaview House, Crete Road East, Folkestone, Kent CT18 7EG, or via packet @ GB7RMS, or email to dick@kanga.demon.co.uk

VHF/UHF Message

Geoff Brown GJ4ICD shows how you can get VHF and UHF information in an instant

Many readers became aware that I had taken the plunge on the Internet, and requested more information, so, here is a VHF follow-up from Don G3XTT's Internet article.

Where do you start on a subject like this? Well, at the very beginning.

Are you interested in the Internet? probably like me you would have said no, however, a few years ago many VHF DXers were asking how could information be passed around the world when the solar cycle would bottom out, HF conditions would be poor.

Then along came the Internet, (well not really, it's been around for many years) multiple mega computers linked all over the globe, Cyberspace, hyperspace, the Superhighway, call it what you want, but the information you may require *will* be somewhere on the *net*.

How do you connect up? How much does it cost? What software do you use? These were my questions too,

having never even being involved in packet radio I didn't have a clue! but you soon learn.

To connect up is a very simple task, a standard modem (14,400b/s) connects to your spare serial port on the PC and then to your phone line. The cost? Well that depends on the host machine (the service provider), but expect £10 per month. The software? Well that's a matter of choice, I prefer Windows software as personally I find that GUI's (Graphical User Interfaces) are much more fun to play with than dull old text.

Should you choose Windows software, then it's all free from your service provider! There are three main shareware packages, called *Trumpet*, *Netscape v1.1* and *Eudora v1.44*, each do their own job, like connect up, search and mail.

Winsock Trumpet (called Winsock because it's a Windows socket) is the main logging-on program, this even dials the phone for you. Once you are logged on, then Netscape (the browser software) is opened up and you should be greeted with a home page (default page). Off you go, it's as simple as that. But beware, you'll spend hours and hours surfing the net as they call it, that's OK if your phone company only charges 50 pence per day (including rental and calls) like they do in Jersey.

Eudora is the E-mail Windows package, very nice and simple to use, mail in and out with Eudora. So off you go, tropo on 6m? Have a look at the weather pictures in any area at <http://www.sat.dundee.ac.uk> or maybe the Meteosat 1691MHz SHF

satellite infra-red images at:

<http://web.nexor.co.uk/users/jpo/weather/weather.html> Yes it's all there, weather satellite pictures from all over the globe, infra red images and visual images, plus vapour images and some in full glorious colour. As you know, the weather plays an important part in VHF openings.

Would anyone like to buy a cheap dish/feed/downconverter/sat receiver? Internet made my very expensive weather system redundant overnight! You'll find satellite Keplers at <http://www.amsat.org/amsat>. There are solar images (sunspots, coronal holes, filaments, etc) from the Space Environment Labs at http://www.sel.noaa.gov/current_images.html and masses of solar data from ERL, Boulder, and NOAA in the USA.

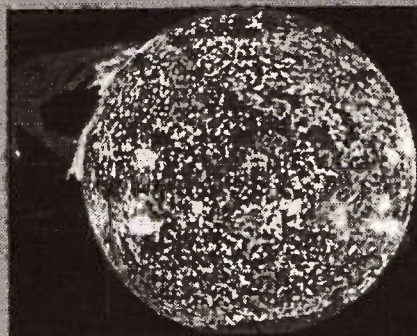
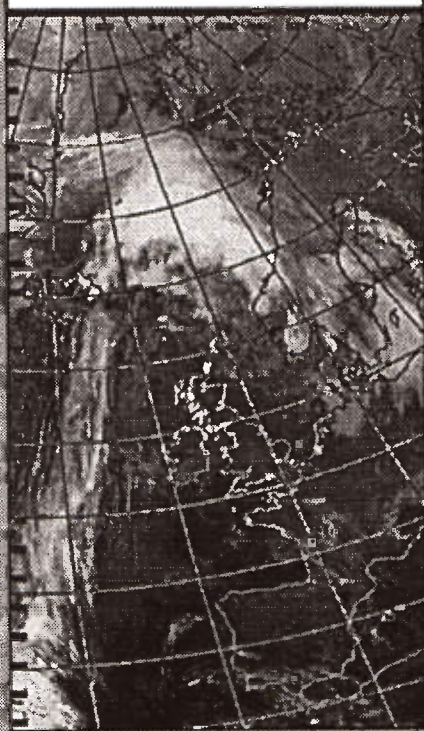
VHF operators will like this next site. It's all about meteor showers, the full works right down to the calendar predicted peaks. Aim your browser (Netscape or Mosaic) at <http://www.dkrz.de/~202045/tnp/meteorites.html>

Full geomagnetic information is available for those of you following the cycle and aurora's at <http://www.sel.bldrdoc.gov/today.html>

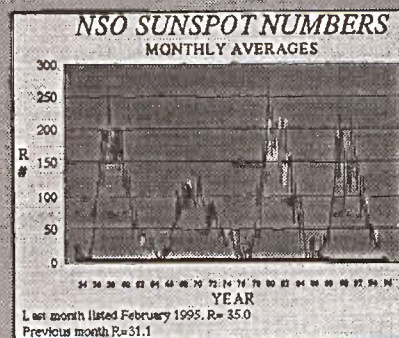
A three hourly 'A' and 'K' index is supplied, along with accurate predicted flux levels. Having access to this data will be of significant help for cycle 23 to plot the openings against all solar indices.

Remember of course that the images are only available if you are using Windows with an appropriate

Current Wx charts!



Images from the Internet



viewer installed (i.e., Netscape, Mosaic, Chameleon). If you use the 'other' system of downloading files using 'FTP' (File Transfer Protocol) then you'll also require a viewer under DOS.

Emil W3EP who is the VHF editor of QST is active via E-mail. Neil G0JHC wanted to get an urgent message to Emil to discuss the loan of a 50MHz transceiver for the Western Sahara operation. I sent the message via E-mail for Neil and next morning back came a reply. Admittedly, you don't have to have the net for E-mailing, but it's part of the net's capability. Since then I have been in contact with several VHFers around the globe, finding out what has been happening in their part of the world and passing the information from our side to them. Many friends have been made, just look at this comment from a VK I'd never spoken to before; it relates to me requesting an email address to Eric VK5LP to pass on the latest 50MHz beacon info:

Geoff; "I contact Eric VK5LP every month at around £2 a letter! Any chance of passing on info for me?"

Dave; Two quid a letter? Strewth mate, tell you what: e-mail the stuff to me and I'll pass it on to him. Costs me just 45c to send a letter anywhere in Oz, and an STD fax call isn't much more (depending on how long, of course). You could also try packet radio, c/- VK5ZK @ VK5WI.SA.AUS.OC or whatever.

Geoff's reply; anything you want in the way of help?

Dave's reply; I'm sure I'll think of something !! 73 de VK2KFU Dave Horsfall.

Now when I visit VK in the next few years there's one guy I'm going to look up and buy him a pint or two!

Want to know about aurora's? Apart from finding out the technicalities, there is also a site that you can log onto and look at hourly reports! Try gopher://xi.uleth.ca:79/0aurora

Peter, G4MJS has a VHF warning net and discussion group on a mail list. I subscribed (a term used for receiving information, and nothing to pay) to test it out, and I sent a mail out to all subscribers regarding the D44 VHF expedition in June. The next day I received dozens of returned messages from all over the globe wishing us luck! Here is the mailing address to subscribe

majordomo@insite.parasoft.co.uk and in the body of the mail put the words **subscribe vhf-dx-discuss**

You will then receive all mailshots from everybody on the list. However, if you wish to join the VHF DX warning net (a group which monitor the openings for the VHF bands) then this time use the same address but in the body of the mail put

subscribe vhf-dx-warning

You're then on the list, as easy as that. At this point I would like to thank Peter G4MJS for all his hard work in setting up such a fine system. You can also input VHF openings onto the list, but you must have the appropriate permission to do so.

A 50MHz beacon listing was put out requesting corrections, back came the beacon keepers with updated information. Here's another use (see table), the current solar cycle situation for planned future F2 50MHz DX.

NOAA in the USA put out tons of solar data like this, with predicted and past cycles for us to compare. Jukka OH2BUA has some interesting hypertext radio pages on the net, and it is hoped that an 'Aurora warning net' will be started from Finland. Try <http://www.clinet.fi/~jukka/webcluster.html>

Now for the real big stuff. Have you ever wanted to see the predicted Meteor shower? Mount Wilson's observatory at

<http://www.mtwilson.edu> can do just that! Enter the data into the form

supplied (lat/long) and hey presto, a map is drawn showing you the shower visually. Mind boggling stuff! Radio modifications? Yes, even the new FT51 is on 'Usergroup' info.

You must remember that some of the pages do change from time to time, so if you have any interesting pages that you think would be of use to VHFers then please drop me an email at; equinox@business.co.uk and I'll include it in the next edition of HRT.

I have learnt more in one month than the past 10 years, it's a fascinating world out there, and it's going to grow and stay.

Now, you probably thought that it was a pain to write down all the above references. So, what I've done (and I'm adding to each day) is to make what is called a Home Page. This radio home page is written in a code called HTML (a sort of hypertext language), and the home page can be linked to the whole Internet very simply. That's just what I've done, linked most of the amateur radio pages in the World together, plus added new pages on the net like beacon lists, 48MHz TV, expedition news and lots more.

If you want the URL (address) then try this one;

<http://www.business.co.uk/~equinox>

You are then into my home page which is more or less dedicated to radio, solar info, weather info and other bits and pieces. I have also just added 28MHz and 50MHz beacon lists, these are updated every few days, RSGB news, HF, 50MHz and VHF/UHF news, satellite news and more info will be appearing each week. Even the UK Six Metre Group now has its membership form on the net in colour!

My home page also contains hundreds of links all over the World, and in turn my page is interlinked with them. If you're on the net try it and see.

Working alongside radio, the Internet is giving us links around the World 24 hours a day, to pass vital information, research, and learn from more knowledgeable people, and pass on thoughts of special propagation aspects. Where does it stop? Why not join in on the fun?

News and views on VHF/UHF please to: Geoff Brown, GJ4ICD, TV Shop, Belmont Road, St. Helier, Jersey, Channel Islands. Tel/fax 01534 877067 (new number), or via emailequinox@business.co.uk

Average monthly flux levels.

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
1990	150	128	135	129	126	138	136	138	141	136	122	133
1991	143	175	169	163	136	121	141	125	135	131	121	130
1992	152	172	156	134	95	79	89	66	68	68	85	90
1993	75	77	80	65	63	65	61	49	36	40	35	42
1994	55	34	33	25	19	25	25	20	20	9	10	10
1995	14*	13*	13*	12*	12*	12*	12*	11*	11*	10*	9*	9*
1996	8*	8*	8*	7*	7*	8*	9*	10*	10*	12*	13*	15*
1997	16*	18*	21*	23*	26*	29*	33*	38*	43*	48*	54*	60*

(the asterisks are predicted values and so far have been spot on)

HF Happenings

Don Field G3XTT takes a close look at 12m, and investigates a possible 'restart' suggestion for DXCC

During the week before Easter there was a second DXpedition to Scarborough Reef in the South China seas. The group, which included well-known DXpeditioner Martti Laine OH2BH, used the callsign **BS7H** and made 12,000 contacts in 80 hours of operation. The hope is that this reef will count as a new "country" by way of its separation from the parent country. However, there are many obstacles to be overcome, not least of which is the fact that although the operators were on a small area of "dry land", the equipment had to be mounted on a platform, as most of the reef is submerged. Some of the aerials were also standing in the sea. There are echoes here of Okino-Torishima, which once counted as a "country" for DXCC purposes, but which was

thought they were being discriminated against, and there were dark murmurings that this would never have happened if Scarborough Reef had been in the Atlantic Ocean (and therefore easier to work for US hams and those at the ARRL) rather than in the Pacific. Mind you, it is still not clear whether the new rule will be applicable retrospectively to the BS7H operation.

Of course, whatever the outcome, Scarborough Reef does count for the RSGB's Islands on the Air award, so if you made a QSO you can at least use the QSL card towards one award! UK stations worked the expedition on 15, 20 and 40 metres, with good signals at times despite damage to the linear amplifiers which meant that the team had to run barefoot with just 100 watts to a Cushcraft vertical aerial.

Conway Reef

NI6T gave a presentation at the Visalia Convention on the recent operation from Conway Reef, one of the outlying islands of Fiji which is so remote that, for DXCC purposes, it counts as a separate country. The group met with a series of misfortunes, which included losing a considerable amount of equipment (plus passports and other vital documents) overboard when transshipping to the Reef by dinghy. Once ashore they had further equipment problems, including failures with their linear amplifiers, and bad weather led to damage to some of their aerials. Reading between the lines, there was also considerable friction between the operators, some of whom wanted to operate their favourite modes or bands (RTTY, 160 metres, etc.) while others wanted to maximise the number of contacts by operating SSB and CW on the high-rate bands (mainly 40 and 20 metres). Even the presentation at the Visalia Convention was fated; the projector failed and it was about 30 minutes before a replacement could be found. Once again, we who sit in our cosy radio shacks complaining that we haven't

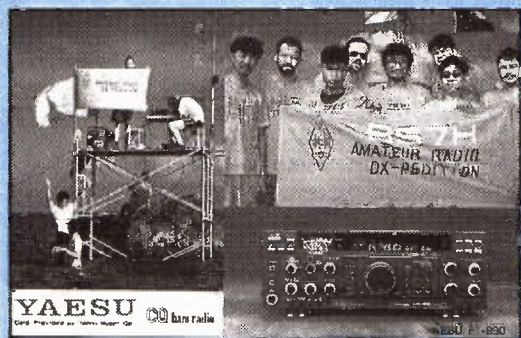
worked a DXpedition on our favourite band or mode need to remember the problems faced by those who are at the sharp end.

More on Visalia

Further controversy was stirred up at Visalia by Jack Troster W6ISQ and Jim Maxwell W6CF, two respected members of various DX and contest organisations including the Northern California DX Foundation which sponsors many of the major DXpeditions. Jim and Jack suggested that, to bring more interest to the DXCC programme, both for old timers who have "worked them all" and for newcomers who feel they start at a disadvantage compared with those old timers, DXCC should be restarted on 1st January 2000. The date not only marks the beginning of a new millennium, but is far enough away to have a thorough debate about the exact rules and the awards to be offered. The suggestion was that the old DXCC would be gradually phased out, but only after a number of years, with the opportunity for DXers to add to both old and new awards in parallel. The mood of the meeting was that something like this was worth considering, but I suspect it will be difficult to reach a consensus on the actual way the changes are implemented.

Talking about alternatives to DXCC, it was good to see frequent reference to our own Islands on the Air award at Visalia, with Yaesu giving the programme considerable exposure on their booth.

At the evening dinner, Jim Neiger N6TJ and Dick Norton N6AA were inducted to the prestigious CQ Contests Hall of Fame by CQWW Contest Director Bob Cox K3EST. These awards are richly deserved. Dick has a long track record of accomplishment in the major contests, and is currently on a mission to operate the CQ Worldwide CW contest from each of the 40 CQ zones. Jim has also operated contests from a number of exotic spots, but is probably best known in recent years for his



QSL card from the first Scarborough Reef DXpedition

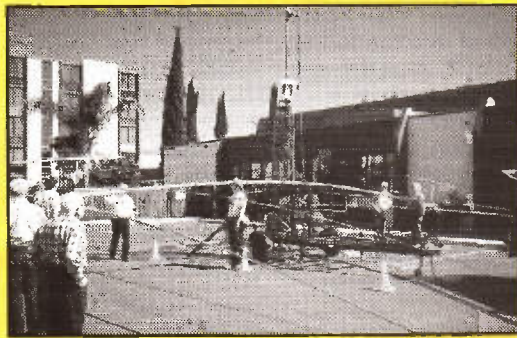
similarly a submerged reef on which a platform had to be built for an operation to take place.

Fuel was added to the fire when, about a week after the operation, the ARRL announced that there will be a new rule for determination as to what counts as a "country". Countries must be able to sustain human habitation, to be visible and named on a map of not less than 1:1,000,000 scale, and to consist of a single unbroken piece of land not less than 10,000 square feet in area at high tide.

This decision dominated proceedings at the Visalia International DX Convention which took place in California a few days later, and which I was fortunate enough to attend. West Coast DXers



KJ4VH, JA1BK and BZ4HAM write out BS7H QSLs at the Visalia Convention



Force 12 Antennas assemble their 2 ele 80m/2 ele 40m yagi in the car park at the Visalia Convention

operations from Ascension Island with the callsign ZD8Z. Jim continues to travel to Ascension on business about three times a year, so if you haven't already worked him there will still be plenty of opportunity to do so.

DX news

As I write this, there is news that Brendan McCartney G4DYO has stood down as Editor of the RSGB's DX News Sheet, one of my main sources of DX information. Bren has edited DXNS for just over 10 years, though it was first started by English listener Geoff Watts over 30 years ago. The News Sheet is widely regarded as the finest publication of its kind in the world and is to be hoped the RSGB can find a worthy successor. Thanks are due to Bren for keeping it going for so long.

In May, all ears were tuned to the bands to catch Barry G4MFW, who was operating /ZL8 from Kermadec Island, a very rare one for DXCC. Although he had been worked from Europe as I write this, UK stations were having pretty thin pickings. Kermadec is by no means as difficult to get to as some DXCC countries, and has a permanent crew at the weather station. But the New Zealand gov-

ernment has been very reluctant to issue landing permits since an incident some years ago when the boat taking some hams to the island foundered, and a rescue operation had to be put in hand. Sadly Barry is relatively inexperienced as an operator, and has been criticised for his operating practices. Given that the current alternative is no operation at all, as he is the only operator who has been able to gain permission to be active from Kermadec in recent years, I dare say we should all be grateful. After all, even the top DXpedition operators such as OH2BH, DK7PE or G3SXW had to cut their teeth somewhere, though I guess a country as rare as ZL8 is not necessarily the best place to start!

Mark ON4WW has been doing a great job from Rwanda signing 9X/ON4WW. Bob G3ZEM was the first station to work Mark on all nine HF bands.

Band of the month

We come this month to the last of the HF bands, 12 metres. This band has grown in popularity in the last few years, to the extent that when I and ZS6EZ were operating 15 months back as ZS9Z from Walvis Bay we were able to make 12 metres our main band, and to have 3 days of solid pile-ups, running stations at 150 an hour or more for perhaps 10 or 12 hours a day, without running out of customers. In the last year, 12 metre activity has declined, entirely as a result of the decline in high band conditions. But the interesting thing to me is how often 12 metres is open to distant parts when there are no similar signals on 10 metres.

The band runs from 24890 to 24990, with the following bandplan:

24890 -24920kHz	<i>CW Only</i>
24920 -24929kHz	<i>CW and digital modes</i>
24929 -24931kHz	<i>Beacons only</i>
24931 -24990kHz	<i>Phone (and CW)</i>

In the beacon band there are beacons operating in many parts of the world, and these give a useful indication of propagation. I never cease to be amazed how often beacons can be heard but there are no other signals on the band. Propagation, as you would expect, is an amalgam of 15 and 10 metre propagation. Unlike 10m, you are less likely to find VHF propagation effects such as aurora or Sporadic E but, as noted above, the Maximum Usable

Frequency quite often gets as high as 12 metres without reaching 10 metres. Even at this low period of the sunspot cycle, VK6RO in Western Australia has been workable quite often, though we will need to wait a few years for more northerly paths such as those into Japan or the Central Pacific area to return. When that does happen, you are in for a treat. I recall back in May 1991 when G3TXF, G3SXW, and G3WVG were operating from the Solomon Islands, their 12 metre signals were audible from early morning until late afternoon with good signal strengths, quite workable with low power and a dipole.

And, of course, the wavelength is small enough that a gain aerial such as a quad or a Yagi is small enough to fit most gardens and be rotated on a lightweight VHF-type rotator. I recall early last year putting together a 12 and 10 metre quad from 3m long garden canes in order to work the Peter 1st Island expedition on those bands. The aerial cost me no more than £15 in all, even buying all the bits new from my local garden centre, and appeared to perform as well as the 3 element commercial Yagi which I am currently using for the WARC bands.

Prefixes

I hope readers made the most of the very large number of special event stations which were aired over VE-Day weekend. In the UK the special prefix GR was available for use, while throughout Europe and elsewhere there was a high level of special activity. As an example, Belgian stations were able to replace their regular ON prefix with OS. No doubt many of these stations will issue commemorative QSL cards which will make an interesting addition to the shack QSL collection.

The FCC is also reported to have made some changes to prefixes for US overseas territories. Callsigns in Alaska are no longer limited to the number 7 (e.g. KL7) but can take any digit. In the Caribbean, KP3, NP3, and WP3 may be used in Puerto Rico, while in the Pacific AH7, KH7, and WH7 will be used in Hawaii. Presumably these changes come about because the FCC is running out of callsigns within the existing blocks.

As always, please send news, views and photographs of HF interest to Don Field, G3XTT, 105 Shiplake Bottom, Peppard Common, Henley on Thames, RG9 5HJ.



DATA CONNECTION

Our resident SysOp Chris Lorek G4HCL finds a new JVFAX interface plus growing interest in the Amateur Packet Reporting System

Graham G6IXN sent me a message to say he was very interested in the APRS (Amateur Packet Reporting System) I mentioned recently in this column, in particular the section on using TNCs with the GPS system. Graham asks as to the possibility of an article in HRT giving more details on the system. APRS isn't of course just limited to GPS use, indeed the program author says this is just a small part of it! I'll try and twist the Editor's arm to see if we can get a suitable 'feature' in a forthcoming issue. In the meantime, the 'readme' sub-directory of the program, after having extracted it, contains over 400k of text information (several hundred pages worth!) on the program and its applications, plus quite a lot of information on packet in general. I'm still reading it all....

A bulletin from Philip G0ISW says he's using APRS from his location in Penrith, Cumbria, adding that quite a few others in the county are also using it. Philip has done a map of Cumbria including most towns and all major roads, and he's interested in hearing from other APRS users in the UK. Have you created, or have access to, maps for other areas? You can contact Philip by a message to G0ISW @ GB7PEN.#14.GBR.EU. He adds that he uses version 3.09 as he's found later versions seem to only work with AEA or TAPR TNC's and not Kantronics. At the G4HCL station I find APRS V6.6 however works fine with my Kantronics KAM. I'd be pleased to hear from readers of their experiences with APRS.

APRS V6.6 now available

You may have spotted that I mentioned APRS V6.6 in the last paragraph. That's right, and my thanks go to Malcolm G4OYZ for sending me a copy of this latest version. Malcolm also says the HRT Software Service is most useful. My thanks Malcolm, I'm very pleased to be able to disseminate useful information, files, and programs via this 'cost only' service.

Version 6.6, as well as coming up with a map of the UK on your PC screen, now also displays UK NGRs (National Grid References) when the cursor is in the UK region. Also added is a utility that allows maps to be made by defining the corners using NGRs rather than lat/long. I wonder if this could have

applications in the 'Worked All Britain' award? All the (many) other updates from V6.2 to V6.6 are detailed on the disk. Malcolm adds that he believes several amateurs may have made maps, but they haven't been collated together. This sounds familiar!

If you've recently, i.e. end May 95 onwards, requested a copy of APRS (V6.2 as detailed in this column two months ago) from the HRT software service, then you'll have already received V6.6 instead, and all current requests will now have this new version supplied. If you'd like a copy on disk, or one to update the version you already have, just request the 'APRS disk' as usual, ordering details are otherwise as given in the 'CQ de G8IYA Editorial' this month except there's no corner flash needed for the APRS disk. Again, this is an 'at cost' service to HRT readers, at £1.00 per 1.44Mb HD disk inc. UK p/p, which is indeed less than I'd pay for a blank formatted disk at my local computer store! You can of course even save yourself a stamp by ordering this month's disk collection and the APRS disk at the same time if you wish.

Unattended operation

Graham G6IXN @ GB7CHS.#11.GBR.EU asks what he needs to do to conform to the license requirements if he wants to leave his packet station on 24 hours a day. He tells me that he's been finding it difficult to get a 'sure' answer on this. Thankfully, it's quite simple Graham. In the case of unattended operation (which I presume you mean) you just need to contact your local RA RIS office (you can phone the RA in London on 0171 215 2150 to find this out), who will tell you exactly what information they need, in each case. My local office for example, sent me a form which I filled in and sent back to them, however I've found that various RIS offices do have different requirements. But in all cases I've

come across they need to know the address, frequencies of operation, means of shutdown, and so on. Graham also asks what he should put in his station log for such operation? Well I personally enter the start of unattended operation and the end of it, plus the other details required such as frequency, power and so on. As it's unattended operation, a detailed log of stations using your setup as a digipeater, node, or whatever would be rather impractical! However, I stand to be corrected if this isn't the case, any 'experts' out there?

Weathersat reception with JVFAX

Jim G4RGA @ GB7TJF.#45.GBR.EU tells me that a bit of new hardware has recently become available to enable JVFAX to decode the weather satellite (AM) transmissions. It's called "JVFX Synchronous A.M. Interface" and was designed by Welsh enthusiast Greg Jameson. Jim says that this interface, unlike those published with the JVFAX program, uses readily available ICs: ADC0804, NE567, 4046, 4013, 74HCT14 and a surplus serial/parallel board for the PC. The details are available as a compressed file, and the archive contains a very clear circuit diagram of the interface in .PCX format and an example of a weather map decoded using the circuit, in .GIF format (and a READ.ME file, of course). The file is JVSYNCRJ (217,167 bytes), and you should find it on landline and some packet BBSs. Thanks for the information Jim, which I'm sure will be of interest to readers - I'm hoping to obtain this and include it with this month's software offer if at all possible. Maybe I should also build the interface up and test it for HRT? If readers are interested, please drop me a line, a packet, or an email. AMTOR and PacTOR contest this month

The weekend of 8th and 9th July

The new MFJ 2m Data transceiver, review coming up next month!

sees the British Amateur Teledata Group's 1995 AMTOR and PacTOR Contest. Here's some 'potted details' for the benefit of readers, whether you're interested in just having a listen to test your data terminal, or indeed in 'having a go';;

Time; AMTOR, 0000 GMT Saturday July 8th to 0000 GMT Sunday July 9th 1995, and PacTOR 0000 GMT Sunday July 9th to 0000 GMT Monday July 10th 1995.

Categories; 1. Single operator AMTOR, 2. Single operator PacTOR, 3. Single operator Combined, 4. Multifoperator Combined, and 5. Short Wave Listener.

Bands; 3.5, 7.0, 14, 21 and 28MHz amateur bands. All categories single transmitter only.

Messages; Use FEC for calling, and ARQ for contest exchange. Messages will consist of RST, serial number, and time.

QSO Points; Each completed QSO scores one point. Stations may be contacted again on other bands. Any station contacted using AMTOR may be contacted again on the following day using PacTOR. Duplicate contacts on the same band/mode must be clearly marked.

Multipliers; All DXCC countries (including W, VE and VK) and all W, VE and VK areas count as multipliers on each band. Note: Any country or W/K, VE/VO or VK area may be counted again if worked on a different band, but continents are counted once only. Stations entering in combined categories count multipliers only once per band regardless of mode.

Scoring; QSO points x multipliers x continents (max 6).

Log Sheets; Use separate log sheets for each band and mode. Logs must show band, mode, callsign, message sent and received, mults and points claimed. SWL logs must contain date, time, band, callsign of station heard, report sent by that station and callsign of the station being worked. Summary sheet, full scoring, times of operation and address for correspondence must be shown, and in the case of multi-operator stations the names and callsigns of all operators involved with the station operation during the contest. Any incomplete entries will be classified as check logs. All logs must be received by 9th September 1995 in order to qualify. Suitable log and summary sheets are available from the contest manager. UK entrants send large (A4) SAE. Outside UK, send 6 IRCs to cover postage.



Computer generated logs containing all specified information are welcomed. Send your contest or check log to: John Barber G4SKA PO Box 8, Tiverton, Devon, EX16 5YU, England. The judge's decision will be final and no correspondence can be entered into in respect of incorrect or late entries. All logs submitted shall remain the property of the British Amateur Radio Teledata Group.

Trophies will be awarded to the winning stations in each category, and certificates will be awarded to the top 3 stations in each category and the top 3 single operators for each mode in each continent.

Additional notes; If a contestant manages to contact 25 or more different countries on AMTOR/PacTOR during the contest, a claim may be made for the Quarter Century Award (QCA) issued by BARTG and for which a charge of 6 dollars U.S. or 30 IRCs is made. Holders of existing QCA awards may add new countries to their existing records. A separate sheet showing bands, callsigns and countries claimed must be included with the contest log.

The BARTG say that comments on the contest would be much appreciated, to John G4SKA (address as above). My thanks to the BARTG for the above information. You'll find full details plus a lot more in their quarterly journal 'Datacom', contact Peter Adams G6LZB @ GB7BST (or Tel. 01923 220774) for membership details.

Teens packet club

Are you a teenager either active on packet, or interesting in becoming active? Chris G7UBW is the Vice President of TaPARC (Teenage Packet Amateur Radio Club), who are a packet club aimed at putting teenage radio amateurs from all around the world in touch with each other. He says the club has a newsletter which

is sent to all members, and they and try to meet on the TCP/IP international conference on chan 1979 (which their members in the States meet regularly on). If you'd like to join the club, send Chris a message and you'll be added to the carbon copy list to receive the newsletters; G7UBW @ GB7DEO.#32.GBR.EU.

Dedicated 2m packet and data transceiver

Just a couple of days ago, I was pleased to receive a sample of MFJ's new VHF Data Radio for evaluation. You'll find the results of my tests in next month's issue (two days just wasn't enough time to get it into this column, although I got busy with the camera!). Due to sell for £139.95 in the UK, it's a single channel, crystal controlled, 5W set, and comes ready-supplied for operation on 144.650MHz. Crystals for other frequencies, such as 144.6754MHz, are optionally available.

The information says it'll handle either 1200 baud or 9600 baud, changed by internal links, with the transmitter having both reactance and 'direct FM' modulators. On receive, an 'open squelch' is used so you'll need to use software DCD in your TNC. You'll see a review next month, but in the meantime you can get further details from Waters and Stanton Electronics, who are distributing it in the UK.

CTRL-Z, end of message

That's all I've room for this month. Please do let me know what you're up to in the hobby radio data field, or if you're interested in a particular aspect let me know, and I'll try and give it some coverage. You can contact me by post, fax, or email c/o the HRT Editor, or by packet; G4HCL @ GB7XJZ.#48.GBR.EU.

Satellite Rendezvous



Following the report last month of the sad failure of the flight which was hoped to put two new amateur satellites in orbit, the Israeli *Techsat-1* (also known as *Guerwin-1*) and the Mexican *Unamsat-1*, here's some further information plus a 'hope' for the future.

The landing site of the debris was "to the east of the estuary of the Yana river where it flows into the Laptev sea"; if you want to find this site, look in an atlas at the Russian north coast about 138 deg longitude.

Even if salvage were to be attempted, the components would not be reusable as the flight was in the vicinity of 600 km altitude (but slow) at the time of failure. This was, apparently, the first time that a fifth stage has been attached in this flight configuration, although the fifth stage module has flown on other missions as an add-on stage.

I'm told the Russians have admitted it was their fault. The preliminary report of the Russian Strategic Rocket Force's board of enquiry says that the fourth stage "switched off" due to an "unsanctioned cutoff device" twelve seconds before it should have, thus leading to the fifth stage refusing to fire (in what I guess must have been a safety feature of the flight software).

Techsat and *Unamsat* were the only "real" payloads on this flight, the third payload I'm told was a dummy. It had been reported previously that *Techsat* and *Unamsat* were to have been attached to a *Resurs-class* spacecraft, but that was an earlier flight configuration which was changed some months ago.

The launch was from a (fixed) mobile launcher tube which, apparently, erects hydraulically from horizontal to vertical in about 13 seconds; the launch vehicle is then lifted vertically in some fashion before the main motor ignition.

Geoff Perry gave me some more information about the launch vehicle. The SS-25 (Topol) is a two-stage ICBM. The Start-1 rocket (an earlier launch) was an SS-25 with stages three and four added. The flight configuration which failed (also called START?) had another second-stage booster tucked in between stages two and three.

It is obvious that a replacement flight will be offered by the Russians; the Israelis are already

A hope for a new satellite launch in this month's AMSAT-UK news compiled by Richard Limebear G3RWL

building two more *TECHSAT-1* class spacecraft; more or less copies of the first one. But there is no definite timing of a replacement launch at present.

The Mexicans had a second set of equipment in the lab, and have decided to make the ground-based system into a flying one; they need to obtain solar panels for it. They expect to find a launch later this year.

Oscar 10

A tip for this spacecraft is to try using LHCP instead of RHCP, apparently it makes quite a lot of difference! It's still operational in Mode-B. Despite good signals from the transponder, there are very few stations using it. It's currently available when in view but *please do not* attempt to use it if you hear the beacon or the transponder signals FMing.

UoS Oscar 11

The University of Surrey have stated that it is their intention is to keep the UO-11 S-band transmission on permanently, unless they get dire power problems.

Euromir mission on voice and packet

Next month (August 1995), the German cosmonaut Thomas Reiter will spend 135 days on board Mir on the "EUROMIR" Mission. He is now preparing in Russia for his license exam and is planning to be active on FM voice & Packet during the flight.

Operation will be on 70cm and 2m (the 2m aerial on Mir will soon be replaced with a dual band aerial).

SAFEX will provide equipment for the two bands including 9600 baud packet which will be used on 70cm. The German/Russian SAFEX Project lists the frequencies to be used as: 437.975MHz Packet and 437.925MHz FM voice for the downlinks and 435.775MHz for Packet and 435.725MHz for voice for the uplinks. Thus both offsets will be - 2.2 MHz. The call used on 70cm only will be RR0DL.

Shuttle frequencies

Space Shuttle flight STS-71, tentatively scheduled for June 1995 as this is being written, will have been the first Shuttle-MIR docking mission. Since both SAREX and the MIR amateur radio stations are expected to be operational throughout this flight, and since the two vehicles share the same downlink frequency, 145.550MHz, downlink frequency contention between the MIR radio station and SAREX would be expected. Because of this and lessons learned from using the current complement of SAREX frequencies, the SAREX Working Group have made some frequency changes for the STS-71 mission.

The new frequencies were chosen after much deliberation to minimize contention between SAREX, MIR and terrestrial-based 2m users. In addition, these frequencies are being strongly considered for future SAREX missions.

The following frequencies will be used for two-way voice communications with the Shuttle astronauts;

Downlink: 145.84MHz Worldwide,
Uplinks: 144.45, 144.47MHz Worldwide

NB: there is a strong chance that the STS-70 SAREX mission will fly before STS-71. If so, STS-70 will use the regular (old) SAREX frequency complement.

Do you use satellite modes A and K?

Doug Loughmiller, G0SYX, has volunteered to conduct an on-going column in OSCAR News (the journal of AMSAT-UK) on the topic of Mode A & K satellite operation. The idea behind this is to provide timely information dedicated to this particular aspect of amateur satellite operation and it is hoped that this will both boost activity levels on the mode A & K birds, particularly involving newcomers, and provide an interesting and enjoyable feature for the readers of OSCAR News.

His idea is to collect from other users, world-wide, a wide scope of material including activity reports, user tips, ideas about groundstation equipment as well as information about the various spacecraft and their operating regimes with an aim to keeping users as informed as possible as to the happenings on the birds.

Of course, a full picture of mode A & K satellite operation can not be developed by a single contributor. Therefore, for this venture to be successful he will need input from a broad base of users. Please send him regular reports of your mode A & K activity, helpful hints and any other material you think might be of interest to other operators. He also plans to include pictures of operators in their shacks as a regular feature.

Because OSCAR News is bi-monthly, the deadlines are spaced 60 days apart rather than on a 30 day cycle. So for the timeliest of information, please keep these deadlines in mind when submitting material. They are the 1st day of: Jan, Mar, May, July, Sept & Nov.

The material can be sent via the post, fax, packet, Internet, or via UO-22, KO-23 or KO-25. *Postal Address:* 193 Arethusa Way, Bisley, Woking, Surrey GU24 9BT England. *Fax:* +44 1483 259503, *Packet:* G0SYX @ GB7GFD, *Internet:* ko5i@amsat.org

Colloquium this month!

The tenth AMSAT-UK Colloquium will be held July 27, 28, 29 & 30 at the University of Surrey in Guildford, Surrey. This year's Colloquium will be divided into the

following topic areas: Spacecraft Engineering, Future Space Missions, Operations and Associated Amateur Space Activities. Papers addressing aspects of these topics are planned, in addition this year they are conducting a series of hands-on workshops to run during the event.

The prices have been held to the 1993 levels, and colloquium application forms have been posted to everyone who has requested one. If however you'd like to attend and haven't yet booked, please contact Ron Broadbent at AMSAT-UK without delay (*you can't attend without formally booking - Tech Ed*).

Club involvement with Phase 3D

A plea for P3D contributions was sent to about 400 clubs a month or two ago. Please bend *your* committee's earholes to give generously!

New doppler software

A new version of the *UPDOWN* doppler calculation program is now available from the AMSAT-UK office. The disk includes versions for DOS and Windows.

AMSAT-NA Personality

AMSAT-NA have announced the appointment of Russ Tillman KC4JVB as Editor of the AMSAT Journal replacing John Hansen WA0PTV who is stepping down due

to a heavy work schedule. John will continue to write the "Heard on the Downlink" column which appears regularly in the Journal. John will complete the next Journal, which is hoped will be in the mail sometime in April and Russ' stint will begin with the issue following that.

Keplers

The latest satellite Keplers are available by fax from the Ham Radio Today fax-back line, 01703 263429, request fax document 46 from the satellite menu for this month's. They're also available by post by sending an SAE together with the corner flash from this page to the HRT Editor, stating whether you want *all amateur* satellites (one A4 page) or *all* satellites (10-15 A4 pages). AMSAT-UK Keplers are also put out on packet fortnightly, sent to KEPLER @ GBR.



If you're interested in amateur satellites and would like further information about Amsat-UK, contact: AMSAT-UK, c/o Ron Broadbent MBE, G3AAJ, 94 Herongate Rd., London, E12 5EQ. Big SAE gets membership info. SWL's are welcome. All new joiners get the USAT-P tracking program on a 5 1/4 in disk.

Oscar 13 transponder schedule up to July 31st 1995

Mode-B : MA 0 to MA 70	I Omnis : MA 230 to MA 25
Mode-BS : MA 70 to MA 110	I
Mode-S : MA 110 to MA 112	I< -S beacon only
Mode-S : MA 112 to MA 135	I< -S transponder; B trsp. is OFF
Mode-S : MA 135 to MA 140	I< -S beacon only
Mode-BS : MA 140 to MA 180	I Alon/Alat 180/0
Mode-B : MA 180 to MA 256	I Move to attitude 225/0, Jul 31

Continuous up to date information about AO-13 operations is always available on the beacons, 145.812 MHz and 2400.646 MHz in CW, RTTY and 400 bps PSK.

Club News

Aberdeen ARS meets every Friday in the RC Hall, 70 Cairngorm Crescent, Kincorth, meetings start at 8.00pm, visitors are welcome. Planned talks and events:
Jul 7th Junk sale
Jul 14th Closed for holidays
For further details on the club, contact Martin GM0JCN, Tel. 01569 731177

Aylesbury Vale RS meet on Wednesday evenings in the Village Hall in Hardwick, located off the A413 between Aylesbury and Buckingham. Club diary;
Jul 5th Operating techniques
Jul 19th Discussion evening
For further details and meeting times, contact Ivan Eamus G3KLT, Tel. 01296 437720

Basingstoke ARC meet on the first Monday of each month, 7.30pm, at the Forest Ring Community Centre, Sycamore Way, Winklebury, Basingstoke, Hants. On the last Sunday of each month they usually have a 2m Direction Finding competition. Planned club diary;
Oct 2nd AGM
For further details, Tel. 01256 25517

Blackmore Vale ARS meet on the second and fourth Tuesday each month, 8.00pm, at Shaftesbury School, Dorset. The club run a Novice RAE course which meets every Tuesday evening. A club net is held every Sunday on 145.550MHz at 7.00pm local time. Planned club events/talks;
Jul 11th Satellite working and demo, Geoff G7RMG
Jul 25th Club barbecue
For further information contact Stuart G7JIF, Tel. 01935 814055, or by packet to G7JIF @ G3VXX.GB7SIG.#45.GBR.EU

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 5th 10m activity evening
Jul 12th Gardening with aerials and flowers
Jul 19th Club 'Bullseye' contest
Jul 26th 70cm activity evening
Aug 2nd Magazine evening - donate or exchange
Aug 9th Computer shareware - free exchange
For more information and meeting times, Tel. 01275 834282 24hr. Answerphone.

City of Bristol Group meet on the last Tuesday in the month, 7.00pm for 7.30pm, at New Friends Hall, Purdown, Bell Hill, Stapleton, Bristol BS16 1BG. Club diary of events/talks;
Jul 25th The Internet, by G4FRO
Aug 29th Video
Further details can be obtained from Dave Bailey G4NKT, Tel. 0117 9672124

Bromley and District ARC meet on the third Tuesday of each month, 7.30pm for 8.00pm at the Victory Social Club, Kechill Gardens, Hayes, Kent. Club net; Sundays 11.00am on 145.350MHz FM. Planned events/talks;
Jul 18th Short talks
Aug 15th 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, Burcot, Bromsgrove. Club diary of events/talks;
Jul 11th 2m mobile DF hunt
Jul 25th Talk on test equipment
Aug 8th Technical topics
Aug 22nd DF hunt on foot
Further details from Barry Taylor G0TPG, Tel. 01527 542266

Bury RS meet every Tuesday, 8.00pm, at the Mosses Centre, Cecil Street, Bury, Lanc's. CW classes available. Planned club diary;
Jul 25th Shack night
Further details from Laurence G4KLT, Tel. 0161 762 9308

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 11th PMR/Eprom conversion, G0TGS
Aug 8th Quiz night
For further information contact Derek Carson G4IHO, Tel. 01298 25506

Cornish RAC meet on the first Thursday each month, 7.30pm, at Perranwell Village Hall, Nr. Truro. Planned club events/talks;
Jul 8th Club rally
Aug 3rd Crime prevention
For further details contact Robin G0MYR, Tel. 01209 820118

Denby Dale and District ARS meet at the Pie Hall, Wakefield Road, Denby Dale, W. Yorks, every Wednesday at 8.30pm. The first and third Wednesdays are lecture nights, alternate Wednesdays 'Noggin and Natter' nights. The club run RAE, Morse and NRAE courses, and is an accredited City & Guilds Examination Centre, at Shelley High School, Tel. 01484 424776 for details and application form. Planned club talks/events;
Jul 5th Simple and unusual aerials, G3SDY
Jul 19th 'Free and easy' - Huddersfield holiday
Aug 2nd Summer camp meeting
Aug 6th Woburn Rally coach trip
Aug 11-13th Summer camp
Aug 16th "O.U.I.", by Sue G7TJF
Further details from the secretary, Kevin G1FYS, Tel. 01484 547553

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 17th Secretary's evening, GW0FMQ
Aug 7th Demo of home brew equipment
Aug 21st Sale of surplus equipment
Further details from the Secretary Tony Rees GW0FMQ, Tel. 01248 600963

Glenrothes and District ARC meet 7.30pm on Wednesdays at the Old Nursery Building, Provost Land, Leslie, Fife. In September they are planning a visit to the Secret Bunker in Fife, and in October a club open evening where all Amateurs will be welcome. They are also planning to run RAE and Morse courses at Balwearie High School, starting late September towards May '96 exam (please enquire mid September for details of enrolment). Planned club events/talks;

Aug 9th Presentation on Novice Courses
Sep 17th AGM
For further details contact Ken Home GM3YBQ, Tel. 01592 265789 after 7pm

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;
Jul 4th Visit to Menwith Hill
Aug 15th History of SSB on 2m, Neil G3AAV
Further details can be obtained from Mr. D. Moss GODLM, Beechwood Lodge, Lightcliffe, Halifax HX3 8NU, Tel. 01422 202306

Hastings Electronics and RC meet every third Wednesday of each month for their main meeting, at West Hill Community Centre, Croft Road, Hastings, and every Friday for a social evening, at the Sea Anglers Club, 16 Grand Parade, St. Leonards. The club is a registered City and Guilds examination centre, and also run RAE, Novice and Morse courses. Planned club events/talks;
Jul 9th SMR at Brighton Race Track
Jul 19th Summer auction of equipment
Aug 12/13th Hastings Town & Country Fair - visit the HERC interactive exhibition
Aug 16th Bring your own thingy competition
For further details contact Reg Kemp G3YYF, Tel. 01424 830454

Hoddesdon Radio Club meet alternate Thursdays at the Conservative Club, Rye Road, Hoddesdon from 8.00pm. Visitors very welcome. The club run Morse training classes. Club diary of talks/events;
Jul 6th Night on the air
Jul 20th Visit to WGC Police Traffic HQ
For more information contact Dave G1CAY, Tel. 01992 460841

Hordean and District ARC now 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'. Club nets are Sundays 1955kHz 0900hrs CW, 0930hrs SSB, and Wednesdays 145.350MHz at 1930hrs. Planned Club events/talks;
Jul 25th Low power radios for telemetry
Aug 22nd HF propagation, by G2BDV
Further details can be obtained from Stuart Swain, Tel. 01705 472846

Ipswich Radio Club meet at 7.30pm every Wednesday at the Rose and Crown, and hold regular CW practice evenings. Planned club events/talks;
Jul 5th Contest Logging Software practice
Jul 12th Barbecue at Hallowtree
Jul 17-21st IRC Activity week at Otley
Jul 22nd 2m contest at Otley
For further details, contact IRC Secretary Andy G7SMN,, Tel. 01473 212891

Isle of Man ARS meet on Mondays, 8.30pm, at The Royal Naval Association, Regent Street, Douglas, the 1st Monday of the month being supplemented by 30-60 mins of general interest to members and society news, and on



Thursdays they have an informal get together, 9.00pm, in The Manx Legion, Douglas Street, Peel. Planned club events/talks;

Sep 11th World Amateur Radio Day

For further information contact Club Secretary Chris Wood GD6TWF, 2 Lyndale Ave, Peel, IM5 1JY, Tel. 842786

Itchen Valley ARC meet on the second and fourth Fridays each month, at the Scout Hut, Brickfield Lane, Chandler's Ford, Hants (just up the road from SMC), 7.30pm for 8.00pm. Planned club events/talks;
Jul 14th Introduction to Packet - the basics, G0UKB
Jul 28th Construction - let's get going
Further details from Sheila GOVNI, Tel. 01703 813827

Keighley ARS meet at the Cricket Club, Ingrow, near Keighley every Thursday at 8.00pm. Many club meetings are 'Natter nights' and 'nights on the air', other events/talks include;

Jul 27th Fox hunt

Aug 17th Visit by Bob Horrell the model man

Aug 31st Treasure hunt

Further details from Kathy Conlon G1IGH on 01274 496222

Leicester RS meet every Monday, 7.30pm, at The Chantry, Gilroes Cottage, Groby Road, Leicester. The HF and VHF shacks are available at each meeting, and have regular HF/VHF nights on the air combined with a general natter evenings. The club also run RAE, NRAE and Morse courses. Planned club events/talks;

Jul 17th Shareware swap evening

Jul 31st IBM PCs, how do they work?

Aug 7th Junk sale

Aug 21st GB3GV - TV repeater

For further details contact Stan Hay G3HYH, Tel. 0116 239 4367

Lincoln Short Wave Club meets every Wednesday night at the City Engineer's Club, Waterside South, Lincoln at 8.00pm, all are welcome. Their forthcoming diary of activities includes;

Oct 25th Junk sale

Further details from Pam G4STO, Tel. 01427 788356.

Liverpool and District ARS meet at 8.00pm every Tuesday evening at The Churchill Club, Church Rd., Wavertree, Liverpool. They run RAE, Novice RAE and Morse courses. Planned club events/talks;

Jul 4th Aerial planning

Jul 11th Club on the air

Jul 18th Quiz

Jul 25th Surplus sale

For further details contact Ian Mant G4WWX, Tel. 0151 722 1178.

Maidstone YMCA ARS Meet at the YMCA Sports Centre, Melrose Close, Maidstone, Kent ME15 6BD. They run a Novice course on a Wednesday, and RAE and Morse courses every Friday. GB2CW is on Sundays, 8.30pm, 144.25MHz USB/CW, club net on same frequency at 9.05pm. Other nets of interest are 14.33MHz, 8.30am (Wed, Sat, Sun) USB/CW. 1.984MHz (+/- 20Hz), all modes net, 9.30am daily. Planned club events/talks;

Jul 16th Barbecue and QRP Field day

Aug 15/29th Dummy Morse tests, all welcome

For further details call Brenda on 01622 850277



Mansfield ARC meet on the second Monday every month, 7.30pm, at The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. Visitors welcome. Planned club diary of events/talks;

Jul 10th Parachute Mobile, by Roy G4CMT

Aug 14th Beer and chat night, hopefully with barbecue

For further details contact Howard G1JGY, Tel/Fax.

01623 423697, or David GORDP, Tel. 01623 631931

Medway ARTS meet 7.30pm on Fridays at Tunbury Hall, Catkin Close, Tunbury Avenue, Walderslade, Chatham. Morse practice, construction and Novice help available. Club diary;

Jul 14th Solar heating - how to get free hot water!

Further details from Gloria G3VUN, 40 Linwood Ave, Strood, Rochester, Kent ME2 3TR, Tel. 01634 710023

Norfolk ARC meet every Wednesday at The Norman Centre, Bignold Road, off Drayton Road, Norwich, 7.30 for 8.00pm start. Informal meetings are usually held on alternate Wednesdays, where it is a night on the air, construction QRP and Morse practice evening. Club diary of events/talks;

Jul 12th DF hunt

Jul 26th Video of old Norwich, G3NJQ

Aug 6th Club trip to Woburn Rally

Aug 9th Science for all, Arnold G3PTB

Aug 23rd Packet for beginners, John G4VEL

Further details can be obtained from Mike G4EOL, Tel. 01603 789792.

South Normanton, Alfreton and District ARC meet at the Community Centre, New Street, South Normanton, Derbyshire. Planned club diary;

Jul 10th Talk on Barundi, by Lorri Partington

Jul 17th Junk sale

Jul 24th Railways and the mail, by Harold Wilson

Jul 31st Natter night

Aug 7th Social evening at 'The Bear' Alderwasley

Aug 14th Night on the air

Aug 21st Quiz/competition night

For further details contact Helen 2E1AWJ, Tel. 01332 881549

Reading and District ARC meet on the second and fourth Thursdays, 8.00pm, at The Woodley Pavilion, Woodford Park, Haddon Drive, Woodley, Reading, Berks. They run RAE and NRAE courses and are a registered C&G examination centre. They have a club library with a wide range of books on all aspects of Amateur Radio and related disciplines, a cross section of books are available at club meetings. Diary of events/talks;

Sep 2/3rd HF SSB NFD

Oct 12th Junk sale

Further details can be obtained from

secretary Tony Canning G0OPB, Tel. 01734 698274 evenings.



Salop Amateur Radio Society meet at the Oak Hotel, The Mount, Shrewsbury every Thursday. They run regular RAE tuition and workshop evenings. Planned club diary of events/talks;

Jul 13th Packet Radio with SPUG

Jul 20th 4th fox hunt

Aug 3rd Visit to Shropshire Star

Aug 17th Social evening

For further details contact Ian G7SBD, 56 Roselyn, Harlescott, Shrewsbury SY1 4LP or via packet @ GB7PMB

Shefford and District ARS meet every Thursday, 7.45pm, at The Church Hall, Amphil Road, Shefford, Beds. They have regular activity nights. All newcomers are welcome. Planned club events/talks;

Jul 6th Members activity night

Jul 13th Mobile DF hunt

Jul 20th Barbecue

Further details contact Paul Bradfield, Tel. 01462 700618

Sheffield ARC meet Mondays, 7.30pm, at their new venue; Club 197, Brook Hill, Sheffield (this is the lecturer's social club opposite the main buildings of Sheffield University), and occasional Tuesdays for social events (times and venues set as required). The club runs both RAE and Novice courses on Mondays starting at 7.30pm, plus Morse tuition when required. Planned club diary;

Jul 3rd Talk on DF hunting, by Don G4KXW

Jul 10th Talk by S.Yorks Police or RSGB

Jul 17th Visit to Radio Sheffield

Jul 24th Club quiz

Further details via P. O. Box 365, Sheffield S1 1BY or Tel. 0114 2446282, or via packet to G0JJR (or G0TYO) @ GB7CWS

West Somerset ARC meet on the first Tuesday each month, at the West Somerset School 6th Form Block, Minehead, Somerset. Planned club events/talks;

Jul 4th Video evening

For further details contact Alan. C. Elliott, Tel. 01643 707207

Southgate ARC meet on the second and last 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;

Jul 13th Hints and tips from industry for homebrew, G7HGS

Aug 10th WHCC Cricket week and barbecue. Bring your own food, the club supplies the heat

Aug 24th DF equipment check out

For further details contact M. E. Viney GOANN, 20 Auckland Road, Potters Bar EN6 3ES, Tel. 01707 850146.

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. Club events/talks include;

Jul 10th Summer social

Jul 24th Construction competition

Further details from

Secretary J. 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;

Jul 3rd Acoustic audio, by G3OYU

Aug 7th Barbecue at the QTH of G3ZPB

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. Club net; Sundays

8.00am 3.740MHz (+/- QRM), 11.00am 145.350MHz FM, 8.00pm 70cm Novice net on GB3HY, Mon & Fri 9.00pm 28.400MHz SSB. Planned club events/talks;
 Jul 9th Brighton Rally
 Jul 21st Slow Scan operation from G3ZMS on 80m
 Aug 4th Club night on the air
 Further details from Chris G0GMC, Tel. 01273 842937

Sutton and Cheam RS meet on the first Thursday (natter night) and third Thursday (formal meeting) each month, 7.30pm for 8.00pm at the Sutton United Football Club, The Borough Sports Ground, Gander Green Lane, Sutton, Surrey. Club 'natter freq' 70.3875MHz, Club nets; 20.30 Mon starting on 145.500MHz then QSY, Tue at 10.30 on 3.760MHz. Club talks/events;
 Jul 15th Barbecue at the QTH of G3OLX, bring food and drink

Jul 20th Moonbounce, by Peter G3LTF
 Aug 17th WAB Expedition in the Emerald Isle, G3DCZ & G4CQR
 For further details, Tel. 0181 644 9945



Three Counties ARC meet at the Railway Hotel, Liphook, Hampshire on alternate Wednesdays. Planned club events/talks;

Jul 5th Fibre Optics
 Jul 8/9th Club trip to France
 Jul 19th Global Positioning System
 Aug 2nd Construction competition
 Aug 16th Video night
 Aug 30th On air night
 For further details contact Tom Milne G4CMG, Tel. 01428 606298



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 21st Japanese Intercept (secret Morse code), G3CSG
 Aug 18th Barbecue at club HQ
 Aug 27th TARS mobile rally
 Further details can be obtained from Walt G3HTX, Tel. 0803 526762, or 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 1st Wednesday of the month, and a natter night every third Wednesday. They run a Morse class on Wednesday evenings at the club HQ. Planned club events/talks;

Aug 2nd Visit to Wiltshire Fire Brigade HQ
 Sep 6th The whys and wherefores of the cubical quad aerial, by Dave G0DAB
 For further information contact Ian G0GRI, Tel. 01225 864698 evenings and weekends.

Wakefield and District RS meet every Tuesday, 8.00pm, in the first floor rooms, Ossett Community Centre, Prospect Road, Ossett, W. Yorks. We're told the club has a well equipped station and run both Morse and Novice classes. The club net is on 2m FM on Mondays. Club diary;

Jul 4th Video show (Northern Cross Rally '95)
 Jul 11th Car treasure hunt
 Jul 18th Pressure vessels, John G7JTH
 Jul 25th On the air
 Aug 1st QRP in France F/G3WWF/P & F/G4JMT/P

Aug 8th 2m fox hunt
 For further details contact Bob Firth G3WWF, 6 Eastfield Drive, Woodlesford, Leeds LS26 8SQ, Tel. 0113 2825519, or via packet @ GB7WRG

Welwyn and Hatfield ARC meet on the First and Third Mondays each month, 8.00pm, at The Hyde Community Association Hall, Holly Bush Lane, Welwyn Garden City, Herts. Visitors most welcome. Planned club events/talks;

Jul 3rd Mystery Tour
 Jul 17th RSGB video/club constructors competition
 Aug 7th Natter night
 Aug 21st A fun night - indoors or out according to the weather

For further details Tel. 01920 462241 (evenings) or 0181 982 7298 (day)



Wimbledon and District ARS meet on the second and last Friday each month, at St Andrew's Church Hall, Herbert Road, Wimbledon SW19. Planned club events/talks;

Jul 14th Construction display, general activity
 Aug 6th Club summer camp
 Aug 11th On air, general activity
 For further details contact Michael McCarthy G0AWQ, 32 Hillside, Banstead, Surrey SM7 1HF, Tel. 01737 351313

Winchester ARC meet on the third Friday of the month, 7.30pm, at the British Red Cross Centre, Durngate House, Winchester (adjacent to North Walls Police Station). Club diary;

Jul 21st Aerials, by Dave G0AYD
 Aug 18th The tea business, David G0OZD
 Sep 15th Wildcard!, by Mike G6AIQ
 For further details contact Peter Simpkins G3MCL, Tel. 01962 865814



Wirral ARS meet 8.00pm, at The Club Room, Ivy Farm, Arrowe Park Rd., Wirral L49 5LW, on the first and third Wednesdays each month, meetings besides those below are usually 'natter nights'. The club tell us they don't have an RAE course running at the moment, but plan to start one in early August on a Thursday evening. Planned club events/talks;

Jul 5th Manned DF Contest
 Jul 19th Gordon Adams part 2 of noise
 Aug 2nd R.A.R.E.

For further details contact Alec Seed G3FOO, 31 Withert Ave, Bebington, Wirral L63 5NE, Tel. 0151 644 6094

Worthing and District ARC meet every Wednesday, 7.30pm for 8.00pm, at the Parish Hall, South Street, Lacing. Planned events/talks;

Jul 5th Discussion evening
 Jul 19th July Christmas in Australia, G7SUG
 Aug 2nd Packet radio, G8DHE
 Aug 9th Discussion evening
 Aug 16th DF hunt
 Aug 23rd Barbecue at G4XKF
 Aug 30th Hints and tips, G8MSQ

Further details from Roy Bannister G4GPX, Tel. 01903 753893



Yeovil ARC meet every Thursday at 7.30pm, at the Red Cross Centre, 72 Grove Avenue, Yeovil, Somerset. The club run a Novice and RAE course, all are welcome. Club nets, Sundays 10.30 on 3.665MHz (80m SSB), Tuesdays 20.30 on 145.350MHz (2m FM) and Fridays 20.00 on 3.550MHz (CW). Club events/talks;

Jul 6th QRP Expedition to Herm Island, by G3ICO
 Jul 13th Alternative hobbies, G3KSK
 Jul 20th 2m rigs, by G7SDD
 Jul 27th Club station on the air
 Jul 30th Barbeque and fun day at the QTH of G3PCJ, all radio clubs within easy reach invited

Aug 3rd Club project, the Taunton HF multiband rig, by designer G3PCJ

Further details can be obtained from Cedric White G4JBL, Tel. 01258 473845

National and International

British Amateur Radio Teledata Group (BARTG) have a quarterly magazine, and hold a rally plus two contests each year. For details of joining the BARTG, their membership officer is Peter Adams, G6LZB, Tel. 01923 220774, for other information the group's Secretary is Ian Brothwell G4EAN, 56 Arnot Hill Road, Arnold, Nottingham NG5 6LQ, Tel. 0115 926 2360, or via packet G4EAN @ GB7BAD.



G-QRP Club publish a quarterly journal 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. They would like us to let readers know that they plan to have a stand at the following rallies during 1995; Norbreack (Blackpool), All Micro Show (Staffs), Plymouth, Elvaston Castle, Longleat, Cornish ARC rally, Staffordshire Hamfest and TARRG in Telford. ISWL members will be on hand to answer any questions, and ISWL guides and publications will also be on sale. For more details send an A4 sized SAE to; ISWL HQ, 10 Clyde Crescent, Wharton, Winsford, Cheshire. CW7 3LA



The Irish Radio Transmitters Society send out regular newsletters giving details of local activities, and publish the yearly IRTS callbook, they also have a video library. The contact man is Dave Moore EI4BZ, 12 Castle Ave, Carrigtwohill, Co Cork. Tel. (Eire) 021 883555.



Radio Amateurs' Emergency Network (RAYNET) can be contacted at Hunters Moon, Newton le Willows, Bedale, N. Yorks DL8 1SX. 24hr national contact line; 0141 621 2121. RAYNET supplies and order forms available from Peter Enfield, 26 Edendale Ave, Blyth, Northumberland NE24 5QE, Tel. 01670 540359. The RAYNET Training Team can be contacted at P. O. Box 2, Chinnor, Oxon OX9 4JY, they produce a quarterly newsletter for people interested in the National Training Scheme.



Radiocommunications Agency are the radio licensing authority for the UK. 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 general aspects of



licensing. They are based at Waterloo Bridge House, Waterloo Road, London SE1 8UA, The general enquiries point and switchboard service Tel. 0171 215 2150 is manned between 8.30am and 5.30pm Monday to Friday, with an automatic 'voicebank' and 'faxback' service outside these hours.



Radio Society of Great Britain are based at Lambda House, Cranbourne Road, Potters Bar, Herts. EN6 3JE, Tel. 01707 659015. They have a unique blend of full-time staff at Potters Bar coupled with many volunteer officials around the country, and can help members with many aspects of amateur radio.

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 9258333.

To include your club, or rally, in this feature, make sure you send us your events details early. 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) so if they're not listed here they're obviously not very dynamic! Is your club listed - if not then either give your Secretary a boot or get some activities going! If your club also has a regular 'net', let us know, we'll let your prospective members know!

Dates to be included in the issue published on the 1st September must reach us by the 17th July (unfortunately we cannot guarantee to include details received after this date, a lot of clubs are being missed out because their details arrive too late), addressed to; **The Editor, Ham Radio Today (Club News), Nexus, Nexus House, Boundary Way, Hemel Hempstead, Herts HP2 7ST**, or you can fax your club's details direct to the Editor's desk on 01703 263429.

Rallies

If you're travelling a long distance to attend rallies, we recommend you contact the organisers of the events first, before travelling, to check if there has been any changes since this magazine went to press.

July 8th

Cornish Radio Rally and Computer Fair, At Penair School, Truro. Doors open 10.30am, large hall, trade stands, bring and buy, official Morse tests, free parking. Admission £1. For further details and booking information contact Ken G0FIC, Tel. 01209 821073

July 9th

Sussex Amateur Radio and Computer Fair

This will be held at Brighton Racecourse, Sussex, 10.30am to 4.00pm. The organisers say the event brings together the best in amateur radio and computer technology. Admission £1.50, free car park, giant bring and buy, bar, talk-in on S22. Information and traders booking details from Ron Bray G8VEH, tel. 01903 763978 or 01273 417756 office hours.

July 16th

12th McMichael Rally and Car Boot Sale at the Haymill Youth and Community Centre, Burnham lane, Slough; near Burnham Railway station. Talk-in S22, doors open 10.30am, admission £1.50. car boot sale (no advanced bookings) is £7.00 per pitch on the day. Further details from Dave G3SET, Tel. 01628 486554

July 23rd

The Outdoor Boat and Leisure Show, Powderham Castle, Exeter, Devon, expect to have a large amateur radio section of new and used equipment for sale. A special callsign has been applied for. For further details, Tel. 01626 890243

July 30th

Scarborough Radio Electronics and Computer Rally, The Spa, South Foreshore, Scarborough, doors open 11am. Many traders, bring and buy, refreshments and bar. For further details contact Ross Neilson G4ZNZ, Tel. 01377 257074

August 6th

RSGB Woburn Rally Woburn Abbey, Bedfordshire. For further details contact Norman Miller, G3MVV, Tel. 01277 225563

August 13th

Flight Refuelling ARS Hamfest '95, Flight Refuelling Sports Ground, Merley, Wimborne, Dorset. 10am to 5pm. There will be taders, bring & buy, craft stalls, car boot sale and field events. Overnight camping facilities available for Saturday 12th. Talk-in will be on S22, with new traffic routing. Please follow signs. For further details contact Richard Hogan G4VCQ, Tel. 01202 691021 (**HRT Voicebank should have latest updates during week prior to rally)

August 18th

Cockenzie & Port Seton ARC Junk Night, bring along your own junk and sell it yourself. Tables will be provided on a first come first served basis (no charge for table). Time 6pm to 9pm. Entry £1 for all persons, refreshments available, there will also be a raffle. All money raised is being donated to the British Heart Foundation. For further details contact Bob GM4UJZ, Tel. 01875 811723 or via GB7EDN

August 19th/20th

Stafford Computer and radio show, The County Showground, Weston Road, Stafford. Open 10am to 5pm both days, large trade presence, special interest groups, Morse tests, bring and buy,

lectures each day, free parking, bars and catering. Free stands available to radio/computer clubs and societies. Further details from RadioSport Ltd., Tel. 01923 893929, Fax. 01923 678770

August 20th

Kings Lynn ARC Great Eastern Rally, The Cattle Market, Hardwick Narrows, Nr. Kings Lynn. Doors open 10am (9.45am for disabled visitors), outdoor car boot area, bring and buy, Talk-in on S22, spacious indoor area with major national exhibitors, easy access for disabled, refreshments, free parking. Bookings, information etc. from Ian Cooper G0BMS, Tel. 01553 765614 or @ GB7OPC Packet BBS

August 27th

East Coast Amateur Radio and Computer Rally, Clacton Leisure Centre, Vista Road, Clacton-on-Sea, Essex. Major suppliers and manufacturers of radio equipment, computers, computer software, accessories, aerials and second hand gear are said to be attending. There is also the leisure centre facilities available, plus other nearby attractions. For further information contact Sharward Promotions, Upland Centre, 2 Upland Road, Ipswich IP4 5BT, Tel. 01473 272002, Fax. 01473 272008

Torbay ARS Annual Mobile Rally, Clenon Valley Leisure Centre, Paignton, Devon. Doors open at 10.00am. Trade stands, bring and buy, special interest displays, use of leisure facilities, restaurant and bar. For the family - beach, boating lake, steam railway and flume water park only 4 mins walk. For further details contact John G3YCH, Tel. 01803 842178

August 28th

Huntingdonshire Amateur Radio Society 7th Annual Bank Holiday Monday Rally at St. peter's school, St. peter's road, Huntingdon, Cambridgeshire. doors open 10.00am, admission £1.00, refreshments available. the event features two halls plus a car boot sale on hardstanding outside. Talk-in on S22. Further details from david leech G7DIU, tel. 01480 431333.

September 2nd

Wight Wireless Rally, The National Wireless Museum, Arreton Manor, Nr. Newport, Isle of Wight. 11.00am to 5.00pm. Doors open 9am. No charge for entry, parking, bring and buy or trade stands. Collection for RAIBC. Indoors if wet. Cafe for cuppa, large garden for picnicing. Free entry to wireless museum and extensive grounds. Further details from Douglas G3KPO, Tel. 01983 567665

September 3rd

Bristol Radio Rally, at the Brunel centre, Temple Meads Station, Bristol, 10.30am to 4.00pm, disabled 10.15am, admission £1.00, accompanied children under 12 free. Over 100 tables (table hire £15.00 each), large bring and buy, 'under £25 bring-and-buy', refreshments, ample under-cover parking, talk-in on S22. Details from Muriel baker G4YZR, Tel. 01275 834282.

Free Readers Ads

HELPLINES

Help, has anyone got a 44 toothed replacement cog to convert a Creed 444 to 45.45 baud? Contact Roger G7CSE (Southampton), Tel. 01703 476972 please with any information.

Manual, circuit, mods, for Mizuho DC-7X 40m CW transceiver (drifting, any suggestions?). Any info gratefully received, all costs reimbursed. Paul Layton E15AL, 189 Old Youghal Rd, Cork, Ireland.

Operators manual for Yaesu FT-23R handheld, will pay for manual (or photocopy), postage etc., many thanks. K. A. Green, 42 Dartmouth St., Burslem, Stoke on Trent, Staffs ST6 1HB

Info required for conversion of Bumdept hand portables to 70cm, good money paid in return, thanks for any help. Also info on conversion of Pye M294 series PMR rigs. D. Swain (Manchester), Tel. 01706 711428

Photocopy required, band pass filters, using Toko KANK3333-4-5 series, was in Radio and Electronics World, date unknown, thanks. Bill (Glasgow), Tel. 0141 649 4345

Pensioner requires user's manual for Bondwell PRO-8T portable computer, also MS DOS 4 on 720kB 3.5in disk. P. Dixon (Ripon), Tel. 01765 605699

FOR SALE

Kenwood R2000, with VHF converter fitted, like new, little used, with AM, FM, USB, LSB, CW, memories, clocks, AF/Gain, RF/Att., tone, AGC, NB, scan, slow/ fast tune, timer. Also as new Howes ATU. £400 cash the lot. F. Steele (Warwick), Tel. 01295 670749

AOR AR-2002 communications scanning receiver, very good condition, £225. Tel. 01736 757721 (Cornwall)

PC 486 DX33, 4 meg RAM, 540 meg H/D, 1 meg V/card, VGA screen, CD ROM, 5.25in, and 3.5in drives, keyboard, mouse, DOS 6.2, Windows 3.1, JV FAX 7.0, Hamcomm 3.0, XTGOLD 3.0, Minitower with LED, interface for JV FAX/Hamcomm, £780 ono. Colin (Berwick upon Tweed), Tel. 01289 307870

Yaesu FT-102 and SP-102, VGC, £475. Kenwood AT-180 ATU, £75. ERA MkII Microreader plus Kenwood PS-20 power supply and Sherwood dumb terminal unit, £150. Mr. Green (Beds), Tel. 01767 315579

Multimode HF/VHF TNC MFJ-1278, packet, RTTY, CW, etc., with manual and Qume terminal, you don't need a PC,

£150. Two metre valve linear, superbly made, 10W in 60W out, plug in and go, £60. Both ono. Joe GONNZ

(Scarborough), Tel. 01723 862958
Fairmate HP-2000 scanner, 1000 channels, 0.5 to 3000MHz no gaps, two aerials plus extra telescopic aerial, carrying case, manual, used a few times indoors only, boxed, as new, cost £283.95, accept £200. A. Ward (Herts), Tel. 01707 876920

Yaesu FT-790R II 70cm multimode transportable transceiver, mint condition, only used in shack, £375 ono. Reason for sale - need to raise cash for new PC. A. Haywood (Surrey), Tel. 0181 401 0015 between 6.00pm and 8.00pm, or leave message on answerphone.

Ex-PMR gear: BC 342, BC 348L unmodified, 1155 RX modified, Stomo 70cm base transceiver CQF664, Stomo CQM5114, Europa MF5FM, Reporter MF6AM, Pye W30AM, Olympic SM1M2B, Pye MX294, offers. Also Solartron dual beam oscilloscope, £35. Collect or p/p extra. G3YJJ (Southampton), Tel. 01703 894200

PRO-39 200 channel handheld scanner, complete with nicads, charger and Dee Comm table top aerial, all boxed and in mint condition, £185 ono. A. Marston (Leicester), Tel. 0116 2352717

Yaesu CTCSS unit for model FT-23, FT-411, £35. Yaesu MH-192B lapel mic/ear, £30. J. A. Ramirez EB2DDK, Tel. 01252 792910

Shack clearance: Kenwood MC85 mic, £60. Microset 2m linear, £60. Microset 70cm linear, £60. Tokyo 6m linear, £60. Morse Supa Tuta, £20. Famell 0-30 VPSU, £60. Oscilloscope + HP probe, £60. All ono. Various bits and bobs, aerials etc. Pete (Tamworth), Tel. 01827 892272

Tandy PRO-2032 scanner, boxed as new, £125. D. Francis (Luton), Tel. 01582 27435

Racal RA17, good order. Matching MA79G transmitter. RA218 SSB converter. RA17L, needs alignment. Auto changeover unit. Some manuals, £200. Wanted - Drake T4C, TR4C and station accessories. Jeff (Beds), Tel. 01525 371152 evenings or weekends.

DSP - 59+ audio noise reduction filter, new, boxed, with instruction book. Plus upgraded EPROM chip and 12V/100mA power supply. Cost £349, sell for £275. Can send COD. Mr. Rigby (Morecambe), Tel. 01524 833506 answerphone.

Morse tutor tapes, 10 to 14WPM, five for £14 inc. p/p. SEM power meter, £14 inc. P/P. J. A. Butterworth, 9 McKenzie Rd., Buckie AB56 1DH

Eddystone 640, good condition, 31MHz to 1.7MHz, £50. Rob (Southampton), Tel. 01703 552247

Icom 229E 144MHz modern compact mobile FM transceiver, 4 power settings, 20 memories, with option for DTMF etc., with mobile bracket (unused), mic and instructions, as new, £250 ono. Wanted - Cushcraft R5 vertical, preferably boxed if not local, GWO. Chris (Cheshire), Tel. 01625 531154

Yaesu FT-102 HF transceiver, good £300. Yaesu YO-101 monitor scope, £100. Kenwood AT-230 aerial tuner, £100. D. Hackett G0GBV (Lincs), Tel. 01733 211043 evenings

KAM all-mode TNC V6.1 firmware, £235 ono. Robot 400 SSTV-HF, VGC, £120 ono. Zycomm 2512L, manual, ideal 4m conversion, £25 ono. Buyer collects or part pays postage. J. Bobbett G0MSL, 20 Fairfield Gardens, Glastonbury, Somerset BA6 9NH

Icom IC-1201A FM 23cm transceiver, brand new, never used, £500. Mr. Earl (Hants), Tel. 01420 543278

AOR AR-1500 wide range monitor, little used, complete with all original accessories, manual and box, only £190. Tony Sweetsur (Stoke on Trent), Tel. 01782 838459

HF station: KW Vespa MkII VGC, KW Viscount, both transmitters complete, PSU and manuals. Two B40 receivers model A, model C, both excellent original condition. Racal RA17L with manual, VGC. All ex-silent key. Reasonable offers. Mr. Collins (Staffs), Tel. 01538 385735

JRC JST-135DX HF transceiver, 150W PEP, filters, H/mic, JRC NBD-520 HD PSU, JRC NVA-88 speaker, Daiwa CNA2002 auto ATU, SEM auto HF preamp. All VGC, boxed with manuals, £1050 ono. N. Brown (Gt. Yarmouth), Tel. 01493 853089

Kenwood TS-950S HF transceiver with narrow SSB filter, complete with MC60 mic, £1700. Also Diamond DP-CP5 vertical aerial with trap radials, £100. John G0OID (Horsham), Tel. 01403 253349

Kenwood TM-732 dual band 2m/70cm mobile with detachable head, excellent condition, £550 ono. Ken (Kettering), Tel. 01536 742263

MFJ 1040B deluxe RF preselector II, 1 to 50MHz, 20dB att., as new, £60. Earl (Hants), Tel. 01420 543278

Hung Chang oscilloscope, 20MHz, £200. Avometer model 8 Mk5, £50. Oskerblick SWR/PWR meter, 430MHz, £30. Leader SWR/PWR HF meter, £25. SST HF aerial tuner, £15. Chris (Berks), Tel. 01628 783832 after 6.00pm.

Trio TS-430S, variable output on FM SSB, in perfect condition, £500 ono, buyer must collect. Wanted - Diawa SWR/PWR meter CNW419, or any one

suitable for 430S or AT250. J. Tarleton (Derby), Tel. 01283 221870

Realistic PRO-2006 400 channel scanner, 25 to 1300MHz, FM/AM, boxed as new, £160. D. Colby (Essex), Tel. 01708 733147 after 8.00pm.

Datong Morse keyboard, VGC, £60 ono. Star Masterkey keyer MkII, VGC, £45. Contact Ray J. Howes (Weymouth), Tel. 01305 777494

Yaesu FT-101ZD, WARC, FM/AM, FC-902 ATU and PWR/SWR unit, recently professionally serviced, excellent condition, 120W output, service manuals, £450. Lee G0MTN (Solihull), Tel. 0121 733 8098

Three output valves 6KD6s, used but good condition, offers, or would exchange anything useful amateur radio WHY? Mr. Aldridge (Cornwall), Tel. 01209 832154

Microwave Modules 144MHz 100W amplifier, £80. Palomar receiver noise bridge, £40. Kenwood grid dip meter, £40. Mirage MP1 2kW SWR bridge, £50. Peter G3ZSS (Cobham, Surrey), Tel. 01932 863552

Yaesu FT-747GX 100W all band HF transceiver, all modes including FM, brand new and boxed, 5 years warranty if required, £500. Mr. Last (Kings Lynn), Tel. 01760 337463

Icom IC-575H 10/6m, 100W RX 25-60MHz, new, boxed, £875, px TS-60. IC-W2 2m/70cm handheld, ext. receive, boxed, £265. TS-430S HF GC receive, new boxed, £500. IC-2400 2m/70cm mobile, £350. Hallicrafters SR-400 HF PSU, manual, VGC, £250. G4AFY (Kidderminster), Tel. 01562 747480

Collins 390A receiver, world best valve receiver, first class condition, built in producer, Kenwood SP-230 with filters, full workshop manual, excellent performance, £450. Icom IC-R70 receiver, FM board, 2.3kHz SSB, like new, boxed, £450. R. Rai (W. London), Tel. 0181 813 9193

RA17L, MA79H, MA350B, MA152C, RA98, RA63, RA87, RA70, PU78, TFS50, TSW10, Racal 6ft cabinet, 3ft cabinet, RA17L cabinet, plus other oddments all with manuals, suit enthusiast, or exchange for table top rig. Mr. T. Heeley G3SWU, 34 Worlaby Road, Scartho, Grimsby, S. Humberside DN33 3JT

Yupiter MVT-7100 scanner receiver, FWO with stand and case, 530kHz to 1650MHz, 12 steps, £300 no offers, no exchange. Will deliver if not too far. J. Stephens (Basingstoke, Hants), Tel. 01256 53896

Trio TS-520S, 160 to 10m, full 100W output, nice condition, £225. IC-290D, 144MHz all mode transceiver, complete

with mobile brackets and PSU for base station use, £200. Reg G3YIG (Spalding, Lincs), Tel. 01406 540374

Kenwood R820 communications receiver, with photocopy manual, Kenwood SP-930 loudspeaker and Kenwood HS-5 headset, all for £400 ono. Mrs. Baker (London), Tel. 0181 534 9220 after 6pm.

Lowe HF-225, D-225, W-225, B-225, PL-225, RRP £550, bargain at £300. Other items. Mr. Haynes (Beccles, Suffolk), Tel. 01502 711880

Atari ST Morse transceiver with D/A I/O for digital filters. Control panel with spectrum analyser, with instructions to convert your modem to a digital filter, nice. Also RTTY transceiver. £25 each. Also 4 million part graphic stock control program, £75. V. McClure, 43 Roman Way, Seaton, Devon

Alinco DR-430 70cm mobile, 5/30 Watts, with mic and boxed, £250 plus carriage. GW3WSU (Barry, S. Glam), Tel. 01446 738756

Trio TS-940AT with built-in auto ATU, general coverage transceiver, plus matching SP-930 speaker, mint condition with manuals and new hand held mic, bargain £900 ono. T. Thorpe (Colchester), Tel. 01206 870232

Grundig YB500, as new, £120. Icom IC-R7100 receiver, mint, £700 plus postage or collect, cheques to clear or cash. P. Hirons (London), Tel. 0181 310 7162 answerphone.

Optoelectronics frequency finder, model 2810, 10Hz to 3GHz, with nicads, charger, accessories, £120 ono. Icom IC-290E 2m multimode mobile, 10W, with scanning mic, all accessories, excellent condition, £225 ono. BNOS 2m 100W linear amp preamp, £100 or swap dual band handheld, DJ-580 etc. M. Hoey (Blackpool), Tel. 01253 292638

Yaesu FT-990 AC, fitted filters, original box and manual, mint, £1550 ono.

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486 DX-33 PC (Morse chipset), 8Mb RAM, 256kB cache, 14in VGA monitor, 1Mb VRAM, 125Mb hard drive, 3.5in floppy, mouse, quality keyboard, Galaxy Pro-16 sound card (CD-ROM outlet), installed MS-DOS 6.2, Windows 3.1, XTree, Doom etc, £625 ono. Dave G4NWP (Southampton) Tel. 01703 349462, Email dhawnt@tcp.co.uk
TS-520S, 160 to 10m, VGC, £280. Two MX294s 2m converted with speakers and mics, £180. Trio TK-701S 70cm synthesised converted, £80. Datong FL3 filter, £70. AOR AR-3000 with Acepac 3, £500. Dymar 2000 100 ch. 2m, £70. Tomasz Brejnak, 127/3 Lauriston Place, Edinburgh EH3 9JN

FT-790R multimode transceiver, GWC, 430-440MHz, £200 ono. Write to: Allan Prandoczky, 4 Ouselaw, Kibblesworth, Gateshead, Tyne and Wear NE11 0TL

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Standard C58 2m all mode portable transceiver (similar to FT-290R), as new, boxed with charger and carrying case, £195. 10MHz dual beam oscilloscope, £80. Consider swaps for scanner WHY? Rob (Cardiff), Tel. 01222 372495

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Bound edition (1967-68) Radio Constructors, offers? Plus some loose copies e.g. late 60's to early 70's at 20p each, about 20 in all. Exchange - each month/edition WDXC news letter for Monitoring Times? Mike Evans, 120 Loughton Way, Buckhurst Hill, Essex IG9 6AR

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Yaesu FRV-7000, £30. Kent Morse oscillator, £7. MMT-322/28-5, £90. MMT-144/28, £90, with manuals etc. Write to: Tomasz Brejnak, 127/3 Lauriston Place, Edinburgh EH3 9JN

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WANTED

Counter Unit for Kenwood TS-530 sp. Contact T. Crow (W. Lothian), Tel. 01506 884746

Large aerial rotator, maximum width 7in, with a base plate of 5 3/4in, to take four element beam around 50kg in weight and torque to match. Steve (IoW), Tel. 01983 563276

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Band spread coils for HRO-MX. Tom GW3LJS (Dyfed), Tel. 01267 202321

Army wireless No.12, No.33, No.19, No.22 and others, WS33 and WS12 particularly wanted for sentimental reasons, these are rather large transmitters. Also T1154, R1155 and associated aerials (loop and trailing) for small private collection, can collect. A. Howard (Bletchley), Tel. 01908 373114

Eddystone receivers all models considered, particularly 960, 870, EC10, EB35 series. Information sought on Camper and Nicholson of Gosport, who are believed to have sold Eddystones under their badge, £10 offered for non-

workers. Mr. Lepino (Surrey), Tel. 01374 128170, Fax. 01372 454381

IC-EX205 optional transverter adaptor for Icom IC-730 transceiver, or details of construction and plugs and sockets. W. Forsyth, 'Aldemaig', Avoch, Ross & Cromarty, Scotland IV9 8QL
6m module for Yaesu FT-726 transceiver. P. Lawrence (Bradford), Tel. 01274 619333

TR-2200GX manual and circuit, non worker for spares, dead or dying FT-301S for spares. Also wanted fully working FT-75 five band mobile, reasonably priced. Pete Coles (Bristol), Tel. 0117 963 3306

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Morse talker, Microwave Modules MMS-2. Reg Rogers, 11 Broomfield, Octavia Way, Staines, Middx TW18 2QD, Tel. 01784 454400

KW Viceroy transmitter and power supply Mk1 or Mk2 only. Must be in good condition and working. Also required, any homebrew SSB/CW transmitter, 50 to 100W output. G4GDR (Swindon), Tel. 01793 762970

VFO to fit Trio 2200GX, must be working order but anything considered. cash waiting. Mick G6UJZ (Leics), Tel. 01530 224174

Aerial, R5 R7 etc. G3AOS (Cheshire), Tel. 02160 252287

I am looking for any spares for Motorola HT800s UHF hi-band radios, chargers, remote mics, cases, also second hand radios. Also looking for Stomo 4000 radios and Motorola P210 radios or similar. Please contact Mark (Edinburgh) Tel. 0131 661 5295 evening or 0131 226 6157 day.

EXCHANGE

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£6000 Durst darkroom equipment, all in good condition, amateur use only. Exchange for Icom IC-R9000 receiver. Brian (Kent), Tel. 01634 671301

Yupiteru MVT-7100, boxed with instruction manual, all standard accessories, power supply, charger, and stand. All in excellent condition. Swap for Sony ICF-SW77 or Grundig Satellite-700 in very good condition. J. Hudson, Tel. Hastings 717138

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Link Electronics	11
Mauritron	14
PDSL	56
Radio & Telecommunications	
Correspondence School	56
Radio Bygones	14
Rapid Results College	56
RSGB	14
Satellite & Sound	19
SGC Inc (USA)	11
Sky Wave Marine	22, 55
SRP Trading	31
SRW Communications	22
Venus Electronics	22
Yaesu (UK)	IBC

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Computing in Amateur Radio

Review;
MFJ-8621 VHF Packet Transceiver

Construction;
2-Terminal Test Oscillator - Peter Cole DA1PE with the second part of his 2-Terminal test oscillator project for inductance measurement and

A Practical Alternative to the PCB - Ian Listen-Smith G4JQT describes a practical alternative to the printed circuit board for your home construction projects

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NEW
Dual Band HT

Dual Band Handheld FT-51R

Only one Dial/Volume knob required for easier use.

The First Dual Band HT with **WINDOWS!**

Three dual receive configurations VHF/VHF, UHF/UHF, or VHF/UHF with main band frequency on right or left side. Flexible programming allows transmit on main or sub band.

An 8 character alpha-numeric user help menu scrolls operation instructions in the bottom of the large, backlit display.

MH-29A2B
LCD Display Mic
with Remote
Functions.
(Optional)

The new FT-51R Dual Band HT is state-of-the-art, and easy to use!

So easy, you won't need an operating manual. Its exclusive, scrolling instruction menu located in the large, backlit display "window", guides you through total operation while simultaneously viewing the main display window.

You'll like some of the other new, exclusive features, too. Like Spectrascope™. This unique feature displays real time, continuous scanning of activity on adjacent frequencies in VFO mode or 8 of your favourite

"I can see two frequencies and alpha-numeric all at the same time."

"Scrolling instructions tell me what to do next!"



"I use the Spectrascope to find new contacts faster."

"Yaesu did it again!"

Digital battery voltage readout displays condition of battery in use. Scan skip function allows individual memory channel lock-out during scanning mode.

Spectrascope™ displays active adjacent frequencies in real time with relative signal strength.

FT-51R
2 1/4" W x 4 1/4" H x 1 1/4" D
(2 Watt version shown.)

Specifications

- Frequency Coverage
 - VHF RX: 110-180 MHz
 - TX: 144-146 MHz
 - UHF RX: 420-470 MHz
 - TX: 430-440 MHz
- Spectrascope™ Display
- Scrolling User Help Menu
- Alpha-Numeric 8 Character Display
- Up/Down Volume/Squelch Controls & Display
- Selectable Sub-Band TX Mute
- Automatic Tone Search (ATS)
- Digital Battery Voltage Display
- AM Aircraft Receive
- Scanning Light System (SLS)
- 120 Memory Channels (80 w/Alpha-Numeric)
- Large Backlit Keypad & Display
- Automatic Repeater Shift (ARS)
- Multiple Scanning Modes
- 3 Selectable Scan Stop Modes with Scan Skip
- User selectable lock function w/15 combinations
- Automatic Power Off (APO)
- TX/RX Battery Savers Built-in
- Handy Cloning Feature
- 5 Selectable Power Output Levels
- Message system with CW ID
- Selectable RX Smart Mute™
- Cross-Band & One-Way Repeat Functions
- DTMF Paging/Coded Squelch Built-in

Accessories

Consult your local dealer.

YAESU

Performance without compromise.™

YAESU UK LTD. Unit 2, Maple Grove Business Centre, Lawrence Rd., Hounslow, Middlesex, TW4 6DR

Specifications subject to change without notice. Specifications guaranteed only within amateur bands.

Some accessories and/or options are standard in certain areas. Check with your local Yaesu dealer for specific details.

ICOM FA-B270C

IC-W31E

*Latest compact fistful -
Dual-band performance -
Up for grabs now!*

The IC-W31E offers outstanding performance and features in a surprisingly compact package. On offer are; dual-band operation, numerous memories, alphanumeric display and much more. This handheld truly lives up to the phrase "good things come in small packages".

- Slim compact dimensions unlike other bulky dual-band handhelds.
- Memories can be displayed by frequency or channel number with dependable EEPROM memory back-up.
- 2 dials give independent tuning of VHF and UHF bands.
- The alphanumeric display can also be used to create DTMF Tx or Rx messages up to 6 characters for simple paging.
- MOS-FET power module, voltage readout, multiple power-save.
- 3 levels of power output.
- V/V, U/U or V/U main/sub band operation.
- Accepts 4.5 to 16 volts DC, external power supply.
- Full crossband duplex operation.
- 50 frequency CTCSS encode as standard.
- 6 DTMF memories with up to 30 digits each.
- Comes complete with operational accessories, antenna, charger etc.



ICOM manufacture a full range of base-stations, mobiles and handheld transceivers and receivers to cover all popular Ham frequencies... and beyond. No matter what your requirements, ICOM have the radio for you.

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