

short wave magazine

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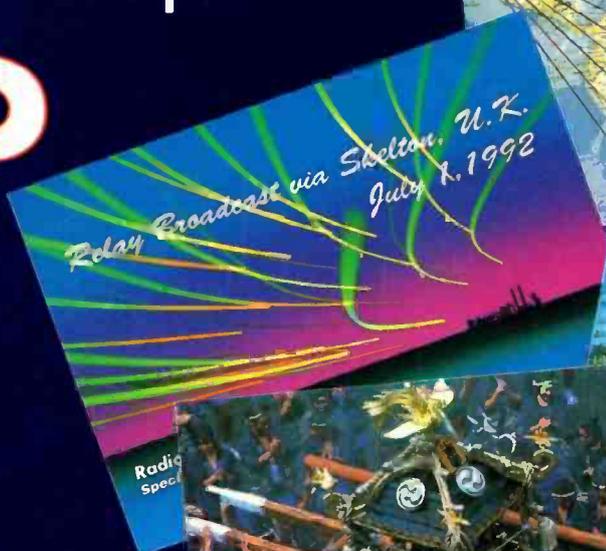
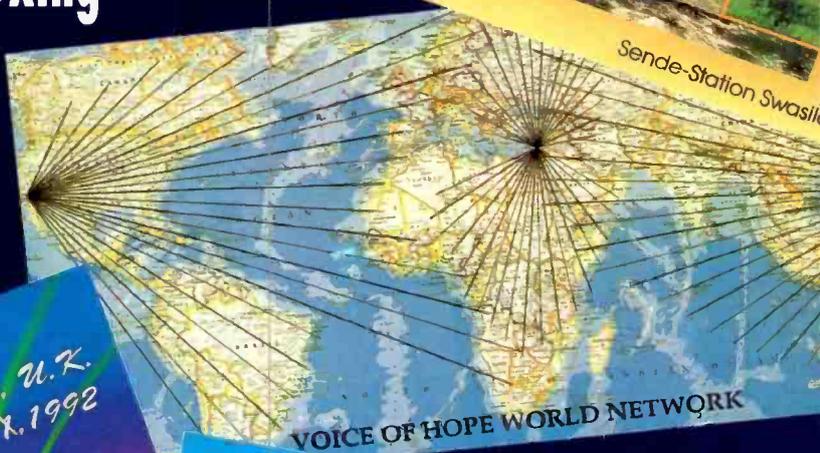
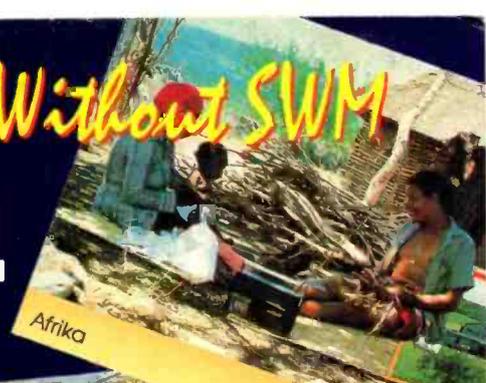
BROADCAST SPECIAL

Medium Wave DXing

Radio Havana

Atlantic 252

Captain Cooke

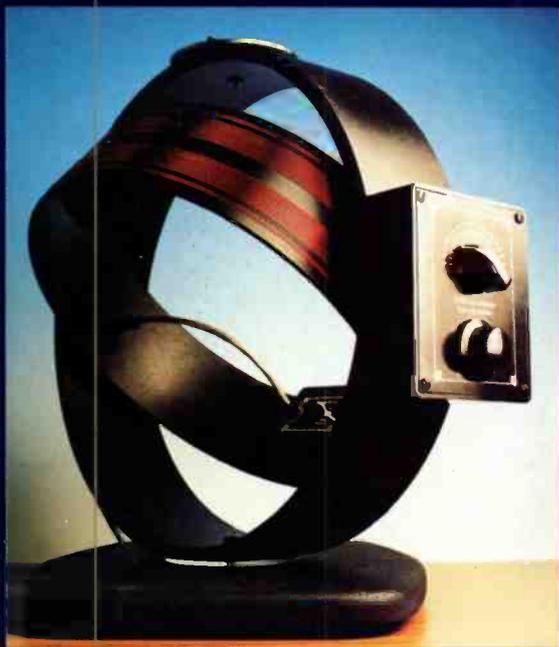


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August 1995 £2.25 ISSN 0037 - 4261



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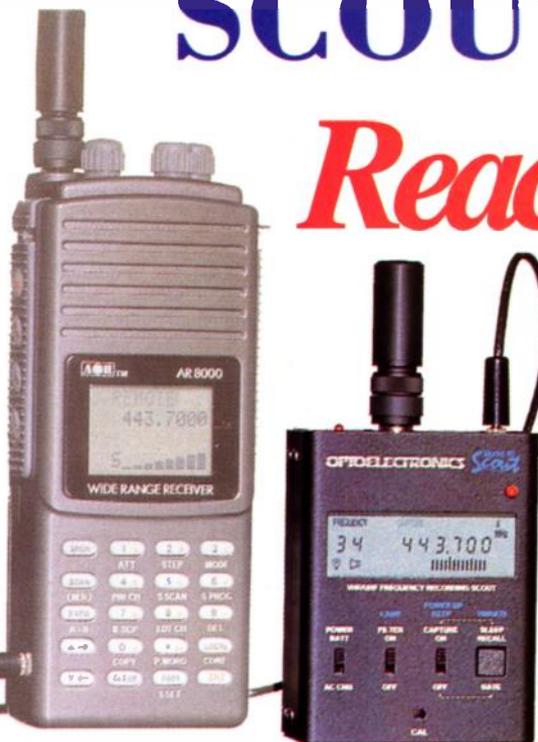
The SCOUT™ Has Taken Tuning Your Receiver To a New Dimension

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- Automatically tunes these receivers with Reaction Tune (Pat.Pend.) CI-V receivers (ICOM's R7000, R7100, and R9000), (Pro 2005/2006 equipped with OS456, Pro 2035 equipped with OS535) or AOR models (AR2700 and AR8000).
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Cover Subject

Listening is a hobby with many rewards, not least of which is collecting QSL cards from around the world.



DISCLAIMER. Short Wave Magazine wishes in no way to either condone, or encourage, listeners to monitor frequencies and services which are prohibited by law. We respectfully refer you all to both the Wireless Telegraphy Act 1949, and the Interception of Communications Act 1985. Some of the products offered for sale in advertisements in this magazine may have been obtained from abroad or from unauthorised sources. *Short Wave Magazine* advises readers contemplating mail order to enquire whether the products are suitable for use in the UK and have full after-sales back-up available. The Publishers of *Short Wave Magazine* wish to point out that it is the responsibility of readers to ascertain the legality or otherwise of items offered for sale by advertisers in this magazine.



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Good Listening

SWM SERVICES

Subscriptions

Subscriptions are available at £25 per annum to UK addresses, £28 in Europe and £30 overseas. Subscription copies are despatched by accelerated Surface Post outside Europe. Airmail rates for overseas subscriptions can be quoted on request. Joint subscriptions to both *Short Wave Magazine* and *Practical Wireless* are available at £42(UK) £47 (Europe) and £51 (rest of world).

Components for SWM Projects

In general all components used in constructing SWM projects are available from a variety of component suppliers. Where special, or difficult to obtain, components are specified, a supplier will be quoted in the article.

The printed circuit boards for SWM projects are available from the SWM PCB Service, Badger Boards, 80 Clarence Road, Erdington, Birmingham B23 6AR. Tel: 0121 - 384 2473.

Photocopies and Back Issues

We have a selection of back issues, covering the past three years of SWM. If you are looking for an article or review, or whatever that you missed first time around, we can help. If we don't have the whole issue we can always supply a photocopy of the article. Back issues are £2.30 each, photocopies are also £2.30 per article, plus £0.50 for subsequent parts of serial articles.

Binders, each taking one volume are available for £5.50 plus £1 P&P for one binder, £2 P&P for two or more, UK or overseas. Please state the year and volume number for which the binder is required. Prices include VAT where appropriate.

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Credit card orders (Access, Mastercard, Eurocard or Visa) are also welcome by telephone to Broadstone (01202) 659930. An answering machine will accept your order out of office hours and during busy periods in the office. You can also FAX an order, giving full details to Poole (01202) 659950.

Technical Help

We regret that due to Editorial time scales, replies to technical queries cannot be given over the telephone. If you require help with problems relating to topics covered by SWM, please write to the Editorial Offices, we will do our best to help and reply by mail.

editorial

For the last five years, SWM has shared a stand at Ham Radio, Freidrichshafen, with our sister magazine *Practical Wireless*. This year Peg and I packed the car with the requirements for setting up the stand - wallpaper, paste, scissors - as well as the stock and set off for Lake Constance. We travelled both ways on the new Eurolink ferry service from Sheerness to Vlissingen in Holland - if you are travelling with your car to Germany or Holland then I can recommend this service as the ideal way. The return journey, like the outward one, was made on the *Euromantique* and I had the pleasure of spending the last hour or more on the bridge with Captain Chris Thomas. The interesting part came as we sailed past the WWII forts on the Shimmering Sands, where we reported by v.h.f. radio to Thames Control, then on past the Red Sands forts and the wreck of the *Richard Montgomery* into the Medway. Those of you who have read *Pop Go The Pirates* will know that this was the scene of much of the content of the book. I found it amazing that such seemingly scant structures should still be standing after more than half a century of salt water attack - why don't cars last as long?

Oh, yes, Ham Radio 95 was as interesting as in past years.

We have recently had a few requests for a six month subscription to SWM. For a trial period we have re-introduced the facility to help some more of you enjoy the benefits of being a Subscriber. I will be most interested to hear any views you may have regarding this.

Dick Ganderton G8VHF



letters

The Editor reserves the right to shorten any letters for publication but will try not to alter their sense. Letters must be original and not have been submitted to any other magazines. The views expressed in letters published in this magazine are not necessarily those of *Short Wave Magazine*.

Dear Sir

I have recently purchased an Antenna Noise Canceller from Lowe Electronics and wish through your columns to say that the device has made a tremendous difference to my listening both to amateur band and data transmissions. As I live in a flat, although I have a directional magnetic loop and several long wire antennas, I still suffer with local electrical noise, which makes resolving QRP and weaker data signals difficult, if not impossible.

This little unit, when used in conjunction with a good quality a.t.u. placed before it and with the controls carefully adjusted, makes a tremendous difference to the intelligibility of received signals. I have found that when used on 80m, previously unreadable transmissions become as clear as crystal.

The slight downside of it all is the loss of signal strength, although this can be compensated for by the judicious use of audio bandwidth controls, increased r.f. gain and, in my case, an audio digital signal processing unit.

This unit has re-kindled interest in my hobby as I was becoming used to only receiving signals of medium to high strength. I would strongly advise any reader with local interference problems to consider purchasing the noise canceller. Incidentally, I do not have any connection with Lowe or any other radio retailer.

**David Clarke
Seaford
East Sussex**

We were very impressed with the ANC also. I'm pleased that it's cured your QRM problems - it seems that gone are the days of noise-free locations for most of us. - KN.

IF YOU HAVE ANY POINTS OF VIEW THAT YOU WANT TO AIR PLEASE WRITE TO THE EDITOR. IF YOUR LETTER US PUBLISHED YOU WILL RECEIVE A £5 VOUCHER TO SPEND ON ANY SWM SERVICE

Dear Sir

I'm replying to you about the ABC World Airways Guide. I would be very pleased and grateful if you could please tell me if I can get it from my bookshop or papershop or Felixstone Travel Agent? I am an airways fan and have a Realistic PRO-37 hyperscan v.h.f./u.h.f. Hi, Lo and Air. I have had it two to three years now.

I am having trouble getting the Red Arrows bands. Are there any books for the beginners on airbands?

**R. Frost
Felixstone
Suffolk**

If you take a look at Graham Tanner's 'SSB Utility Listening' Column, on page 57 of this issue you will can read all that you need to know about the ABC guide. The Letter from G8CE2 on these pages will be of interest if you have access to the Internet. We stock Airwaves '95 (see page 79), which is a gold mine of both Military and Civil Airband info. - KN

letters

Dear Sir

Like Tony Vaughan ('Letters', July SWM) I have a Philips D2935, bought, in my case, about ten years ago at an auction for about £50. Initially, I used it as the radio in the kitchen for local f.m., then, after a few years, in a fit of elderly curiosity, I started examining the s.w. bands and the mysterious s.s.b.

It set me off as a listener and I first bought a Trio R-1000 and then an Icom IC-R71E, both second-hand. Last month, however, I took a (very) deep breath and acquired a new Drake R8E.

As an experiment, I dusted down the D2395 and, using only its telescopic antennas, set it up alongside the R8E. The Philips was surprisingly good at picking up many of the same stations as the Drake, although intelligibility was often lost by the noise, which the Drake's filters were able to suppress.

And, of course, the more difficult catches by the Drake just didn't show up on the Philips. Nevertheless, the old 'ghettoblaster' is remarkably good when you consider the difference in cost. I would thoroughly recommend it as a starter receiver for a beginner, if they can find one.

Your comment about needing a location with low background noise is significant. It isn't like that where I am and, despite the clever bells and whistles on the R8E, I use a digital noise filter to help cut through the mush.

I've now dug deeply once again into my rapidly diminishing resources, and await delivery of a JPS antenna noise canceller. It might have been cheaper and more effective to have made do with the Philips D2395 and moved house!

Ian M. Charteris

**Bushey
Herts**

Thank goodness for "elderly curiosity", welcome to the hobby. Like our Reader, David Clarke, I'm sure you will find the ANC very effective. - KN.

To: dick@pwpub.demon.co.uk

Subject: Quest for Internet sites for s.w.l.'ing as per July SWM

Newsgroups: try uk.radio.amateur (not exclusively s.w.l.)
alt.radio.pirate
rec.radio.shortwave
rec.radio.amateur.misc
rec.radio.broadcasting

Sites: try <http://itre.unccs.edu/radio/> Lots of links to s.w.l. matters, possibly the best general radio site.

<http://www.ntt.jp:80/japan/nhk/> NHK radio Japan
<http://sunsite.unc.edu:80/wxyc/> radio station WXYC
<http://www.radiospace.com/welcome.html> news and info
<http://town.hall.org/radio/monitor/index.html> Christian Science

Radio Stations on the Internet (whatever they may be)
<http://web.mit.edu/afs/athenamit.edu.user/w/m/wmbr/www/ot/herstations.html> (not tried this one)

I have not tried all of these as I am not planning to buy a chunk of BT!

73's Bob G8CEZ...via the 'net

If you know of any other sites, please pass on the details to the Editorial Offices

To:

dick@pwpub.demon.co.uk

Subject: Howes AB118

The recent letters about the Howes AB118 prompt me to write and tell you my experience with this wonderful kit. As an experienced listener but novice builder I was a bit worried about what was only my second kit but for only twenty quid there was little to loose. Construction was a doddle, it would be hard to make a mistake. In only about an hour I had it running. For the casing the recommended method of sealing the pipe sounded a bit Heath Robinson so I used a connector for joining two lengths of pipe with a larger end cap glued into it. This was then pushed onto the pipe containing the electronics, allowing easy disassembly for maintainance. The ribbon cable was suspended by a plastics rod across the top of the pipe. In use the AAB118 has been astounding, living only three and a half miles from Manchester Airport I was worried that their transmissions would swamp my MVT8000. This has in fact been almost no problem at all, with signals from frequencies close to Manchester is easily resolved. But where it really comes into its own is for DX work. Volmet north, south and main plus the Shanwick tracks broadcast are a good test and can usually be heard. Aircraft themselves can be followed deep into French and Dutch airspace, and almost any traffic above two thousand feet can be picked up i.e. traffic turning for finals at Heathrow.

So, to all at Howes very well done.
Donald Freake...via the 'net

Dear Sir

Just a comment on the July issue of *Short Wave Magazine*. I would not expect a write up of amateur/short wave radio equipment in *Practical Photography*! It is not the information contained or the writer, I just feel it is out of place in a magazine for the radio listener. There must have been something else more appropriate that could have been included.

Another point, scanner reviews are getting monotonous. It again can't be the fault of the writer (I would not like to do it!) and I can understand the difficulties as you can only say so many things so many times, but once you have read one, the others seem so familiar.

Overall a good magazine, but is it me or is the magazine giving less in the way of information regarding radio (particularly to newcomers who have just picked up the magazine by chance or have been told by a friend about the hobby) and starting to concentrate on thing like the 'Net', etc.

**Bob Taylor G1WEX/G-20686
Stourbridge
West Midlands**

This brings up the old chestnut of just what subjects the Editor can include in a magazine. Many readers of SWM are also interested in other hobbies, particularly ones that are similarly technically orientated. In the 100 issues since SWM was relaunched as a magazine for the listener only twice have I included articles with a strictly non-radio slant. Obviously I will have to wait another 50 issues before trying out another interest on you. I have noticed that, over the years, I have found that my needs from a magazine change.

I try to make SWM as interesting to all groups of listeners and I think that you will find that, rather than less information, the reader is actually getting more! - Ed.

Is there something you want to get off your chest? Do you have a problem fellow readers can solve? If so then drop a line to the Editor.

grassroots

rallies

July 29: Computer Fairs (Northern) held at the Clayton Arms Sports Hall, Fulwood Park Road, Boundary Park, Oldham (next to Oldham Athletic Football Club). There is free parking. There will be a Bring & Buy stall and computer games, etc. Admission is £2 for adults, £1 children/OAPs and £5 for families. Doors open 10am to 3pm. 0161-627 2502.

***July 30:** Scarborough Amateur Radio Society will be holding their Radio Electronics and Computer Rally at the Spa, South Foreshore, Scarborough. Doors open at 11am. There will be many traders a Bring & Buy, refreshments and a bar. Ross Neilson G4ZNE on (01377) 257074.

July 30: The Rugby ATS are holding their 7th annual Amateur Radio Rally at the BP Truckstop on the A5, three miles east of Rugby and just 2.5 miles north west from junction 18 on the M1 motorway. Doors open from 10am and admission is £1 per car. Facilities include a good cafeteria and toilets. Talk-in on S22 by GB7RRR. Peter (01455) 552449.

***August 6:** The RSGB Woburn Rally is being held at Woburn Abbey, Bedfordshire. Further details from Norman Miller G3MNV on (01277) 225563.

***August 13:** Flight Refuelling ARS Hamfest '95 will take place at the Flight Refuelling Sports Ground, Merley, Wimborne. The event will run from 10am to 5pm and will include the usual mix of traders, Bring & Buy, craft exhibitors, car boot sale and field events. Talk-in on S22. New traffic routing - please follow signs. Richard Hogan G4VCQ (01202) 691021.

August 18: Cockenzie & Port Seton Amateur Radio Club are holding a radio junk night. Bring your own junk and sell it yourself. Tables will be provided on a first come, first served basis (no charge for the table), 6 to 9pm. Raffle at approximately 8.30pm. Entrance fee is £1 and refreshments will be available. All money raised is being donated to the British Heart Foundation. Further information on this event from Bob G4UWZ on (01875) 811723 or via GB7EDN.

August 19/20: The Stafford Amateur Radio & Computer Show, (incorporating RSGB National Convention) is to be held at The County Showground, Stafford. Doors open at 10am to 5pm. There will be Morse tests, special interest groups, a Bring & Buy and lectures on each day. There will be free parking, bars and catering. FREE stands available to radio/computer clubs and societies! (01923) 893929.

August 20: The Kings Lynn Amateur Radio Club will be holding their 6th Great Eastern Rally at The Cattle Market, Hardwick Narrows, Nr. Kings Lynn. Doors open at 10am (9.45am for disabled visitors). There will be an outdoor car boot area, a Bring & Buy, Talk-in on S22. There is a spacious indoor area with major national exhibitors, and easy access for disabled people. Refreshments and free parking too. Further info. from Ian Cooper G0BMS on (01553) 765614 or @GB7OPC Packet BBS.

August 26: A computer/rally/games fair is being held at Manchester University, Rectory Hall, Oxford Road, Manchester, next to Manchester museum and junction with Dover Street. Admission is £2 for adults and £1 for children/OAPs. Doors open 10am to 3pm. Free mag/CD and posters and free technical advice. 0161-627 2502.

August 27: The Coleraine & District Amateur Radio Society are holding their annual rally at the Lodge Hotel, Coleraine. Doors open at 12 noon and admission is £1.50, which includes a draw. There will be a large number of traders in attendance and refreshments will be available. Brian G1LBTB on (01265) 58664.

August 27: The Galashiels Club are holding their Open Day at the Focus Centre, Livingstone Place, Galashiels. Doors open at 11am till 4.30pm. There will be many traders, a Bring & Buy, club stalls, a raffle and refreshments will be available. John Campbell GM0AMB. Tel/FAX: (01835) 822686.

August 27: The East Coast Amateur Radio & Computer Rally is to be held at the Clacton Leisure Centre, Vista Road, Clacton-on-Sea, Essex. Doors open at 10.30am to 4pm. There will be major suppliers and manufacturers of radio equipment, computers and computer software, accessories, antennas and second-hand gear. There will also be a Bring & Buy, plus a bar and cafeteria available from 11am. Free car park and talk-in on S22 and SU22 (GB1ECR). Further information can be obtained from Sharward Promotions on (01473) 272002 or FAX: (01473) 272008.

August 27: The Torbay Rally is being held at the Clenon Valley Leisure Centre, Paignton, Devon - where there's room to stop and chat! Doors open at 10am. There will be trade stands, a Bring & Buy, special interest displays, the use of leisure facilities, a restaurant and bar. For the family, only a four minute walk away, there is a beach, boating lake, steam railway and a flume water park. Further details can be obtained from John G3YCH, QTHR. (01803) 842178.

If you're travelling a long distance to a rally, it could be worth phoning the contact number to check it is well, before setting off. The Editorial staff of SWM cannot be held responsible for information on Rallies, as this is supplied by the organisers and is published in good faith as a service to readers. If you have any queries about a particular event, please contact the organisers direct.

Editor

AVON

Bristol International RC: Tuesdays, 8pm. The Fighting Cocks Public House, Hengrove. All visitors are welcome. The club has been formed so that all radio enthusiasts, whether they be Licensed Amateurs, s.w.l.s or CBers can get together and have a good natter and do things that you do in radio clubs. PO Box 28, Bristol BS99 1GL.

South Bristol ARC: Wednesdays, 7.30pm. Whitchurch Folkhouse Assoc., Bridge Farm House, East Dundry Rd, Whitchurch. August 2 - Magazine evening - donate or exchange, 9th - Computer shareware, 16th - BBQ night, 23rd - Club aerials - checks on emissions. For more information ring (01275) 834282 on a Wednesday evening.

DERBYSHIRE

Derby & DARS: Wednesdays, 7.30pm. 119 Green Lane, Derby. August 2 - Junk sale, 7th - Amateur TV group meeting, 9th - Rally preparation meeting, 13th - Derby mobile rally, 16th - The British Amateur Radio Teledata Group - a talk about its past, present and future by BARTG Secretary Ian Brothwell G4EAN, 23rd - The history of the telephone - illustrated talk by Simon Bullimore. Mrs Hayley Winfield, 2 Hiltis Cottages, Crich, Matlock, Derbyshire DE4 5DD. (01773) 856904.

South Normanton & Alfreton DARC: The Community Centre, New Street, South Normanton, Derbyshire. July 31 - Natter night, August 7 - Social evening (meet at The Bear, Alderwasley), 9th - Committee meeting, 14th - Night on the air, 21st - Quiz/competition night. Helen Coleyshaw 2EIAWJ (01332) 881549.

DEVON

Appledore & DARC: 3rd Mondays, 7.30pm. Appledore Football Clubroom. Dave Brierley G3YGJ. (01237) 476124.

Torbay ARS: Fridays, 7.30pm. ECC Social Club, Highweek, Newton Abbot. August 18 - BBQ at club's HQ. Peter G4UTD. (01803) 864528.

GREATER LONDON

Crystal Palace & DRC: 3rd Saturdays, 7.30pm. All Saints Church Parish Rooms, Beulah Hill, London SE19. August 20 - Evening on the air. Wilf G3DSC on 0181-699 5732 or Bob on (01737) 552170.

Edgeware & DRS: Thursdays, 8pm. Watling Community Centre, 145 Orange Hill Road, Burnt Oak. August 24 - SSB field day briefing. Rod Bishop. 0181-204 1868.

Southgate ARC: 2nd & 3rd Thursdays, 7.30pm. The Pavilion, Winchmore Hill Cricket Club, Firs Lane, Winchmore Hill, London N21 3ER. July 27 - ROTA, August 10 - BBQ (bring your own food), 24th - DF equipment, check out & ROTA. M. E. Viney G0ANN. (01707) 850146.

Club Secretaries:

Send all details of your club's up-and-coming events to: Lorna Mower, *Short Wave Magazine*, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Please tell us your County and keep the details as brief as possible.

Wimbledon & DARS: 2nd & last Fridays, 7.30pm. St Andrews Church Hall, Herbert Road SW19. August 11 - On air activity. (01737) 351313.

HAMPSHIRE

Horndean & DARC: 1st & 4th Tuesdays, 7.30pm. Lovedean Village Hall, Lovedean Lane, Lovedean, Hants. August 1 - Natter night, 22nd - HF propagation by G2BDV. S. Swain (01705) 472846.

Winchester ARC: 3rd Fridays, Red Cross Centre, Durngate House, North Walls, Winchester. 7.30pm. August 18 - David Tanner G00ZD will talk about the tea business. P. Simpkins G3MCL. (01962) 865814.

HEREFORD & WORCESTER

Bromsgrove ARS: 2nd & 4th Tuesdays. Lickey End Social Club, Alcester Road, Burcot, Bromsgrove. August 8 - Technical topics/talk, 22nd - DF hunt (on foot). Barry Taylor. (01527) 542266.

HERTFORDSHIRE

Hoddesdon RC: Alternate Thursdays, 8pm. Conservative Club, Rye Road, Hoddesdon. August 4 - Night on the air, 18th - BBQ at Tolmers Scout Camp plus a second talk on astronomy by Brian Bond G3ZKE. Dave G1CAY on (01992) 460841.

KENT

Bromley & DARS: 3rd Tuesdays, 7.30pm. The Victory Social Club, Kechill Gardens, Hayes. August 15 - BBQ. A Messenger G0TLK. 0181-777 0420

MERSEYSIDE

Wirral ARS: 1st & 3rd Wednesdays at Ivy Farm, Arrowe Park, Birkenhead, Wirral. Informal natter nights on each Tuesday. August 2 - RAE. A. Seed G3FDD on 0151-644 6094.

NORFOLK

Norfolk ARC: Wednesdays, 7.30pm. Formal and informal meetings at The Norman Centre, Bignold Road, Off Drayton Road between 'Asda' and Three Mile Cross Roundabout, Norwich. August 2 - Night on the air/construction QRP/Morse practice, 6th - Club trip to Woburn Rally, 9th - Science for all by Arnold G3PTB, 16th - Night on the air/construction QRP/Morse practice, 23rd - Packet for beginners by John Smith G4VEL. Mike G4EOL. (01603) 789792.

NOTTINGHAMSHIRE

Mansfield ARS: 2nd Mondays, 7.30pm. The Polish Catholic Club, off Windmill Lane, Woodhouse Road, Mansfield. August 14 - Ashfield Show preparation, beer and chat night and BBQ. Mick G0UYQ, QTHR on (01623) 792243 or Howard G1JGY, QTHR. (01623) 423697.

OXFORD

Oxford & DARS: 2nd and 4th Thursdays, 7.30pm. The Grove House Club, Grove Street, off Banbury Road, Summertown, Oxford. D.A. Walker G3BLS on (01865) 247311.

Vale of White Horse: 1st Tuesday of each month. 8pm at The Fox, Stevenon. Ian White. (01235) 531559.

SOMERSET

Yeovil ARC: Thursdays, 7.30pm. The Red Cross Centre, 72 Grove Avenue, Yeovil. July 27 - Committee meeting and club station on the air, August 3 - Club project - The Taunton h.f. multiband rig, by designer G3PCJ, 10th - Talk by RSGB RLO, G4NQI, 17th - Aerial tuning units by G3MYM, 24th - Microwave background to the big band theory. Cedric White, QTHR. (01258) 473845.

SUFFOLK

Bury St. Edmunds ARS: 3rd Tuesdays, 7.30 for 8pm. Culford School. August 5/6 - Special event station GB100NT for the National Trust Centenary year at Ickworth House. Kevin Waterson G1VGI, 20 Cadogan Road, Bury St. Edmunds, Suffolk IP33 3DJ. (01284) 764804.

WEST MIDLANDS

Sandwell ARC: The Broadway, Warley. RAE class on Monday nights, Morse class on Wednesday nights and RAE Novice class on Thursday nights. Three operating shacks, h.f./v.h.f./u.h.f., Phone, c.w., RTTY, AMTOR, Packet, all bands. Talks, outings, contest and demonstrations. For further information please ring 0121-552 4619/0121-552 4902.

WEST YORKSHIRE

Denby Dale ARS: Wednesdays, 8.30pm. Pie Hall, Wakefield Road, Denby Dale, West Yorkshire. Denby Dale ARS also provides RAE, Morse and Novice RAE classes and is a registered City & Guilds examinations centre for both the RAE and Novice RAE exams. Further details from the examinations secretary Brenda G4OTE on (01484) 424776 or secretary. August 2 - Sommer camp meeting, 6th - Woburn rally coach trip, 11th - Sommer camp, 16th - Sue G7TJF 'O.U.I.'. Kevin G1FYS on (01484) 547553 for club activities.

Keighley ARS: The Ingrow Cricket Club, Ingrow, Keighley. Thursdays, 8pm. July 27 - Fox hunt, August 3 - Natter night, 10th - Natter night, 17th - Visit by Bob Horrell - the model man, 24th - Natter night. Kathy G0RLO. (01274) 496222.

Wakefield & DRS: Tuesdays, 8pm. The Ossett Community Centre, Prospect Road, Ossett. August 1 - QRP in France, 8th - 2m fox hunt. Bob 0113-282 5519 or G3WWF@GB7WRRG.

WILTSHIRE

Trowbridge & DARC: 1st & 3rd Wednesdays, 8pm. The Southwick Village Hall, Southwick, Trowbridge. August 2 - Visit to Wiltshire Fire Brigade HQ, Potterne, meet at 1930. Ian G0GRI on (01225) 864698.

Elaine Richards
PO Box 1863,
Ringwood,
Hants BH24 3XD.

junior listener

ISWL

The June issue of *Monitor*, the magazine for the International Short Wave League, arrived this week and it really does look different. They've changed to an A5 format and improved the

print quality too. The information in their magazine has always been really useful to the listener, now it is well laid out and easy-to-read too. As well as all the details of what's been on the bands recently there is an interesting article on

packet running at the moment. You'll also find details of contests, awards and the results of ones held earlier in the year.

If you are interested in receiving *Monitor*, then a year's subscription to the ISWL will cost you £18 in the UK. You

should write to: Colin Vance, 64 Caulfield Road, Gorse Hill, Swindon, Wilts. SN2 6BT.

Radio Budapest Short Wave Club

These days you don't get much for free. Often, if you're a younger listener or if you are just starting out in the hobby, you can't afford to be joining all the clubs that are available. Here's news of one that's free.

The Radio Budapest Short Wave Club is a non-commercial DX organisation that is open to all. On joining you become an official monitor of Radio Budapest and have your own monitor call. To join you have to send in at least four reception reports every month on Radio Budapest's broadcasts. But to save on postal costs you can collect these up and send every six months at the end of the summer and winter schedules.

When you join the club you get a certificate, your monitor callsign, a batch of blank reception forms, 50 reception report cards for reporting to other radio stations and stickers. You also get a quarterly *DX News Bulletin* and a special QSL card at the end of each year.

If you think this sounds like a good deal, then write for an application form to: Radio Budapest, RBSWC, H-1800 Budapest, Brody Sabdor u. 5-7, Hungary.

Broadcast Info

I've had a bumper postbag from various radio stations this month. I've heard from ERT in Greece, Radio Norway International, Radio Nederlands, China Radio International, Voice of America and ORF in Austria. Not unusual DX by any means, but the information I had in return has made very interesting reading.

ERT send a lovely large QSL card with a picture of Athens on it, a small QSL of Parga and some commemorative stamps. One interesting note at the end of their schedule they sent is that you can now send your reception reports via the Internet on E-mail:

daggel &
leon.nrcps.ariadne-t.gr

If you are at a college where students have access to Internet or perhaps you know someone who would send your reception report for you then I would be interested to hear how you get on. I find 9.375MHz at

around 2000UTC to be a good signal.

Radio Norway International only do one half hour programme in English, try 9.59MHz at 1300 or 5.96MHz at 1800. They only QSL once in each frequency period and you have to send your reports directly to the station at Radio Norway International, N-0340 Oslo 3, Norway.

Radio Nederland sent details and a photograph of their award winning Newslines team. *Passport to World Band Radio* selected *Newslines* as one of the best programmes on short wave. Unfortunately, as *Newslines* is aired so many times each day and on so many frequencies, I really don't have the space here. Why not write to Radio Nederlands for a schedule. The address is Radio Nederlands, PO Box 222, 1200JG Hilversum, The Netherlands.

China Radio International just send a schedule this time, try listening on 6.950 or 9.920MHz between 2100 and 2200. Look out on Mondays for their *Learn to Speak Chinese* feature or what about their *Cooking Show* on Saturday. Their address is China Radio International, Beijing,

Radio Nederland Newsteam.



ORF English team.

China 100866.

VoA not only send their schedule but a copy of *VoA Guide* for June and July. It gave details of the changes that are going on to the English language service, readers' letters and their huge schedule. VoA are also on Internet and welcome your questions by letter, 'phone, FAX or computer! - something for just about everyone.

VoA Europe, Box 23333, Washington, DC 20026, USA. FAX +1-202-619-0916. Internet: voa-europe@voa.gov

Finally - ORF. They sent three reception reports, a schedule, a photo of their English team and a leaflet all about the station. Again the schedule is available free if you write, but with over 20000 letters and cards a year, how they reply so quickly is very good.

Radio Austria International, Wurzburggasse 30, A-1136 Vienna, Austria.

More from the postbag next month.

Batteries

Many newcomers to the hobby use their sets out portable from good locations so they can get better results than at home with their modest equipment. Usually, this equipment is run on batteries, and these can often last a long time as many of the modern portable sets aren't energy hungry. So, you decide to make the most of this good weather and go out for some DXing, do you change the batteries before you go, take a spare set just in case, or what? Then comes the dilemma, are these two batteries in the drawer new ones, old but good, or dead as a dodo? Trying times.

The reason I mention this is that I came across a little device from Maplin and at 79p, it would seem to be worthwhile. They have a little battery condition tester for testing 1.5V dry cells. There is a liquid crystal display that shows the condition of the battery. You fold the flexible, plastics strip around the battery so that it touches the two ends of your battery. Then you read the state of your battery on the display. (Probably very much like the tester that comes built into the packaging of Duracell batteries. Ed).

You can read full details on this item, and all the others by Maplin, in their *Catalogue*. This is available from Maplin shops or WH Smith and John Menzies for £3.45.

I thought this tester sounded a neat piece of test equipment and so we've secured a few for prizes. Just answer the following questions on a postcard and if you are among the first few out of my biscuit barrel, you'll receive a battery tester.

A: How much does the *Maplin Catalogue* cost?

B: What voltage cells does the tester test?

C: Who developed the battery around the 1808 (answer as per my *Encyclopaedia Britannica*)?



RAE & Morse Courses

The City of Westminster College will be running a Radio Amateurs Examination (RAE) evening course, commencing early September 1995, for the May 1996 examination. Both Class A and Class B licences will be catered for, (ie. a Morse course will run concurrently for those interested).

Additionally, an 'Advance Morse' course is hoped to be conducted, taking candidates up to 22/25w.p.m. with insight to professional/marine procedures, etc. Professional college lecturers will conduct the courses.

Prospective candidates should contact the College - Science & Humanities Dept on **0171-723 8826** for enrolment details, etc.

Chris Budd G0LOJ will be teaching the Radio Amateurs Examination in Bristol (Twyford House, Shirehampton) starting from Monday September 18. Times are Monday's 7.15 to 9.15pm and the duration is two terms (about 30 sessions).

Prices for the course are £63.60 plus £5 registration fee for the whole course, but over 60s get a discounted price of £47.70 plus £5 registration fee. For those in receipt of benefits pay the £5 registration fee only.

For more details, call **Liz** on **0117-968 3112** (office hours) or **Chris** on **(01454) 616267** (evenings, weekends and answering machine).

The RAE City & Guilds 7650 courses have now run successfully at the **Sevenoaks Adult Education Centre** for the past two years, and will be a regular feature of the Sevenoaks Prospectus for the foreseeable future. Full details of the course, cost, dates and times can be obtained from **Sevenoaks Adult Education Centre, Bradbourne Road, Sevenoaks, Kent TN13 3QN, Tel: (01732) 451618.**

Multicomm 2000 Ltd

Satellite & Sound 2000 have formed a new company, **Multicomm 2000 Ltd.** Multicomm 2000 will specialise in radio sales and they assure us that they will offer the same high standards of sales and service that the customers of Satellite & Sound 2000 have enjoyed in the past.

Contact Suzhy, Martin or Peter at **Multicomm 2000 Ltd., Unit 1, 86 Cambridge Street, St. Neots, Cambridgeshire PE19 1PJ. Tel: (01480) 471001, Fax: (01480) 470771.**

Castle on the Air

News of GB0EHS special event station, operating on the 9-10 September 1995. In association with English Heritage, the Scarborough Special Events group will be running the station, located inside the Scarborough Castle Ground, most appropriately, on the site of an old Roman Signal Station. It will be open to members of the public. A coloured QSL card, 12th in the group's series of commemorative 'cards. Operation will be around 3.725 or 7.055MHz s.s.b. There's also an h.f. c.w. station, 144 and 430MHz operation. Reports from s.w.l.s are welcome. Information from **Roy Clayton G4SSH, 9 Green Island, Irton, Scarborough YO12 4RN.**

School Gets More Radio Help

In the April issue of SWM, Junior Listener carried an item about the efforts of David Haigh to introduce radio into his local junior school. Editor Dick Ganderton, who is very much in favour of getting children interested in radio at as young an age as possible, recently visited the school to take some equipment and see how they were getting on.

David Haigh has been very successful in obtaining backing from all over the place and has managed to establish a Radio Room in the school at Mixenden, just outside Halifax. The equipment has been carefully chosen to enable as many children as possible to listen while staying within the generous initial donation from the Halifax Building Society.

Dick took with him some useful books from SWM as well as some of the kits he had

recently built and reviewed in the magazine. Waters & Stanton donated the MFJ-8400 2m receiver, while Lake Electronics gave the Carlton direct conversion receiver. At the same time The Halifax gave another generous donation.

The children find the radio room a fascinating place to be in. It also helps to bring alive many aspects of learning about the world.

The Radio Room at Mixenden Junior School is still looking for more equipment - but so also is your local school. If it hasn't already got a Radio Room why not get involved and set one up for them?

For more details contact David Haigh, 43 Brow Bottom Lane, Mixenden, Halifax, West Yorkshire HX2 8TE.



David Haigh and Dick Ganderton in the Radio Room at Mixenden Junior School with (l - r) Kelly (10), Kirsty (9), Damien (11), Karl (10) and Katie (10).

Telecommunications Exhibition

Dr. Pekka Tarjanne, Secretary-General of the International Telecommunication Union (ITU), signed an agreement recently with Dr. Sergio Viera da Motta, Minister of Communications, Federative Republic of Brazil, to hold an international telecommunications exhibition and forum in Rio de Janeiro next year - Americas TELECOM '96. The ceremony took place at ITU HQ and provided an opportunity for a first meeting since the Minister assumed his role in the newly formed Brazilian Government in January of this year.

Americas TELECOM '96 will take place from 10 to 15 June in the Riocentro exhibition and conference centre. This is the third event to be organised by the ITU in the Americas Region, in fact, Rio de Janeiro was the location for the first event held in 1988, and was followed four years later by Americas TELECOM '92 in Acapulco, Mexico.

The '96 event will coincide with the 25th anniversary of the first TELECOM event held in Geneva in 1971. The regional events were introduced in 1985 in order to address the more specific concern of the individual regions. Since then, these events have grown in size and prestige and have become the most respected and authoritative in the world. The events are held in four year cycles, in order to ensure adequate global coverage across all 184 member countries of the ITU.

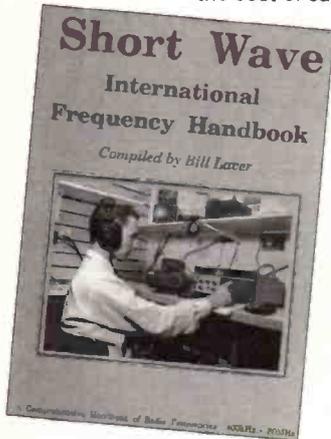
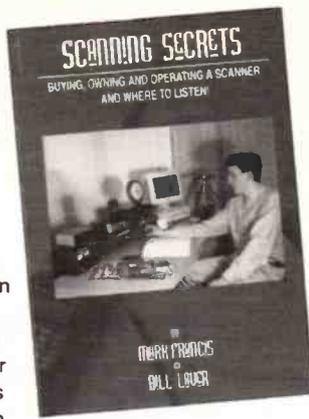
The showcase exhibition will feature a vast range of telecommunications and related products with a strong presence expected from both national and international companies. The associated forum will focus on the latest telecommunication developments and growth and will provide a platform for telecommunication leaders to share their ideas on future trends.

Post and Packing Free

For a limited period only the SWM Book Store is giving away P&P for two titles.

When you order either *Scanning Secrets* £16.95 or *Short Wave International Frequency Handbook* £12.95 the 'Book Store' will throw in the cost of carriage.

The offer runs from the on-sale period of this issue, ie. from 23 July to 23 August 1995. To order your copy now contact the **SWM Book Store, PW Publishing, Arrowsmith Court, Station Approach, Broadstone, Dorset BH18 8PW. Credit Card Hot-Line (01202) 659930, Fax: (01202) 659950. E-Mail: bookstore@pwpub.demon.co.uk.**



news

Radio and TV DX News

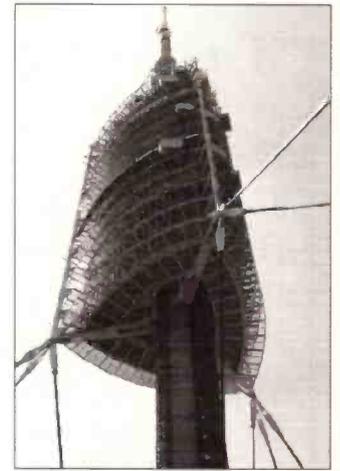
The Norwegian parliament is being pushed into action by broadcaster TV2 over concern that 'local' TV services - specifically TV Norge - are receiving programmes via the SBS pan Scandinavian company. By providing national linking TV Norge has in effect become national rather than regional, TV2 claim this is breach of it's charter and seek an end to national 'networking' of local channels. TV Norge is a popular channel and is drawing audiences away from TV2 - and commercial revenue, now with over 70% population coverage. SBS - the Scandinavian Broadcasting System is expanding into Holland with their SBS-6 service opening August 28th.

The first u.h.f. TV service in Thailand opens shortly. Siam TV will offer factual, news and documentaries during peak viewing times to differ from the other five terrestrial channels. Siam will construct 36 transmitters and four studio centres for the service intending to reach 97% of the population by 1997.

More regional broadcasting licences were on offer up to end May with 30 channels in total available in the latest round of privatisation in the Warsaw, Northern and Central Poland.

An interesting comment from Robert Copeman (Melbourne), on hearing that future plans for Band 1 allocations may include an amateur allocation for beacons at 40.68MHz, in Australia, this frequency is allocated for medical paging units. Fine now, but with the next sunspot cycle predicted to hit a peak of 200 spots, this frequency may be rather congested! New Pay-TV channels in his area within the Galaxy package are Premier, Sports Network, Encore, Showtime, TV1, Quest, Max and Arena. All transmissions are at MMDS 2.5GHz. scrambled.

Sporadic-E conditions opened up end May, early June with reception described by Ryn Muntjewerff, Holland as 'a real old fashioned DX day!' May 31 saw an Arabic ch.E3 unidentified and a Russian 'OK-1' clock but +4 hours CET. 2 June within one hour early a.m. Ryn logged and confirmed ch. E2 Iran; ch.E3 JTV Amman; ch. E3 Saudi Arabia @ Dahran (HZ22



Looking up the spout of the Spanish RTVE TV/radio tower at Collserola during a holiday taken by reader George Gaskin, Gibraltar. Other transmitter mast pictures from readers would be welcome.

test card) and ch.E3 Syria (using the ORTD PM5534 test card). A new logo 'RM' seen in programme corners is Moldavia and a small figure two on ch.R2 is TVP-2 Poland. A new Italian private station has been seen ch.IA with 'Radio' logo and a second with 'Video' logo, Garry Smith (Derby) meanwhile logged an unidentified 625 line system D programme at 58MHz (off channel) 20 June at 0910-1000BST.

German authorities have licensed two new cable channels, COM-TV - Centre of Music TV is UK backed and will feature jazz and country music together with German hits. The other channel has as yet been unnamed and will offer a menu of travel and weather content, it's backed by Austrian, German and US interests from the Northrhine Westphalia group.

The Spanish Telecinco channel is still on the market and unable to find a buyer at the asking price, thought to be some \$480 million. The French TF1 and Mexico's Televisa have both been turned down at \$360 and \$420 millions respectively. Whilst the owners Fininvest/Kirch seek, hopefully, a Spanish buyer.

Errata

Unfortunately, there are more corrections to the v.h.f. Super-regenerative receiver project, which was published in the May and June issues of SWM.

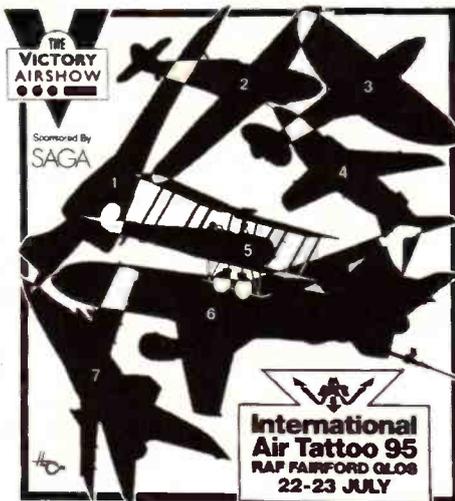
There is a further corrected artwork available for the p.c.b. This can be obtained by sending an s.s.a.e to the Editorial Offices. Please mark your letter clearly 'VHF Super-Regen A/W'.

The correct p.c.b. is available from **SWM PCB Service, Badger Boards, 80 Clarence Road, Erdington, Birmingham B23 6AR. Tel: 0121-384 2473.** Badger Boards are also offering a complete kit for £27.00.

Air Tattoo Prize Winners

We are pleased to announce winners of the recent Air Tattoo competition, which appeared in the June '95 issue. There were lots of entries, and the following 15 winners picked out have received family tickets:

J. Dennis, Lincs
T. Dowling, York
K. Duckhouse, Dorset
E. Salisbury, Hereford
P. Wilson, Warwickshire
D. Skinner, Middlesex
R. Thomas, Hertfordshire
E. Bell, Plymouth
P. Newman, Beds
M. James, Gwynedd
J. Thomson, Scotland
N. Anderson, Edinburgh
C. Bryan, West Midlands
K. Duckhouse, Dorset
A. Edwards, Shropshire
J. Stancer, Peterborough



The correct answers are, for all of you who still haven't worked it out, as follows:

1. Concorde
2. Me109
3. Spitfire
4. Hawk
5. Avro 504
6. KC-10
7. Tornado

PRO-2035

Congratulations to Mr E. Exall of London, who was the winner of the PRO-2035 competition. Mr Exall wins the base station scanner, kindly donated by **SRP Trading**.

Correct answers are:

- | | |
|-------------|---------------------|
| Question 1. | No Licence required |
| Question 2. | 1100 channels |
| Question 3. | 50ch/second |

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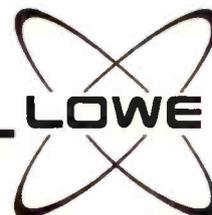
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CAPTAIN COOKE



- RADIO'S MOST ENDURING PIRATE

I swung the dial on my radio to 100MHz f.m. and was immediately struck by the fine quality of the signal. Crystal clear music in stereo. What station is that, I wondered? I didn't have to wait long to find out.

'You're listening to Radio Dublin on 100 f.m.' the dulcet tones of the DJ announced before launching into another fifteen minute stint of uninterrupted love songs. From that moment on I was hooked. But try as I might, I could find no trace of the stations existence in the radio and TV pages of the newspapers, or in any of the entertainment magazines.

It's hard to describe how I felt when I eventually did find out about the station that I'd grown to like.

'Oh, you mean the Pirate Station,' someone in the know said in answer to my question.

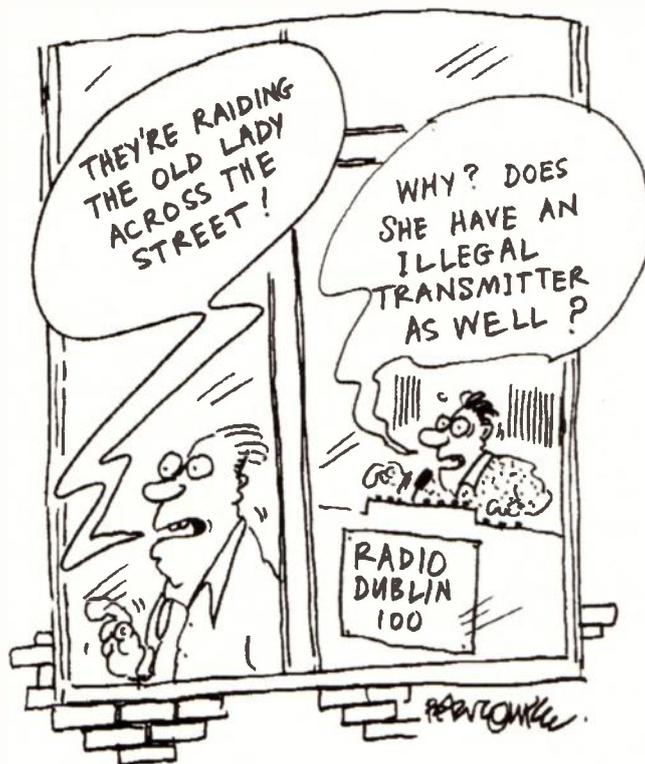
'Pirate? What do you mean?' I asked.

'You know they're illegal. But don't worry, everyone listens to them. They've been around for ages.'

From that moment on I just knew I had to meet the man behind the station. I had to meet the pirate.

So, I waited until I heard the DJ giving details of a 'phone-in request programme, took down the

Grant McDuling meets up with Ireland's tenacious illegal broadcaster, a true bandit of the airwaves.



number and rang in.

'You want Captain Cooke then' the DJ replied and promptly gave me his home 'phone number. Another quick call to the man himself and a meeting was arranged for the very next day. As simple as that.

So, it was with more

than a little trepidation that I pulled up outside his house and rang the doorbell. At 58, Eamon Cooke was older than I had expected, and a lot more affable. Here was a caring man, I could see, who loves children - his seven were constantly all over him during the interview.

'Where did it all start?' I asked, and he sank back into the chair.

'Radio Dublin is now 28 years old,' he began. 'It all started for me when this chap came into the radio repair shop that I ran at the time. He asked if I could fix his transmitter. Well, I had never seen one before, so I was interested to find out how it worked. To cut a long story short, I got it going and from that moment on, I became involved in pirate radio. That transmitter only pushed out 5 or 6W, but it was a start.'

At that time, the kids of Dublin only had Radio Caroline, a pirate station operating from out at sea, to listen to. No other station carried pop music, and reception was poor.

First 24 Hour Station

'We were the first pirate station to operate on land, reception was better too; the Captain explains. 'But it wasn't until 1977 that we put out a really good commercial a.m. signal when we commissioned a 150W transmitter. We began broadcasting 24 hours a day and became the first station in Ireland, including the national network, to do so. This really marked a milestone in Irish broadcasting and I broke the

BROADCAST SPECIAL

mould of pirate stations being operated more as a hobby than as a commercial business when we started carrying paid advertisements. In 1979, we went f.m. and the following year we bought a new 5kW a.m. transmitter.'

Leaps and Bounds

Radio Dublin progressed in leaps and bounds and was soon operating five a.m., one short wave and one f.m. transmitter. And then the threats and harassment started.

The Captain was constantly harassed by the Department of Posts and Telegraphs, his property was vandalised during raids and he began living on his nerves. But he was only once successfully prosecuted, thanks to the quirkiness of Irish law.

'The law said you could possess a transmitter, as long as it was capable of being used for other purposes,' he explained. 'You know, like being able to be used as an amplifier for a disco. Well, when the police raided the station in 1978, we had literally switched the transmitter off ten seconds before they arrived. The valves were still hot, but it was technically off. So when the judge asked if it was being used at the time, the policeman had to say no. And when asked if it could be used for another purpose, I had to say yes. The case was dismissed.' But that didn't bring the raids to an end.

'I remember another time when the police arrived in cars from all directions. We watched as they surrounded the house over the road. Then, when they were all in position, they charged in and began to systematically take the place apart. They pulled up carpets, lifted the floor boards and generally wrecked the house amidst protests from the woman

who lived there. They chose the wrong house that time. Their signal strength instrument was a primitive one and didn't work for them on that occasion.'

In true pirate fashion, Eamon Cooke remained undaunted, and surprised many with his open and also brazen approach. He actually persuaded politicians to make up his station during the election campaign of 1981 and opened Radio Fianna in the party's election headquarters in Dublin's O'Connell Street for a two week period broadcasting on f.m. throughout the inner city!

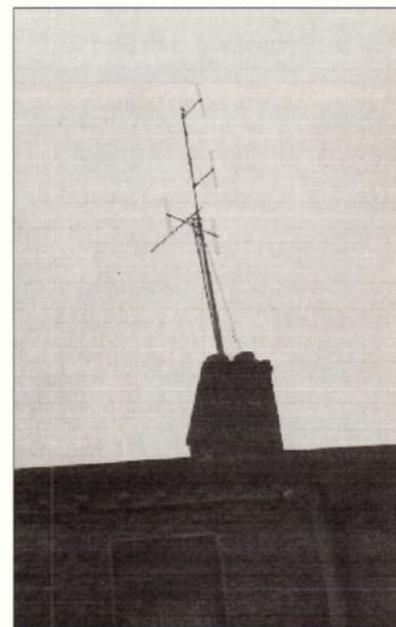
But more trouble was on the horizon. In December 1988 the draconian Broadcasting and Wireless Telegraphy Act of 1988 was introduced. Pirate stations all over the country closed down but Radio Dublin soldered on regardless of the £20000 fine that they faced. Equipment was seized in yet another raid, but this time the law stated that the Department had two

years in which to issue a summons.

Come and Collect Your Summons

'So we continued on air in the meantime, making do with what equipment we had. When the two year period was almost up, I received a 'phone call from the police to come and collect my summons. What kind of a fool did they think I was? Well, I never did go round to collect it, and when the case eventually got to court, it was thrown out on a technicality as the summons wasn't served within the stipulated time. I still haven't received my equipment back,' he adds with a twinkle in his eye. 'I suspect it has long since been scrapped, but I've sent them an invoice for the £50000 instead.'

In 1991 Radio Dublin celebrated its 25th



Radio Dublin's mast with v.h.f., m.w. and s.w. antennas stacked closely together.

anniversary in true swosh-buckling style by throwing a real 'hooley' at the Mansion House, the official residence of the Lord Mayor of Dublin!

The situation seems to have settled down now with only flagrant rocking of the boat likely to produce an objection from one of the licensed stations.

Radio Dublin now operates a modern 1000W f.m. Italian-made CTE transmitter that they purchased for £12000. Their short wave transmissions are picked up all over the world are listened to by countless thousands of Irish emigrants.

'Perhaps by the time we celebrate our 30th anniversary, the authorities will have seen it fit in to give us a licence,' the Captain says as I prepare to leave. But somehow I wonder if that is something he would really welcome. Eamon Cooke is a true pirate-at-heart.

IS THAT THE PHONE-IN?
OH GOOD!
MR. COOKE - COULD YOU COME
DOWN TO THE POLICE STATION
TO COLLECT YOUR SUMMONS FOR
ILLEGAL
BROADCASTING !!



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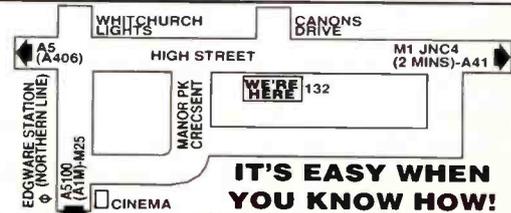
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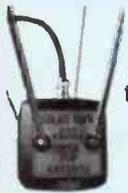
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Panasonic RFB-45 VGC.....£109.95
Sangean ATS-803A As New.....£PHONE

MEDIUM WAVE DXING

I'm fortunate enough to reach forty this year. I say fortunate because I'm old enough to remember Pirate Radio and I've spent many a long night under the bedclothes with my tranny and torch (yes, a torch always improved reception!) trying to tune into Radio Caroline, and later, Radio Veronica and Radio Northsea International, etc.

The thrill with the Pop Pirates was in listening to something that you shouldn't, and led me into medium wave DXing, as once again I was listening to something that I shouldn't, but for a different reason. DXing to me means looking for stations outside their normal target areas. So, looking for local stations from other countries, stations that you shouldn't normally hear, became the challenge, as well as a quest for other sources of entertainment.

Transmitter Power

Medium wave signals are usually received via groundwave propagation. The coverage area of the transmitter is governed mainly by transmitter power and the height of the antenna.

Small countries, like the UK for example, can achieve national coverage with around 100kW of power. With around 10kW of power, large cities or even countries can be provided for on a more local basis.

At these frequencies, below 2MHz, these signals are absorbed by the D layer of the ionosphere. This layer is only present during daylight hours and once darkness falls, it disappears and signals reach the E layer, which is capable of reflecting

Tom Crosbie explains how he first got interested in medium wave DXing and how, over the years, the medium waves have provided a constant challenge.

medium wave signals back to earth.

Some very long distances can therefore be achieved, making it possible to hear stations in North and South America and also from Asia. The medium wave band in Europe is used mainly for regional and national broadcasting, and as a result, powerful transmitter sites have been set-up to give this coverage in each country.

More recently, many low power local stations have also been set-up. These factors do create some problems, as there is a vast number of stations all competing for a clear bit of spectrum. At night, when propagation changes, wideband noise can be heard across the whole band, making DXing conditions extremely difficult, and therefore a challenge!

On the other hand, the limitations set by the size of the USA led to radio developing in a very different way. There is no true national station, so radio developed very much on a local basis.

As a result, there are thousands of stations that the avid medium wave DXer can chase after, all operating with much lower powers than you will find in Europe, again making this a great challenge!

All this may be making you think that medium wave DXing should be almost impossible, it wouldn't be half as much fun if it was easy! Listening to medium wave DX can be easy, once you've got the right tools and you know where to look and when.

Art Of Tuning

Obviously, you need a good receiver. I started medium wave DXing with a four-valve receiver, hacked out of an old radiogram and later with several transistor portables.

None of them were particularly ideal, but they got me started, and if there's one thing I learned, it was the delicate art of tuning. You've got to be very careful when the whole band is only 50mm long and the tuner is driven by pointer and string!

Whatever receiver you have, don't be afraid to try, you might just be surprised at what you can hear! Today's digital portables are much better, direct frequency read-out at least lets you know you are on the right frequency.

So, if you cannot hear the station you are looking for, it may be due to propagation conditions. This applies also to communications receivers, which by their very nature are better for DXing.

Most receivers split up the spectrum into smaller segments and provide a tuned circuit to cover a smaller bandwidth. These are called bandpass filter stages and their function is to keep signals from other parts of the spectrum out of the receiver.

These stages do help performance quite a lot but you'll notice that the medium wave sensitivity is far lower than on short waves. This is a deliberate policy by some

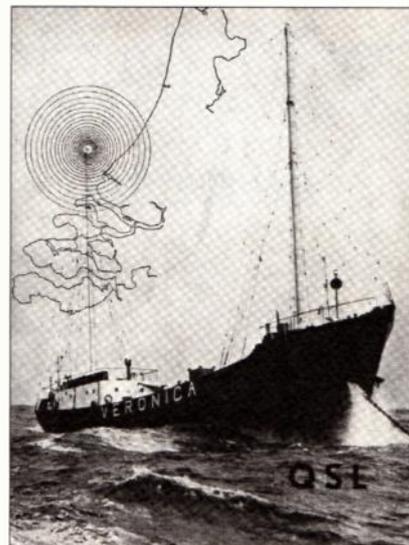
manufacturers as it helps to enhance performance on the short wave bands by reducing the likelihood of image frequencies of medium wave stations appearing up and down the short waves.

One or two manufacturers do however, appreciate that medium wave DX exists and design receivers accordingly. Despite this, communications receivers do have many, many other advantages, not the least of which is that they are designed to work with external antennas. Most portables will overload terribly if used with anything other than their telescopic whips.

Successful DX

A good receiver will offer different a.m. bandwidths, allowing better selectivity, r.f. gain controls to vary sensitivity, and most useful, a notch filter on some of the more expensive sets. Unlike a lot of portables, they will also have s.s.b. modes.

When you are suffering from adjacent channel interference, you can tune onto one of the sidebands of



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the a.m. signal. Although this degrades the audio reproduction, it will enable you to listen interference free and identify that weak station. This is called Exhalted Carrier Sideband Selection (ECSS), but this does need a good receiver capable of suppressing the carrier though.

I've DXed successfully with just a standard longwire, but if you can use a directional antenna then so much the better. The Medium Wave Frame Antenna has been around for ages and is popular with medium wave DXers.

This is usually a wooden frame, about 1m square, with several turns of wire around it, tuned by a 500pF capacitor. The fact that it is a tuned antenna means you can optimise it for the frequencies you want to hear and increase rejection of those not wanted.

Many Variations

There are many variations to the design and construction and if you can get hold of a copy of *Wires and Waves* by PW Publishing Ltd., the publishers of *SWM*, there is a good design in there. You'll find a useful pre-amplifier design by Steve Whitt in there also.

If you really want state-of-the-art however, check out the loop antenna made by Kiwa Electronics in the USA and reviewed elsewhere in this magazine. The advantages of the loop are twofold. By pointing it at the station you want to hear, you'll increase your chances of hearing it as the antenna will demonstrate some effective gain.

At the same time, it will also reduce the level of any signals arriving from 90 degrees either side, reducing co-channel interference. This has a knock-on effect in the receiver. Because there is in effect a smaller signal reaching the receiver, there will be less tendency for the

a.g.c. working to reduce the signal. You will probably get some useful gain instead.

Long wire antennas can also be successfully employed, but they need to be fairly long. Around 20m will give good results with an RF Systems Magnetic Longwire Balun.

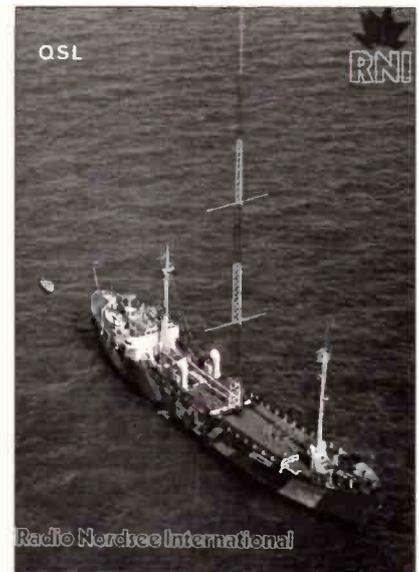
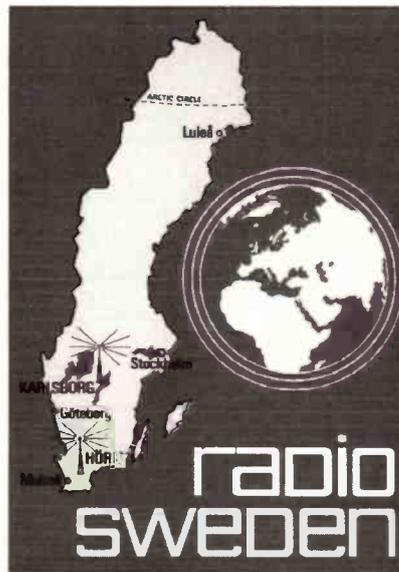
Vertical antennas are also useful and I use one about 10m high using a flexible telescopic mast and MLB. The RF Systems GMDSS antenna can provide good results as it is an antenna with low background noise and is optimised for low frequency reception.

New Toys

There are some useful new toys appearing in the market place today for the medium wave DXer, including several audio filters employing digital signal processing. One of the better ones, the JPS Communications NIR10, has produced faint audio signals for me from a signal that was no more than an increase in noise level!

JPS's new ANC4 is an antenna noise canceller, which reduces noise picked up by the antenna using cancelling techniques. I find it useful to keep a tape recorder connected up to my receiver, too.

The best tool a medium wave, and in fact any, DXer can have, however, is patience. Don't expect to hear lots of transatlantic stations on your first night, although if you can hear one, there is a good chance that you'll be able to hear another from the same geographic area. Several long evenings will have to be spent just monitoring a single



frequency, waiting for the right propagation conditions.

Given a good antenna, a good receiver and a smattering of knowledge about propagation, you now need to know where to look and when. In Europe, all medium wave channel spacing is in 9kHz steps and this plan extends throughout

most of Africa and Asia, too.

The band starts at 531kHz and extends up to 1620kHz. It is possible to monitor many European stations during daylight hours from the UK, particularly if you are anywhere up and down the eastern seaboard where reception of Scandinavian, Dutch, and French stations

Table 1 - Your first 60-odd countries...

1	531kHz	Switzerland	34	927kHz	Belgium
2	540kHz	Kuwait	35	936kHz	Ukraine
3	549kHz	Russia	36	954kHz	Qatar
4	567kHz	Ireland	37	963kHz	Finland
5	576kHz	Latvia	38	981kHz	Greece
6	585kHz	Pakistan	39	1008kHz	Netherlands
7	594kHz	Saudi Arabia	40	1017kHz	Turkey
8	600kHz	Cuba	41	1035kHz	Estonia
9	603kHz	Cyprus	43	1044kHz	Georgia
10	612kHz	Bosnia	42	1062kHz	Denmark
11	621kHz	Belgium	44	1080kHz	Poland
12	630kHz	Romania	45	1098kHz	Slovakia
13	639kHz	Czech Republic	46	1107kHz	Egypt
14	648kHz	Libya	47	1125kHz	Croatia
15	666kHz	Lithuania	48	1134kHz	India
16	684kHz	Yugoslavia	49	1170kHz	Belarus
17	693kHz	Bangladesh	50	1179kHz	Sweden
18	711kHz	Morocco	51	1215kHz	Lebanon
19	720kHz	Portugal	52	1242kHz	Oman
20	730kHz	Costa Rica	53	1269kHz	Germany
21	738kHz	Israel	54	1278kHz	Afghanistan
22	765kHz	Iran	55	1296kHz	Sudan
23	783kHz	Syria	56	1314kHz	Norway
24	792kHz	Yemen	57	1341kHz	Hungary
25	801kHz	Jordan	58	1377kHz	Iraq
26	810kHz	Macedonia	59	1395kHz	Albania
27	828kHz	Bulgaria	60	1440kHz	Luxembourg
28	846kHz	Italy	61	1467kHz	Monaco
29	855kHz	Spain	62	1476kHz	Azerbaijan
30	864kHz	France	63	1476kHz	Austria
31	873kHz	Moldova	64	1530kHz	Vatican City
32	891kHz	Algeria	65	1566kHz	Tunisia
33	918kHz	Slovenia	66	1584kHz	Bahrain



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The New Concept AR8000 UK receiver bundled with the SC8000 leatherette soft case, TW500 telescopic whip (in addition to the standard RA8000 helical aerial), WA1500 wire aerial with BNC plug... FREE CARRIAGE £455 (saving over £32)

PACKAGE AOR/03 - AR2700

Portable "airshow ready" package
The New Star AR2700 UK receiver bundled with the SC2700 leatherette soft case, RU2700 voice record module (workshop fitted), DA900 flexible whip (in addition to the standard TW500 telescopic whip aerial)... FREE CARRIAGE £349 (saving over £25)

PACKAGE AOR/04 - AR2700 "Voice record ready"

The New Star AR2700 UK receiver bundled with the RU2700 voice record module (workshop fitted)... FREE CARRIAGE £325 (saving over £18)



SPECIAL PACKAGE DEALS

PACKAGE AOR/05 - AR3000A computer ready package

AR3000A base / mobile receiver bundled with SEARCHLIGHT FOR WINDOWS IBM-PC control package and RS232 serial cable... FREE CARRIAGE £1049 (saving over £61)



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AR3000A "PLUS" enhanced base / mobile receiver bundled with the SDU5000 spectrum display unit... FREE CARRIAGE £1729 (saving over £169)



PACKAGE AOR/07 - AR3030 with VHF

The New Classic AR3030 superb general coverage receiver bundled with the VHF-FM VHF all mode converter 118 - 165+ MHz and RA2001 telescopic right-angled whip aerial... FREE CARRIAGE £749 (saving over £72)



REACTION TUNE ensures that you hear it FIRST!

NEW OPTOELECTRONICS Scout & AOR AR2700 / AR8000 receiver

If portability is of prime concern and "hand carry" is the only possibility then the Scout may help you locate those elusive transmissions when visiting airshows, motorsport events etc. The Scout is similar to a conventional frequency counter in that it measures the frequency of any transmission from 10MHz to 1.4GHz which is 10dB to 15dB higher than the ambient RF background level. However, the Scout distinguishes itself from a traditional frequency counter by being able to differentiate between random noise and coherent RF transmissions. This exclusive feature developed by OPTOELECTRONICS is called DIGITAL FILTER & AUDIO CAPTURE. Its this feature which enables the Scout to record the frequency of transmissions automatically as an embedded microprocessor evaluates each measurement to determine when and which RF frequency is dominant.

Of particular interest to operators of the AR2700 & AR8000 is the ability to connect the Scout directly to the receiver (small modification required) so that active frequencies are automatically fed to the AOR receiver which immediately jumps to the active frequency reported by the Scout, this feature is called REACTION TUNE. Previously the Scout would only connect with the ICOM R7000, R7100, R9000 and Pro-2005/6 ALL OF WHICH ARE BASE STATION UNITS. OPTOELECTRONICS have acknowledged AOR's innovation of computer control in hand held receivers (CURRENTLY ONLY OFFERED BY AOR) and have added support to the Scout making it possible to take the system portable so the full potential may be exploited. Another strong plus for the AOR is the AUTOMODE BANDPLAN DATA programmed into the AOR receivers, this ensures that when an active frequency is reported by the Scout, the AOR receiver will automatically change to the correct mode - again, not available on other brands.



Specific applications include compact "go anywhere" use where previously unreported frequencies may be in use at airshows, motorsport events etc. As the Scout effectively reviews a tremendous frequency range "in one go", that elusive transmission may be easily located and REACTION TUNE ensures that you hear it FIRST!

Scout £425 (Modification to AR2700 / AR8000 £25 plus carriage)
Special package of AR8000 + Scout £839

CR8000 tape interface / lead

The CR8000 tape lead / interface is now available for the AR8000 receiver. The interface comprises of a neat black plastic box with a ribbon cable for connection to the AR8000 receiver and two leads for connection to a tape recorder. The tape leads terminate in a 3.5mm mono jack plug for audio output and a 2.5mm mono jack plug for motor control. The CR8000 is compatible with a wide range of tape recorders using low voltage DC motor switching or VOR / VOX voice activation. The interface is powered from the AR8000 so that no additional battery or power supply is required. CR8000 £44.90 + £2 P&P

SC8000 soft leatherette case £17.95 + £1.50 P&P

Software control for the AR3000A, AR3000, AR3030, AR8000 & AR2700

* DEMO DISKS AVAILABLE *
£3.00 including P&P - state which

TIP OF THE MONTH AR3000/3000A flat battery ???

The older AR3000 and AR3000A will one day require a replacement memory backup lithium battery. The symptoms of a flat battery are loss of memories (won't scan) and the receiver resetting every time the power is removed. A battery near exhaustion may show an increase to potential crashing due to power transients or static discharge... in fact we recommend that the receiver is always switched Off from the front panel when not in use rather than simply removing the power plug or switching Off the mains outlet.

The lithium battery is located on the reverse of the microprocessor PCB which carries the LCD, keypad etc. The battery is of a solder-tag type CR2032. Check the voltage using a digital voltmeter between the positive terminal and chassis (the +ve usually being protected by a black tape covering), the cell is a nominal 3.0V and when the voltage drops below 2.80V it is time to be changed.

Should you need to reset the AR3000 microprocessor, there is a small grey momentary action reset switch on the reverse of the microprocessor PCB next to the circular piezo keypad bleep unit. With power connected to the receiver and front power switch depressed PRESS AND RELEASE the reset switch. All memory channels will be cleared, the display will blank then all segments appear then reset to the default of 80 MHz. The reset details for the AR3000A are shown on page 54 of the operating manual.

A replacement battery is not too expensive, we can supply a replacement battery priced at £4.35 including postage and VAT. However if you are not used to working with very fine PCB tracks then do not attempt repair yourself... we will be happy to quote for battery replacement, full performance test and return carriage & insurance. If phoning please ask for "Andy in SERVICE".

NOTE: Very early AR3000 receivers used either a NiCad or larger 100mA lithium cell (usually blue in colour), if you have a receiver of this type and are experiencing problems please speak to an engineer. **Other AOR receivers such as the AR3030, AR8000, AR2700, AR2000, AR1500, AR1000 use an EEPROM chip storage so that no battery is required.**

External long wire aerials???

The AR3000A/3000 is fitted with a preamplifier for the short wave bands, the default is preamp On. As shipped from the factory a useful level of service is provided when using short lengths of wire up to 5m. If using longer wires or elaborate specialist designs such as "active" aerials then better results will be achieved with the preamplifier switched Off. The switches are located on the top of RF PCB under the top case of the receiver. To remove the top case first remove two screws from the bottom case half next to the front feet then four screws from the back panel. TWO DIP SWITCHES control the preamplifier and are easily visible. To switch the preamplifier Off slide both switched together (they are unusual apart - On - as default). Remember, only the short wave bands will be affected.

A further improvement in performance may be gained by adding external preselection in the form of the LOWE PR-150, we have received many reports of excellent results with this combination but it does depend on your location and aerial configuration.

If you find this column useful please let us know and we may make it a regular feature.

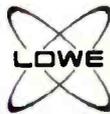
AR8000 (& AR2700) - PC-MANAGER is an optional DOS utility for memory & search bank management. The software (which works in conjunction with the optional CU8232 interface) permits upload, download, editing, renumbering, saving of data, editing of auto-mode bandplan data plus a built-in terminal driver. It is planned to add support for the AR2700 during the summer (the AR2700 may also require the optional IF-ADP lead). A WINDOWS based package is also under development and should become available during the summer months. Full features will be provided including scanning, searching, spectrum display, recording to disk etc. **CU8232 interface £99 + £3 P&P PC-MANAGER £49 + £3 P&P**

AR3000A & AR3000 SEARCHLIGHT is a PC WINDOWS based software package enabling control of frequency, mode, attenuator, scanning, searching, upload, download, spectrum analysis, recording to disk. **AORSC** is a PC DOS based control package with bandplan data and integrated logbook. **SEARCHLIGHT £99 + £3 P&P AORSC £75 + £3 P&P**

AR3030 CONCERTO is a PC WINDOWS based software package adding further versatility. Duplex frequencies may be held in software memories along with text comments for easy identification. Control of frequency, mode, attenuator, filter selection etc are available along with a spectrum display. **CONCERTO £49 + £3 P&P**



AR8000 receiver - hand held all mode receiver with twin frequency display, alphanumeric text comments and optional computer control. £425



AR2700 receiver - hand held receiver with optional voice record module and computer control. £285

AR3000A receiver - base / mobile all mode true base station. £955

AR3000A PLUS receiver - enhanced version of the AR3000A with WEFAX, narrow AM filter, SDU "ready" etc. £1039



AR3030 receiver - all mode short wave receiver. £665

*Many accessories available from stock. * New aerial booklet available, please phone or send a SAE for details and prices.*



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VT225 £239, **VT125** £185, **LOWE HF150** £399, **HF225** £479,

HF225E £675, **PR150** £229, **DRAKE SW8** £625, **R8E** £1149,



OPTOELECTRONICS Scout £425 and much more...

USED EQUIPMENT

A selection of good clean used equipment is usually available. The following are available

at the time of going to press. Please check availability, a full list is available to request but stock varies daily. All used equipment carries a meaningful three months warranty. Carriage £6.00 Trade-in enquiries welcome.

AOR AR3030 gen cov Rx (Ex-Demo with 12 month warranty)	£575
LOWE HF225E Europa gen cov Rx	£490
LOWE HF150 gen cov Rx with K150 & A150 - only recently purchased ...	£349
AOR AR2800 base / mobile receiver, very good condition	£275
AOR AR3000A PLUS high performance Rx. Ex-review 12 months warr ..	£825
AOR AR2700 hand held Rx. Ex-Demo, 12 months warranty	£249

Ex-demonstration units are often available as a result of magazine reviews, government department assessments, software development etc. Please ask for details.

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BROADCAST SPECIAL

Table 2 - Some of the easier North American catches

580kHz	CKY	Winnipeg	1130kHz	WDFN	Detroit
590kHz	CJCL	Toronto	1210kHz	WGMP	Philadelphia
670kHz	WMAQ	Chicargo	1220kHz	WKNR	Cleveland
680kHz	WCNN	Atlanta	1310kHz	CIWW	Ottawa
760kHz	WRJ	Detroit	1400kHz		Lots Of Very Low Power Stations
770kHz	WABC	New York			
850kHz	WEEI	Boston	1470kHz	CJVB	Vancouver
860kHz	CJBC	Toronto	1560kHz	WQEW	New York
940kHz	WINZ	Miami	1570kHz	CKLM	Montreal
1030kHz	WBZ	Boston	1580kHz	KBLA	SantaMonica
1120kHz	KMOX	St Louis			

may be possible. **Table 1** shows a listing in frequency order and giving the countries of origin of some of the more powerful, and easier to hear stations.

Time Factor

Time is another factor in medium wave DXing. Ideal propagation conditions exist when there is darkness between your location and the transmitter site.

Prior to darkness arriving here in the UK, it is already dark in Eastern Europe, the CIS, the Middle East, and Asia. DX is possible from the East also so don't forget to point your antennas in that direction towards the end of the afternoon. Bear in mind that it will also be late into their night and as many stations close down around 2300 local time, they will start to disappear.

You don't always need total darkness for reasonable reception conditions. Darkness at the transmitter site and at the point of reflection in the ionosphere is sometimes good enough to allow some of the reflected signal to make the hop.

The eastern stations can start to appear before sky wave propagation starts to let the bigger western European stations through. Sometimes, early morning just before dawn produces good results. Don't forget the patience!

Moving west, medium wave broadcasting in America has channel spacing of 10 kHz so medium wave DXing in north America is a little easier. Being that extra

1kHz away gives that little bit of extra performance, as heterodynes are less likely and the receiver does not need to be as selective. That's why you may read of many US DXers using simple radios and getting comparatively good results.

With frequencies every 9kHz in Europe and every 10kHz in the USA, there are going to be some common frequencies and these are always going to be awkward! But there are going to be some where American channels fall in between ours and the places where there is the biggest gap is where to start looking for transatlantic DX.

These spot frequencies are shown in **Table 2**, together with some stations that have been heard in the UK. By monitoring these frequencies you can increase your chances of hearing your first real DX!

Stations located in Canada and on America's east coast are the first to start rolling in, as darkness falls there first. For this reason, stations from the West coast are a little more difficult, but not impossible if you are prepared to wait up until the very small hours! If you are going to chase north American stations over a period of time and you are using a loop, don't forget to turn it round a little in line with darkness falling farther east.

Useful Tool

Whilst we are looking east and west, it is as well to introduce the fact that the

world is round! This means that to hear American stations, we do not point our antennas to the west, we point them north-ish! If you can get hold of a Great Circle Map, you'll see what I mean.

The RSGB produce one that is sold by most of the usual dealers and this is a very useful tool for the serious DXer. SWM also gave one away some years ago and you can get a copy from the Editorial Offices for £1. Signals can be reflected at all sorts of angles so, if you are hunting a particular frequency, don't be afraid to also turn the antenna

Don't be fooled by the language trap! American stations will be predominately English, so will stand out. Your native language will always be easier to understand, even under very noisy signal conditions. Remember though, that French is very common in Canada and in North and Western Africa, and Spanish and Portuguese in South America.

Many local US stations also have to cope with multi-lingual populations as well, so expect all sorts from there! That weak Asian station might just turn out to be news in Hindi from BBC Radio Leicester!

Like any other branch of the radio hobby, you can never have enough frequency guides! Detailed frequencies can be found in the *World Radio and TV Handbook*, available from the SWM Book

Store, an excellent publication you ought to buy every year. It provides the all-important address listings, essential if you are going to send in reception reports and collect QSL cards.

Joining the Medium Wave Circle is also a good idea, as the newsletters are always informative and you can exchange ideas, hints and tips with other like minded DXers. And, of course, there is also the LM&S column in this very magazine!

If you have a computer and a modem, try the rec.radio.shortwave newsgroup on the Internet. Once again, there is a good cross section of ideas and people to exchange information with.

Constant Challenge

Over the years, the medium waves have provided me with a lot of entertainment, including music and has expanded my knowledge of geography and language. I've dipped into many cultures and got many different slants on world news and events and at the same time there is the constant challenge of propagation conditions and big local signals keeping you away from the good catches.

Next time the short wave bands go quiet just tune down a bit. There's another world waiting!

LIES, DAMNED LIES AND SIGNAL REPORTS



John Worthington GW3COI shares his thoughts on contests, operating and sending true reports.

Listeners to amateur radio contests cannot fail to notice that in the case of s.s.b. events, the only report one hears is 'Five and Nine' and during c.w., 'Contests 599'.

An inexperienced listener may feel for a while how strange it is that all signals should be perfect, but soon he will realise that each contester is saving himself logging work and, more importantly, time spent reporting other reports such as 'Three and Six' or whatever over a path which is heaving with interference from other contesters.

As an occasional entrant, I find this habit very disappointing as I used only to enter a contest briefly to see how my latest antenna or transmitter, etc. was performing (as against other UK stations).

True Reports

In the 60s, true reports were the order of the day and contests were welcomed by the 'common' experimenter as much as the dedicated 'Winner's Certificate' hunter. But the 'Five and Niners' started to creep in from USA and of course it was not long before everybody joined in. Well, almost everybody. I still give a true report, knowing full well that whatever I say

will be logged as 'Five and Nine'! So why bother? Well, if enough of us do it maybe we shall return again to the true reports. Some hope!

I always find amateur reports interesting in that there is an infinite number of ways any particular transmission can be described. Quite often I hear reports that could easily be of another signal altogether and not the one we and the reporter are listening to.

Then again, I often hear signals that are grossly distorted due to maladjustment of the sender's tx, given reports of the 'lovely transmission Old Man'. The answer to this conundrum has to be that the praise comes from a chap who has to live with a constant noise level of S9 wherein any signal that overrides it is going to get a good report and to hell with the niceties of speech quality.

Modern Habit

Then there is the modern habit of 'counting the numbers' when one is giving a report and one's signal is weak in output. For instance, 'Five and Five' would be given as One Two Three Four Five. Now, this is a ploy which is often successful and the reason is that the straining ears at the other end are listening to a rough sort of Morse code, except

that if you want to give a report of 5 and 7 then to say One Two Three Four Five Six Seven is creating a new way of making Seven as against the Morse Dah Dah Dit Dit Dit.

I wonder how many operators who are devoted to voice transmission realise that by using this method of conveying a report through a difficult channel are paying a tribute to a mode which many of them denigrate, namely c.w.?

Reports can often be prey to social pressures, kindness to the less fortunate, antagonism to others, and so on. For instance, a friend of mine always tells everybody they are 5 and 9 no matter how weak they are. He makes no excuses for his lies which he holds are of the white variety and that he is bringing a little sunshine into other people's life.

On the other hand, another regular I QSO, always tells me 'You're not so strong'. In other words, I'm generally weak and if he misses anything due to boredom, he can hope that I will understand why.

Then another 'friend' always starts off by telling me I'm not on frequency. Many operators declare that they want a true report of their signal as otherwise how are they to know? Many of these however, immediately take offence at a poor report and some go QRT without even

saying goodbye.

Poor Conditions

I cannot truly say I have always given true reports myself, except that at one time I used to often work a very sensitive vicar to whom I used to give excellent reports, no matter what - yes, even when I could hardly read him.

My excuse for this was that he would sign off rapidly if he received a report less than 5 and 9. There are quite a number of similar amateurs who are dedicated to the principle that they will never struggle to receive anyone under poor conditions.

This can be most hurtful as I found out during my first visit to Australia when I managed to 'penetrate' a UK net one morning on 7MHz. The chap 'in charge' told me in a disgusted fashion that my signal was extremely poor and that I should not come on unless I had a decent antenna!

It's true my antenna was a humble 40m end-fed up 10m but it was the best I could do under the circumstances and I resented the snub bitterly and was suffering from a bad bout of homesickness!

Later I was able to refrain from suicide but reflected that in amateur radio, one sees all life is there!

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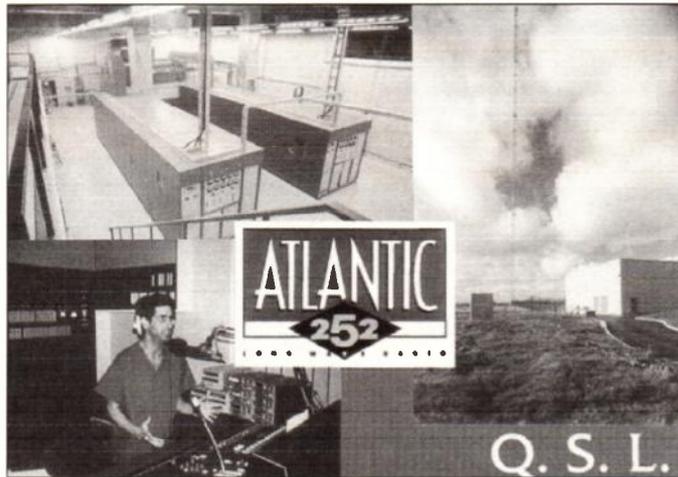
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THE LONG WAVE GIANT - ATLANTIC 252

Aidan Murphy EI5HW, rests his keyboard from its usual task of producing his 'Sat Chat' column in the Irish Radio Transmitters Society Newsletter, to profile the long wave giant 'Atlantic 252'.

From the heartland of Co. Meath in the Republic of Ireland, long wave radio station, 'Atlantic 252' belts out the hits 24 hours a day. The studio is located in the sleepy village of Trim, where it is linked to the transmitter site which is situated some miles away by means of a dedicated u.h.f. link. The mast which is all of 249m high, functions as a folded dipole with the whole vertical structure acting as the radiator. You really have to drive to the transmitter site in order to put the height of this tower of power into true perspective.

The transmitter building houses the two transmitters, each one kicking out 250kW of power. That's half a million watts of music....phew! The transmitters in question which can be seen on the



Atlantic 252 QSL showing the very tall antenna, both 250kW pulse width modulated transmitters and the studio.

QSL card, are made by Continental in Dallas, USA. During the period from 1800 to 0600 hours the following morning, the transmission power is wound down from the 500kW used during daytime broadcasting to 100kW.

Atlantic 252 was formed as a result of a joint venture

between RTE (the Irish state broadcasting organisation) and CTL, the parent company of Radio Luxembourg. Construction began on 6 September 1988. Test transmissions commenced in August 1989 and on 1 September 1989 the station was officially launched.

Unassuming Location

An unassuming two storey country house in Trim Co. Meath provides the home for long wave radio station 'Atlantic 252'. This location was chosen as the headquarters in an attempt to promote local employment and investment.

Atlantic HQ consists of two on-air studios and a small dubbing suite. Both studios are equipped with 12-channel Soundcraft SAC 2000 mixers, Denon CD-cart players and Sonifex HSX series cart players. There are six Denon CD players and 12 Sonifex cart machines, in addition, the station also has two Sony DAT machines.

Many of the commercials used by the station are received via a satellite system.

The studios are equipped with ISDN capabilities, which can take high quality digital feeds in common



The magnificent Georgian building, 'Mornington House', home of the Atlantic 252 studio complex.



'Hollywood Haze' - '252 superjock' does the business on the Long Wave Giant.

BROADCAST SPECIAL



The control room at the Transmitter site, note the 'Atlantic 252' lamb on the middle cabinet. The cabinets contain the test signal generator/distribution analysers and the Optimod processor.



A Thompson TH573 tetrode. Each of the transmitters uses two. They cost a staggering £26000 each!



Station Engineer, John Bryans, puts the finishing touches to the new on-air studio, complete with touch sensitive screen and playlist stored entirely in digital form on hard disk.



A rear view of the transmitter cooling system - some plumbing!

with most other radio stations these days. Studio output is processed by two Orban Co-operators and routed via two CTE 5W u.h.f. links, where the audio is further processed by an Orban Optimod 9100B before arriving at the transmitters.

Recent technical changes at Atlantic have eliminated all analogue media and CD playback which has led to the introduction of a hard disk digital audio system that will store the station's entire playlist. The station has also recently installed Minidisk machines for local recording, playback and editing.

The transmitter mast was supplied by J.L. Eve Ltd. from the UK. It was erected by RTE riggers in the record

time of 16 weeks. The transmitters are manned for 16 hours a day. They are controlled by four Siemens Sigmatic PLCs (programmable logic controllers) that are monitored by a '486 PC.

All the engineering staff carry text pagers, and in the event of a fault, the PC will initiate a page describing the nature of the problem and the status of the transmitters to be sent to the pager.

Transmitter

The transmitter site has an area of approximately 25 hectares and is located



The u.h.f. link antennas on top of the studio building feeding the signal to the transmitter site at Clarkestown, some 10km away. The antenna on the left hand chimney is used for receiving MMDS television.

Continued on page 30



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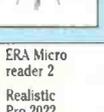
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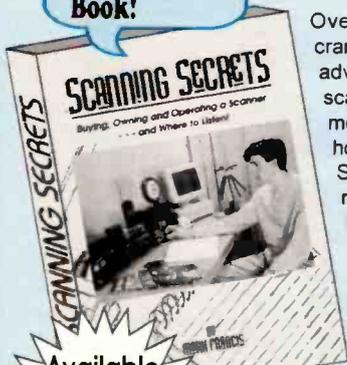
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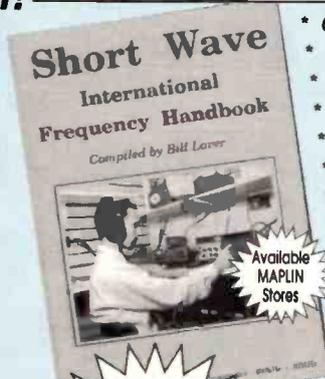
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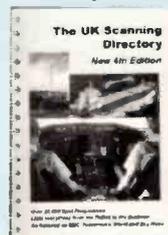


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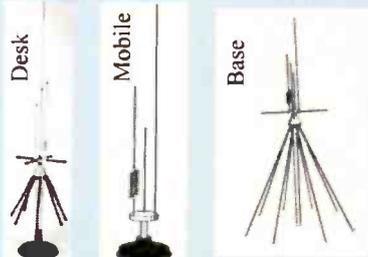
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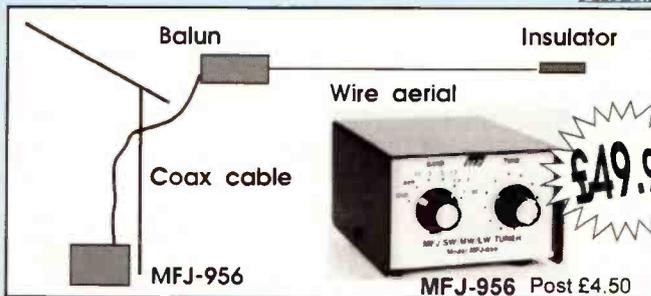
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BROADCAST SPECIAL



These massive cabinets house the Dummy Load. It is rated at 1MW, to achieve this level of dissipation it is forced cooled by water which circulates at the rate of 726l/m.

Continued from page 26

roughly 40km northwest of Dublin and about 10km from the studios. It has an elevation of 100m a.m.s.l.

There is a purpose-built transmitter building measures 25 x 24 x 8m. It is sited on an earth mat, measuring 26 x 27m, which is composed of a 300 x 300mm matrix, made of 25 x 3mm copper strips.

The station's two 250kW pulse width modulated long wave transmitters were manufactured by Continental Electronics of Dallas, Texas, each uses two TH-573 tetrode tubes made by Thompson CSF. They operate into a combining unit, which allows them to work in parallel for an overall output of 500kW. The dummy load is force water cooled at a rate of 726L/m. It has an impedance of 140 Ω and a rating of 1MW.

The output of the combining unit is fed to the antenna by an overhead open wire transmission line. The line is 250m long and 3m above the ground. It has an impedance of 140 Ω and loss of 0.4dB. It is matched to the impedance of the antenna by an a.t.u. located in a building at the base of the mast.

Antenna

The antenna is an omni-directional triangular mast

radiator, 248m high and weighs approximately 100 tonnes. Its earth system comprises 120 radials of 3mm copper wire at a depth of 300mm, which radiate at 3° intervals to the site perimeter. There are also 60 radials at 6 degree intervals coming from each of the three outer stay blocks. The total radial lengths adds up to roughly an astounding 40km.

The mast is supported by three sets of three stay wires. It carries 9 stroboscopic aircraft warning beacons, arranged in groups of three at the 60, 160 and 248m levels, each of which has an effective brightness of 2 000 candles at night, rising to 2000 000+ during the daylight hours. The mast has an impedance of 120 Ω -j120 and a v.s.w.r. of 1.3:1 at 252 \pm 5kHz.

The transmitter operates with an efficiency of 70%. Total power consumption at normal modulation is approximately 1MVA. This equates to an electricity bill of just under £1000 per day.

Reports Acknowledged

The station gratefully acknowledges reception reports and issues quite a nice full colour QSL card like the one shown here. Anybody requiring



No mistaking these warnings.



A shot of the overhead open wire transmission line. It runs some 250m and is 3m above ground. The impedance is 140 Ω and has a loss of 0.4dB.

additional technical information may contact The Technical Manager by post at: **The Engineering Department, Atlantic 252, Mornington House, Trim, Co. Meath, Eire. Tel: 00-353-405-57350 or by Fax: 00-353-405 57137 or E-Mail: at252eng@iol.ie.**

My thanks to the Engineering staff for

allowing me onto the site to take the shots seen here. For the few who don't already know the tuning frequency of Atlantic, switch you radio to long wave and tune to 252kHz and as one avid listener was heard, say..."Once tuned, simply break off the tuning knob."

Will It Get Foreign Stations?

Raymond Kershaw recalls a shopping trip to his local town a few days before Christmas last year, where he only wanted to buy a battery, but ended up having a ringside view of a drama unfolding.



THERE WAS A SHARP CRACK...

Damn! The shack clock had packed up, battery I expect. Oh well, I shall have to nip into town and get a new one. Luckily I managed to park the car in a short stay car park, in spite of the last minute Christmas shoppers.

As I walked into the local branch of Electronics For The Yearning Peoples' Entertainment, from now on referred to as EFTYPE, I almost collided with a small man. His old, brown raincoat was shabby and shiny in places, the blue serge trousers shapeless and baggy at the knees were worn hitched high, revealing a pair of bright green socks, sagging and wrinkled round scrawny ankles that disappeared into the depth of a pair of obviously new grey and purple trainers.

He was gazing round in a state of obvious awe and bewilderment at this crazy 'Aladdin's Cave' of electronic mayhem. I felt a surge of sympathy for the old man, wondering what was going on through his mind as he surveyed the electronic madhouse, he found himself cast down in.

Everywhere was noise and light, video games flashed and howled, ghetto blasters crashed and thundered, a hundred TV screens flickered with

pictures from all round the world. In the corner, a customer with more optimism than skill, vamped out discordant carols on an £800 electronic organ as the sales assistant gushed sycophantically in his ear and secretly counted the commission on the sale.

Expression Of Disdain

A salesman approached the old man. Was it my imagination or did I really see expressions of disdain and contempt flash across his well manicured face? The EFTYPE switched on his best Christmas bonhome smile and said, "What can I do for you Grandad? 'Earing aid batteries is it?"

The old man stiffened, lifted his head and wiped a dewdrop from his nose with a mittened hand and growled, "There's nowt wrong wi' my ears young feller." A look of panic and dismay crossed the EFTYPE's face, this one could be awkward, he sensed.

"Want a new wireless," the old man said. EFTYPE looked at the old man blankly, the term was obviously new to him. Rashly he tried to patronise the old man, "A wireless what sir?" he said, lifting his voice an octave, hoping to humiliate the man into leaving.

The reply knocked him

back onto heels of his Gucci copy shoes. "You great twallop," the old man boomed, "I want a wireless I can listen to." Heads swung in their direction and the sound level dropped a few decibels as shoppers listened in anticipation.

EFTYPE paled under his sunbed tan as he desperately tried to marshal his shattered composure. He decided to try a different tack. "What kind of, er, wireless did you have in mind, sir?"

"I don't mind," the old man said, "as long as it's British, a KB or a Bush or a Murphy. Good sets Murphy, we had one when we got married in '35, that one had short wave on and we could get America."

A wave of relief crossed EFTYPE's face as the proverbial penny dropped, the man wanted a radio!

Super Salesman

EFTYPE with his equilibrium restored, launched enthusiastically into his super salesman routine. "How much do you want to spend on a radio sir?". A look of exasperation crossed the old man's face. "It's thee that needs an 'earing aid, I don't want a bloody radio, I want a wireless!"

The store manager, attracted by the commotion, was desperately trying to force his way through the

crowd of shoppers as they watched the drama unfold. He was finding it hard as no one wanted to relinquish their ringside view of the proceedings.

The hapless EFTYPE, his composure and self confidence dissipating like mist on a summer morning, grabbed the first 'wireless' he laid hands on and plonked it on the counter in front of the old man.

Grabbing the brochure for the set, he began to gabble desperately in the man's ear, like water cascading over a cataract, long streams of meaningless technical gobbledeygook poured over the man, who gazed back at him implacably and demanded, "Will it get foreign stations?"

"Of course it will," said EFTYPE, his voice raised with exasperation.

"Right, show me," said the man.

"I'm afraid we don't give demonstrations on the last week before Christmas," said EFTYPE loftily, "all of our sets have a money back guarantee, so if you get a problem, bring it back and we will change it."

"Will you pay for my busfare if I have to fetch the damn thing back?" the old man demanded.

"Well, no," said EFTYPE, cautiously.

Continued on Page 33

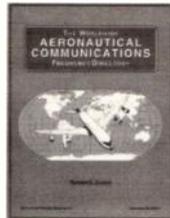
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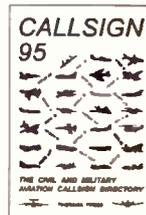
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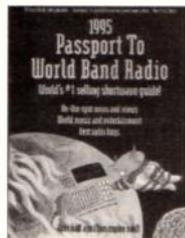


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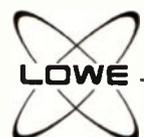
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Continued from Page 31

Company Rules

"What seems to be the trouble?" The store manager had at last fought his way to the scene.

"I want to hear that wireless play," said the old man, "and he won't let me," he said, jabbing EFTYPE painfully in the stomach with a bonny forefinger.

"Now, Mr Jones," said the manager, imperiously fixing the salesman with that well known I'll see you later in my office glare. "You know the company rules, the customer is always right. Go and fetch a wireless and let the gentleman play on it!" As he spoke, his hand was absently stroking the new wireless on the counter.

Jones's mouth gaped uncomprehendingly, then suddenly he realised that his manager didn't know what a wireless was!

A brief smirk of superiority crossed his face as he said, "The wireless the gentleman wants to hear is the radio you have your hand on, sir."

The manager snatched his hand away from the set as though it was connected to the national grid! Someone in the crowd sniggered.

Irritably, the manager snapped his fingers at Jones, "Get a plug on this 'er wireless and let the gentleman hear it," he rasped.

In the crowd behind him, a garrulous female shouted SHAME! Beads of sweat sprouted on the manager's top lip as he sensed the situation slipping out of his control.

By now, no business was being transacted in the shop.



GUSHED...IN HIS EAR...

Everything had come to a stop as customers and staff, some willingly, some less so, watched with bated breath the finale of this encounter between might and right.

Practical Abilities

Behind the counter, EFTYPE Jones was feverishly attempting to fit a plug to the wireless with a bent pocket screwdriver. It was obvious that his practical abilities didn't match his vocal ones.

I winced in sympathy as the screwdriver ploughed into his finger and as the bright red blood trickled onto the cuff of his white shirt, someone in the crowd shouted, "serves you right."

I watched with fascination as EFTYPE Jones, now totally demoralised and with trembling hands, attempted to strip the insulation from the mains lead with his teeth. There was a sharp crack as the cap of his right incisor broke free and described a neat parabola to land at the feet of the enraged manager!

The watching crowd showed its appreciation by roaring with laughter and applauding loudly. The manager, his face bright crimson, decided at this stage that discretion was the better part of valour and drawing himself up to his full height in a vain attempt to restore his tattered dignity, he stalked off, leaving Jones to his fate.

Eventually, the plug was fitted and the wireless switched on, the old man pressed forward in anticipation. Cautiously the gap toothed Jones spun the tuning knob with his good hand.

Foreign Stations

A smile of relief crossed his face as sounds issued from the loudspeaker, Radio 1, 2, 3 and 4 came and went as the set was tuned across the band, finally stopping on the local commercial vintage pop music station, as the sounds of a fifties pop idol moaned about being all shook up. The crowd showed its appreciation by tapping their feet and clapping in time to the

music.

A stout woman in her forties dressed in tight pink ski pants started to jive with a skinhead in ragged denims and commando boots.

"What about the foreign stations?" the old man shouted above the noise. Carefully the salesman tuned the set back across the band, but no foreign stations were to be heard. After five minutes of fruitless tuning, he admitted defeat. "Perhaps the foreign stations come in after dark," he said hopefully.

The old man looked at him sadly, it was 4.30pm and quite dark outside.

"Do you wish to buy the wireless?" Jones said wearily.

"No" said the old man emphatically, "It won't get foreign stations!" He turned on his heel and left the shop muttering.

I wondered, should I break the news to the salesman? That his chances of receiving foreign broadcasts on a v.h.f. radio in the middle of Lancashire were nil! I thought of my car in a short stay car park, bought my battery and fled. ■



Radio Havana's programming suite showing a Delta mixer-fader unit, an STM-200-k reel-to-reel recording and dubbing unit, and Denon reel-to-reel recorder/playback machines.

RADIO HAVANA

While in Cuba recently, Anthony Clarke BSc(Tech), took the opportunity to visit the headquarters of Radio Havana short wave radio station.

I'm going to see some old friends at Radio Havana, would you like to come?" said Lila. This was definitely an opportunity not to be missed. I was on a study tour of Cuba, and our guide was Lila Haines. She had been a journalist at Radio Havana for more than five years, spoke fluent Spanish, and knew practically everybody in Cuba.

Radio Havana is located in a skyscraper in the modern part of the city, so it was hugs and kisses from the female security guard at the door (for Lila, not me!) and then up in the lift.

We passed the Arabic Section, the Latin-American Section, and then I was introduced to Thelma Rodriguez, Host for the English language program 'From Havana'. She answered my questions in beautiful English, with a slight North American accent (not surprising, since the USA is only 90 miles away). Thelma also presents *Radio Havana Mailback*, answering listeners' questions.

With as much tact as possible (I hope) I tried to find out if someone on the staff wrote the questions; you know, those that ask 'is it true that Cuba's literacy rate is more than 90%', etc. She looked mildly surprised, but showed me the file of the mail from the UK, and I can assure Jack Wood of Birkenshaw and

"Havana, home of the fat cigar, rum, and revolution."

(Stanstead Airport handbook)

Martin Price of Shrewsbury that their letters arrived safely and received close attention.

News Broadcast

I asked if I could take photographs: "Of course" said Thelma.

I met reporter Nury Acosta preparing the text for the national newscast *Noticuba*, broadcast daily to North America and Europe.

She was hammering away on a networked lap-top T2000SXe preparing a mix of topical news and general programming, with items from press agencies in different parts of the world. This text, plus music, station ident, etc. is then put together and edited on a programming suite consisting of a Delta mixer-fader unit, an STM-200-k reel-to-reel recording and dubbing unit,

and Denon reel-to-reel recorder/playback machines, ready for transmission.

Surprise Interview

In the studios, Thelma sprang a surprise: would I be interviewed? Seconds later I was clamped into 'cans', and the questions began. What were my impressions of Cuba? Did the people in the UK know much about the island and its achievements? The interview was recorded, and went out the following Saturday evening, UK time.

After that I met Luis Pruna, Radio Havana's technical sub-director, and Pedro Otero, the language sub-director. These are busy men, but they gave me some facts and figures eg. they broadcast in nine different languages, to Europe, the Middle East, Africa, and South, Central, and North America (Canada

and the USA). Radio is their only link with the US nowadays, because the sole direct 'phone service between the US and Cuba was lost in August 1992, when Hurricane Andrew destroyed the ancient, 1959 vintage, tropospheric over-the-horizon radio link. It is unlikely to be replaced.

Radio is Important

Radio has always been important for Cubans: in 1957, Jose Echevarria, a national figure and one of the leading revolutionaries, was killed while trying to capture a radio station, and the young Major Fidel Castro himself frequently broadcast to the people from Radio Rebelde, hidden high in the mountains of Sierra Maestra.

Radio Havana short wave station was set up in the early 1960s by experienced radio people, including Arnie Coro (well-respected in s.w. circles), to send news to the many Cubans abroad, and to the world in general.

Where Are the Transmitters?

I asked Luis a question: could I see the transmitters? He said that it would be 'difficult'. Well, if it's sensitive....He laughed, and then explained. Although the studios are in Havana City, Cuba's capital, the transmitters are on a hilltop



Reporter Nury Acosta prepares the national newscast Noticuba. Her lap-top is a networked T2000SXe with modem in background. Hanging on the wall is her precious Press card.

BROADCAST SPECIAL

30km to the south-west away in Bauta, Havana Province. The studios are normally linked to the transmitters by several high capacity radio-links, but there are lower-capacity back-up land-lines in case of failure.

More questions from me: How much power do they pump out, and why do Radio Havana signals break up in the late evenings in the UK?

Luis explained that, until 1991, transmissions to Europe were relayed via the former USSR, and there were reciprocal arrangements relaying 24hr. Soviet All-Union radio to Soviet citizens in Cuba, Nicaragua, and at sea. However, with the coming to pieces of the former USSR, the Russians pulled out of the arrangement, and now transmission has to be direct.

Quechua, Guarani, & Esperanto on Sundays

Transmissions to Europe, North and West Africa, and the Middle East (in English, French, Spanish, Portuguese, and Arabic, and 30 minutes of Esperanto on Sundays) are at present put out at 100kW. This has to cope with distance, sunspots, and incessant tropical storms. More power (250kW) is used for North America (in English and Spanish), South America (in Spanish, Guarani, Portuguese, and Quechua), and Creole to Central America. Luis said that the technical staff at Radio Havana are very aware that they have lost the capability to get to the UK with strength. Furthermore, they are now not even sure if their European transmissions are causing interference, after the recent frequency allocation changes.

In the Control Room

Since I couldn't visit the transmitters, they took me to see the Control Room. Luis explained: to get international coverage, many of the programmes are pre-recorded, and then sent out at the

appropriate times. Routine making of links to the transmitters is done with reference to studio time, and the links are selected for the best routing from the tape system to the active transmitters. It is usual for there to be two operators in action, sending four languages simultaneously, by day or by night, from the control room to the transmitters. (Sometimes, for special occasions, such as the recent Pan-American Games, they also set up remote-control connections to other, local, stations).

The Master Routing System

The routine linking work was originally done using manual switching, but Radio Havana engineers developed a computer-controlled Master Routing system to route the 'signal' to the transmitters. The system is synchronised by station time, and shows the current availability state of the banks of Denon reel-to-reel tape recorders, the language/programme routes, and the far-away transmitters.

The Master Routing system consists of a crossbar telephone exchange, an Image Video computer, programmed in BASIC, and Qume monitors. The routing system is under software control, and permits operations to be directed centrally from the Control Room. Should the computer system crash, then there is a manual reversion capability, with control possible via a bank of push button switches. Should this switching system fail, then the operators can go into the computer room and do the routing from a patch-board on the rack-mounted crossbar system. It is real belt-and-braces stuff, but the technical crew are as dedicated as any throughout the world to making sure that the show goes on.

My time was up: Thelma had programmes to prepare, and Luis and Pedro had a radio station to run.

Thelma Rodriguez, Host for the European program From Havana, interviews the author in one of the recording studios.



People at Radio Havana. (L to R), Luis Pruna technical sub-director, Thelma Rodriguez Host for the European broadcasts in English, Pedro Otero language sub-director.



Luis Pruna monitors the performance of the Master Routing system which, under software control, sends four programmes simultaneously to the transmitters 30km away.



Are you Receiving Me?

Home again in the UK, I saw that Cuba and radio were in the news. The counter-revolutionary Radio José Martí, broadcasting to Cuba from the USA under the auspices of the federal government, had been silenced. Run by Cuban expatriates since its inauguration in 1981, it had been finally taken off the air by the US government, embarrassed by the crudeness of its propaganda.

Saturday evening came. I keyed in 17.760MHz on my HF-225 plus 10m loose wire antenna. I knew the language sequence: first Arabic, then French, then English from 2000 to 2100UTC. The station identification includes the opening notes of a popular song about 'La Havana' (dee dee DUM dee), and, even in Arabic, I could readily identify the words "Radio Havana, Cuba". Finally came Thelma's voice. I switched on my tape

recorder for the historic moment. The signal was breaking up a bit. I heard her say "and now an interview with a UK listener who came to the studio on Wednesday...." She faded: frantic adjustment to the Dee Comm a.t.u. lifted the signal a bit, but the QRM took over. ■

Acknowledgements

I am extremely grateful to Lila, and the kind people at Radio Havana who took time out to show me the radio station, and to answer my questions. For the record: Radio Havana transmits to Europe in English from 20.00 to 21.00 UTC in the 16m band on 17.760MHz. Reports from listeners would be very welcome. Please write to: **Radio Havana Listeners Club, PO Box 6240, Havana, Cuba.**

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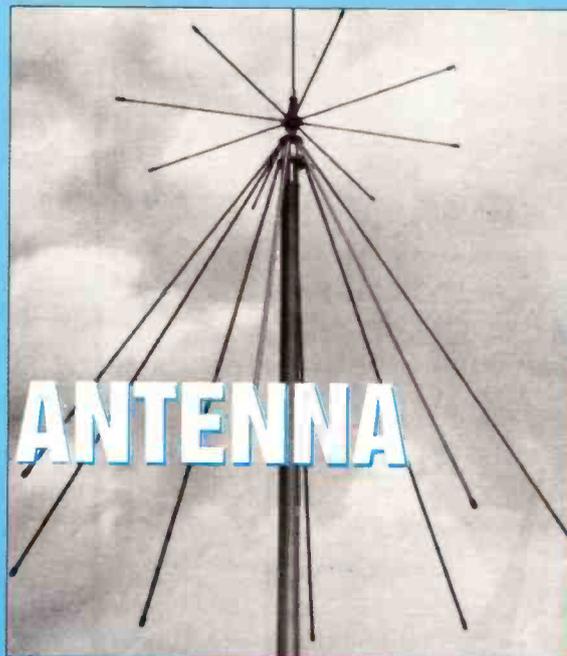
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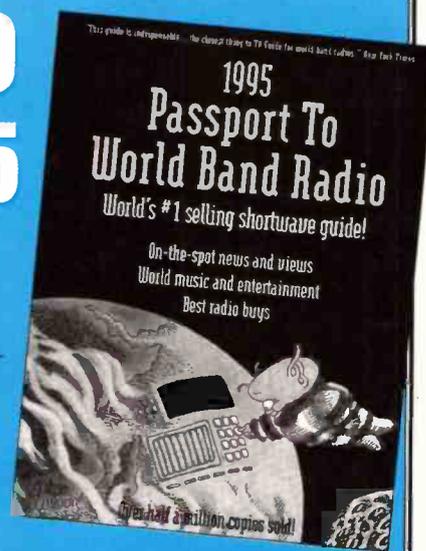
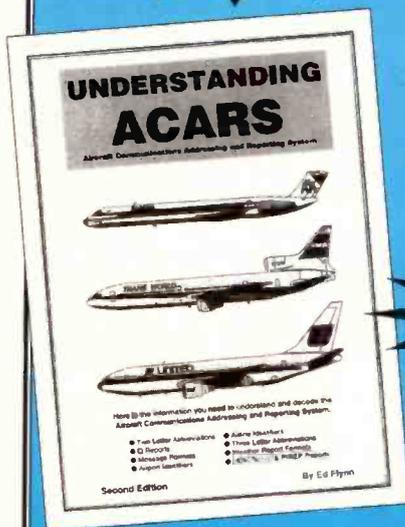
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Kiwa Medium Wave Loop Antenna



The Kiwa Medium Wave Loop looks really smart in its all-black livery.

The angle of tilt of the loop is controlled by a simple gearbox. The lower knob is used to adjust the tilt, while the angle of tilt is indicated by the pointer knob.

Over the years there have been many different designs published to enable readers to construct their own loop, usually from easily obtained materials. But not everyone wants to build their own loop. For them, the new m.w. loop antenna by Kiwa Electronics offers a solution. This is a magnificent piece of gear worthy of a place in the Tate Gallery! Hand crafted in black coloured materials the

antenna comprises the main former, 325mm diameter, carrying the main loop winding as well as the two regenerative feedback windings. This loop is pivoted on horizontal bearings within another former in turn pivoted in the vertical axis on a substantial base. All the bearings are Teflon and require no maintenance. The main loop is tilted via a gearbox and is calibrated in degrees. To indicate the alignment of the loop in the horizontal direction, a liquid filled compass is fitted to the top of the antenna.

A box is fitted to

the inside of the main loop former and this has the pre-amplifier and regeneration oscillator inside with a Local/DX switch. This reduces the pre-amplifier's gain by 25dB by providing negative feedback through the part of the antenna coil used for regeneration, overriding the positive feedback used for selectivity enhancement. The switch can be used to prevent overload of the receiver input or to give a wider bandwidth.

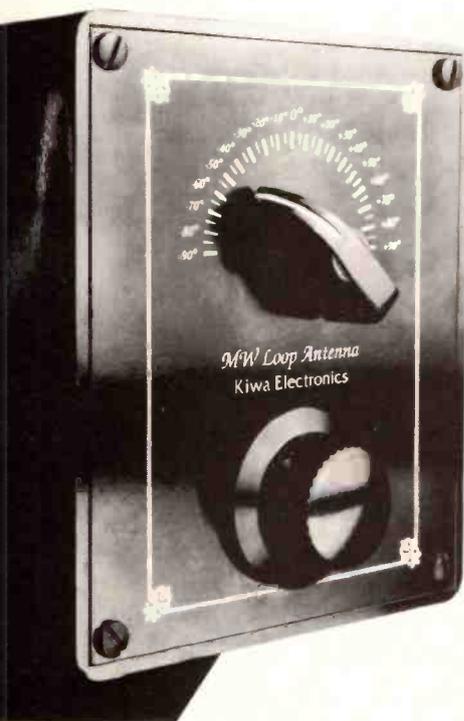
A lead, just over 2m long, connects the loop to the control box. This contains all the controls, attenuator and the power supply. A 12V a.c. supply is needed to power the control box and this is connected via the coaxial power socket. Two screw terminals on the rear of the unit can be used to connect either a 12V battery or d.c. power supply. A series diode provides reverse polarity protection. No power supply was provided and none of the

ones to hand had the correct size of connector, so a bench power supply was pressed into service. The two screw terminals were recessed into a cut-out in the metal back panel and were rather too close to the metal for comfort. It was not only difficult to make the connections, but it was all too easy to short out the leads to the metal case.

Also provided on the rear panel were two 50Ω SO-239 coaxial sockets. These are fed individually from separate amplifiers in the control box so that two receivers can be connected to the antenna.

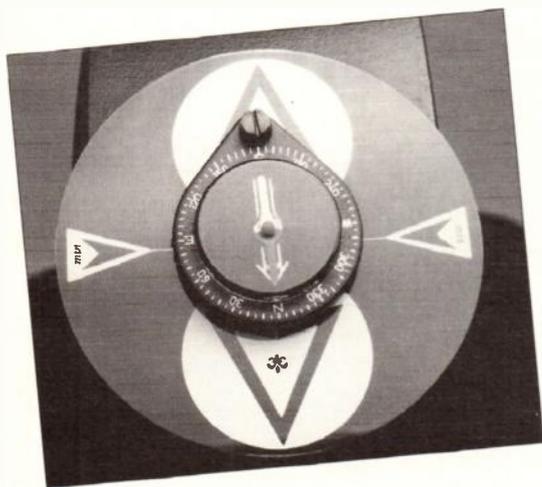
Positioning the Loop

I used the Kiwa loop with a Lowe HF-150 Stack and also with my Eddystone 940. It took some time to find the best position for the loop - the instruction manual suggests that it is positioned well away



The Control Box is also finished in all-black and contains the power supply and the controls.

ium Wave enna



A liquid-filled compass is mounted on the top of the unit to indicate the direction of minimum and maximum signal.

Loop antennas have always been popular with those readers of *Short Wave Magazine* who are into m.w. DXing. Dick Ganderton has been trying out the exotic medium wave loop from Kiwa.



All the electronics are contained in this small box mounted inside the main loop former.

from large metallic objects, fluorescent lamps, computers and televisions, as well as the receiver if it is not well screened. In the end I balanced it on top of the HF-150 Stack! It is not very sensible to put it too high up as then it is not possible to read the compass - even on top of the stack I needed to climb up onto a stool to see it comfortably!

The instruction manual offers helpful advice on operating the antenna and nulling out stations. It also explains how the loop can be used as a direction finding antenna. Unusually, a full circuit diagram is provided.

The antenna is first tuned to the frequency of the signal being received. Coarse and fine tuning controls are provided for this. These are used to peak the signal using the receiver's S-meter, with the regeneration control set to a minimum. The attenuator control sets the level of signal presented to the receiver and is set to prevent overloading.

Regeneration

The interesting control, however, is the regeneration.

This provides positive and balanced feedback into separate feedback windings either side of the main loop windings. Increasing the regeneration increases the positive feedback raising the signal level and decreasing the bandwidth of the antenna. The manual suggests a 70 - 75% reduction in bandwidth with an increase in gain of over 15dB. I found the effect of this control to be very striking - just before the point where the positive feedback sent the receiver into oscillation the signal seemed to 'leap out' of the background.

However, I found the controls for the regeneration and tuning to be too coarse. A very delicate touch was needed to adjust the regeneration control for optimum performance.

The loop can not only be turned on its vertical axis to either null out or maximise a station, the loop can also be tilted about the horizontal. This offers further scope for optimising the signals. It also means that there are many adjustments to be made and I found that it took a little practice to optimise the settings of all the controls.

As an example of what can

be achieved with patience, I looked for a frequency with a strong station and a weaker one at about 90° to each other. I found this, at 3.30pm on a Sunday afternoon, on 675kHz with the Dutch station at Lopok and the French one at Marseilles. The French station was much weaker than the Dutch one, but by careful adjustment of the loop I was able to completely null out Lopik and listen to Marseilles. According to the compass this occurred with the loop set to 60° and tilted at +30°.

Impressive

At a retail price of £349 plus P&P the Kiwa loop is probably too expensive for most readers. However, it really does seem to work and it is a most impressive adornment to the shack. My thanks to **Lowe Electronics, Chesterfield Road, Matlock, Derbyshire DE4 5LE Tel: (01629) 580800** for the loan of the loop as well as the HF-150 Stack. ■

SPECIFICATIONS

Loop Diameter:	325mm
Tuning Range:	530 - 1700kHz
Bandwidth (-6dB):	6kHz at 650kHz 15kHz at 1700kHz
Attenuator:	Full sensitivity to nil, continuously variable.
Output:	Two independent 50Ω SO-239
Power Supply:	12V a.c. at 300mA or 13.7V d.c. at 50mA
Dimensions:	430 (h) x 460 (w) x 460mm (d), to allow complete rotation, a clear space is required all around the antenna.

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2-Valve VHF Receiver Part 1



Brian Adkinson's latest receiver is a valved super-regenerative type with a frequency coverage of 115 - 185MHz, giving reception of v.h.f. airband, 144MHz amateur and v.h.f. marine band.

A super-regenerative detector, as its name suggests, is a derivative of the basic regenerative type. The super-regenerative method of detection was investigated in the early twenties by E.H. Armstrong and although long since superseded by the superhet is still an interesting alternative that lends itself fairly well to home construction, provided care is taken with the layout.

The sensitivity of a 'super-regen' can be quite remarkable considering the detector's simplicity and with an optimum design can

often be better than 1µV for a useable signal to noise ratio. In this receiver, emphasis has been placed on reducing radiation from the detector stage rather than trying to obtain maximum sensitivity and for this reason no great claims are made for its ability to pick-up weak signals. Much will depend on local conditions and the proximity of the listener to areas of activity such as airports, harbours, etc. as well as local reception conditions. I'm really fortunate in being situated firmly behind a nice big hill, which ensures disappointing reception from just about everything! For this reason the performance of v.h.f. receivers is a little difficult to assess. It is best

to consider this receiver as being mainly suitable for relatively local reception, then if better results are obtained in practise it can be considered a bonus. If you live in or near a large town or city or close to an airport, harbour, etc. results should be quite satisfactory anyway.

Although capable of high

sensitivity, the super-regenerative type of detector is not without its disadvantages. These disadvantages are highlighted below where the main differences between the regenerative and super-regenerative detector are described.

In the regenerative

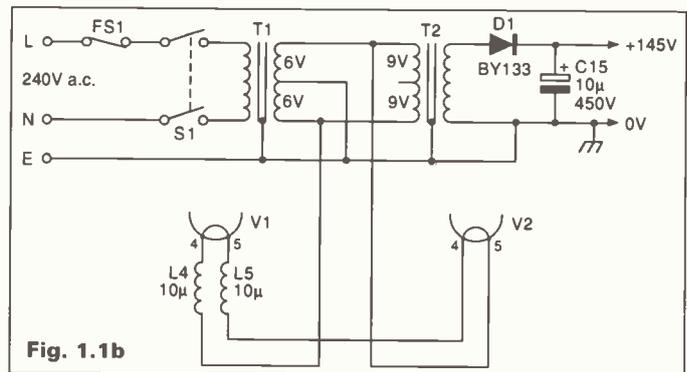


Fig. 1.1b

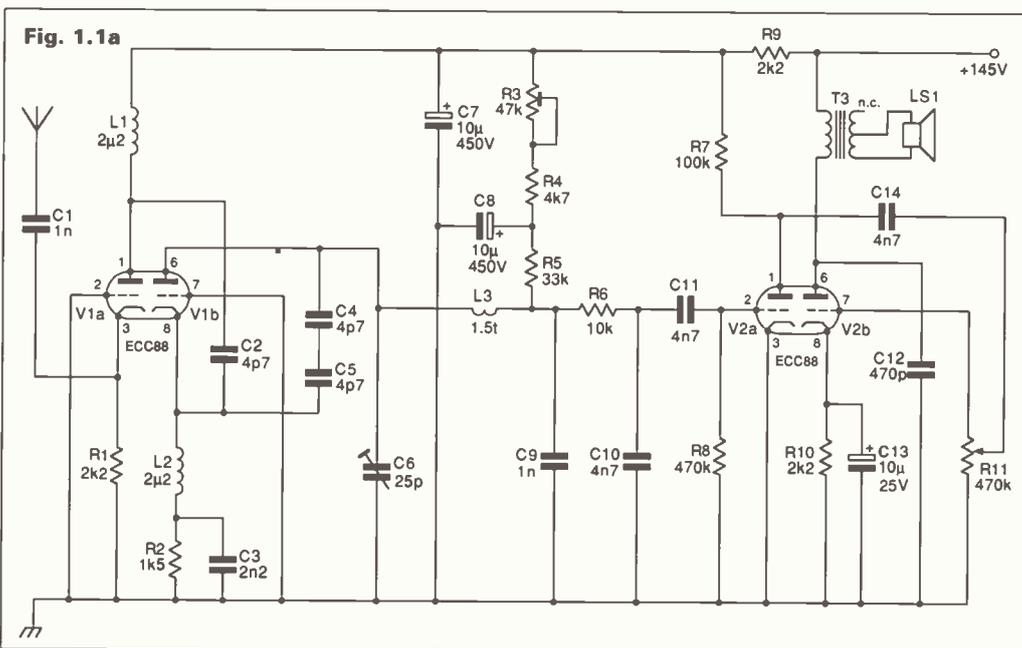


Fig. 1.1a

receiver the detector stage is adjusted manually by the operator to bring it to the point of maximum sensitivity and selectivity. This is achieved by introducing controlled positive feedback of the r.f. signal to the input of the detector, thereby greatly enhancing its gain whilst at the same time reducing the effective input impedance which then improves selectivity. Maximum efficiency for this type of detector is obtained when the feedback is adjusted to the critical point where the circuit just fails to break into oscillation. The standard regenerative receiver can give excellent results, despite its simplicity,

at relatively low frequencies such as on m.w. and s.w., but at v.h.f., due to antenna inefficiencies and other factors, a more sensitive type of receiver is preferable. Also, adjustment of regeneration and tuning become more critical much above 20MHz or so.

Unlike the 'regen' the 'super-regen' detector is designed to have sufficient feedback to maintain continuous oscillation. By suitable design and choice of components this oscillation can be periodically stopped or 'quenched'. In some designs a separate oscillator stage generates the quench frequency, which is then used to control the detector. The quench frequency is

much lower than the main frequency to which the circuit is tuned but is still well above the audible range. If the quench frequency was allowed to fall within the audible range a constant whistle would be heard, which apart from being annoying, might well be louder than the received signal! It is the constant quenching of the oscillator that gives the 'super-regen' its high sensitivity and, unfortunately, one of its main disadvantages - poor selectivity. The reason for this is because during the quench cycle as well as passing through the optimum point of sensitivity, the detector also passes into an oscillating state (before

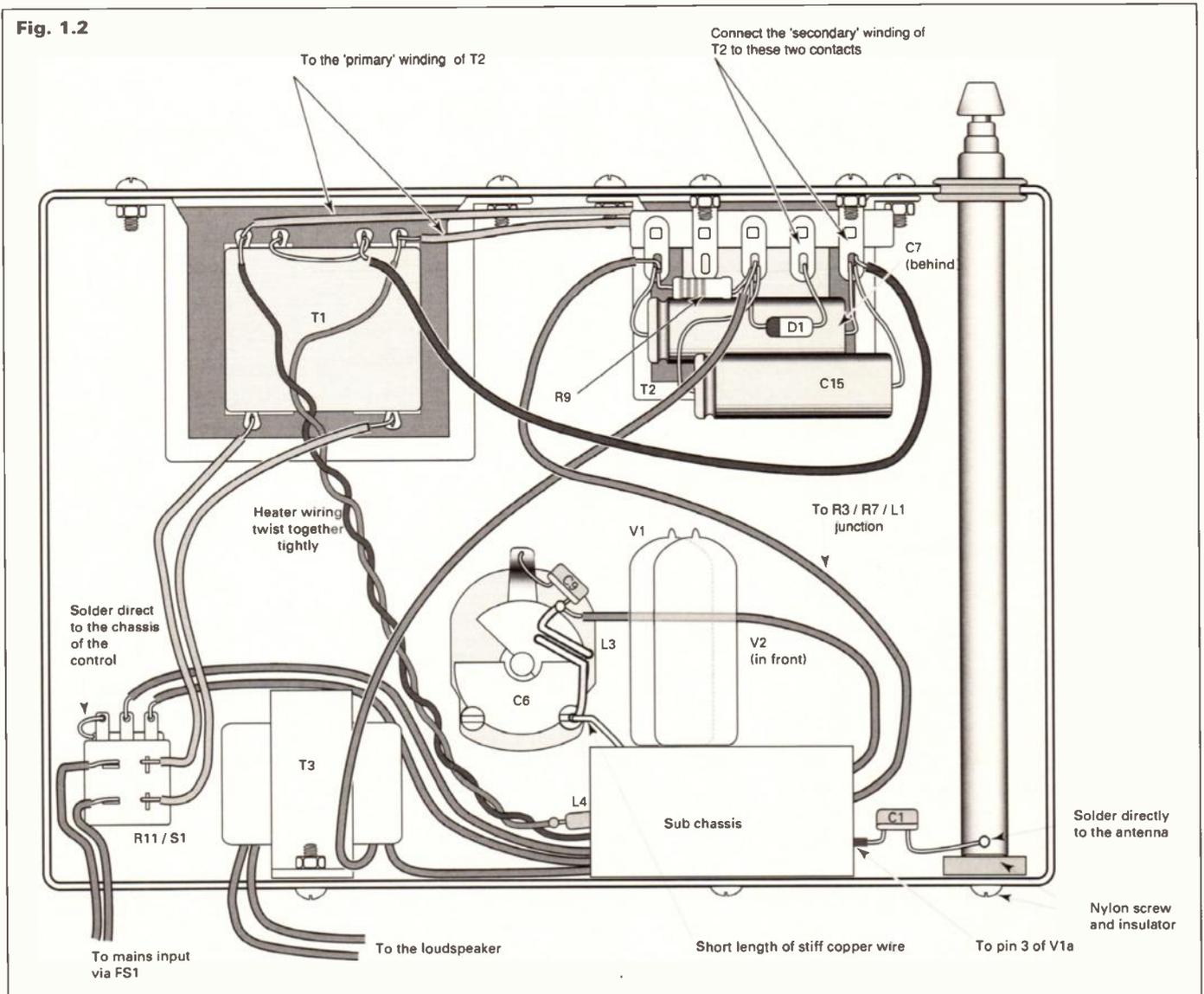
being quenched again) and after quenching has to approach the most sensitive point once more. It is during these two periods that the detector is not working efficiently and it thus loads the tuned circuit which then causes a subsequent loss of selectivity. The super-regenerative detector is therefore a bit of a mixed bag! The quench frequency, although not unduly critical, must not be too high in frequency or it will not allow enough time for the high frequency oscillation to cease completely between cycles. If this happens the detector's sensitivity is reduced considerably.

In a 'super-regen' the 'regeneration' control can

generally be set for optimum results and then left alone, unlike the 'regen' where adjustment is needed every time the tuning is altered significantly. In this receiver the adjustment is provided by a pre-set control R3. This varies the h.t. to the detector and hence its gain and is adjusted until continuous oscillation is attained.

The other main disadvantage of the super-regen is its tendency to cause interference. The oscillator stage being rather 'messy' in its mode of operation. It is really a rather unstable switched oscillator - in a controlled sort of way! Interference can be minimised by the inclusion of an r.f. buffer stage and

Fig. 1.2



exclusive use of a built in-whip antenna.

Long before the days of crystal controlled superhets and digital proportional control, the 'super-regen' type of circuit was used extensively in radio control receivers for model airplanes, etc. Bearing in mind the poor selectivity of these early receivers, I presume in those days that if more than a couple of enthusiasts wanted to fly, it was a case of patiently waiting your turn - or the prospect of a 'post-mortem' on which transmitter caused the mid-air pile up...

One final aspect of the 'super-regen' which should be noted is the constant hiss or 'mush' that is produced in the absence of a signal. In view of this hiss, the receiver is better used for specific listening activities rather than constant 'monitoring'

purposes. These shortcomings aside, the simple 'super-regen' can still provide an interesting introduction to some of the activity above the short wave bands. Alternatively, it can be used in conjunction with a scanner in order to rapidly search for general frequencies of interest. This can be particularly useful when on holiday or after moving to a new area.

Circuit Description

The valves selected for this project are both ECC88. They are used as r.f. amp/detector and as audio amp/output. Although the ECC88 was not specifically designed for use at v.h.f. frequencies, neither was it designed to drive a loudspeaker! So why this choice?

Well, firstly, in order to

keep the construction simple and reduce heater power requirements it was decided that the smallest number of valves should be used. This excluded the use of 'ideal' v.h.f. valves, such as the acorn 955, where two would have been needed for the r.f. section alone. I therefore decided to use a double triode here, and after much experimentation with more obvious choices such as the ECC81 and ECC85, found that the ECC88 oscillated much more readily at moderate anode voltages of 40 - 70V.

For the audio stages another ECC88 was chosen. As less than 100mW of audio power is generated there was little point in using a proper audio 'power' valve, thereby unnecessarily burdening the h.t. supply. Both valves are operated well within their maximum limits for anode current. It

should be mentioned at this stage that the level of audio output from this receiver, although adequate, is not particularly high and therefore its use should be confined to areas where the ambient noise level is fairly low. The valves are inexpensive - if you stipulate 'Standard Quality' when ordering.

Referring to the circuit diagram, **Fig. 1.1a**, V1a is configured as an r.f. amplifier and buffer stage operating in the grounded grid mode. This provides some isolation between the detector stage and the antenna. Capacitor C2 couples the signal to the cathode of V1b, the super-regenerative detector. This valve also operates in grounded grid mode. Capacitors C4 and C5 initiate oscillation and the circuit is tuned by L3/C6. Capacitor C9

You Will Need

Resistors

Carbon film 0.5W, 5%

1.5kΩ	1	R2
2.2kΩ	3	R1, 9, 10
4.7kΩ	1	R4
10kΩ	1	R6
33kΩ	1	R5
100kΩ	1	R7
470kΩ	1	R8

Potentiometers 0.25in shaft

470kΩ log or lin	1	R11 (with S1 Maplin FW46A)
------------------	---	----------------------------

Potentiometers vertical preset

47kΩ	1	R3
------	---	----

Capacitors

Ceramic disc (500V)

470p	1	C12
1nF	2	C1, 9
4.7nF	3	C10, 11, 14

Ceramic plate (100V)

2.2nF	1	C3
-------	---	----

Silver mica

4.7pF	3	C2, 4, 5
-------	---	----------

Electrolytic axial leads

10μF (25V)	1	C13
10μF (450V)	3	C8, 7, 15

Variable Jackson C804

25pF	1	C6 (Maplin FF44X)
------	---	-------------------

Semiconductors

Diodes

BY133	1	D1
-------	---	----

Valves

ECC88	2	V1, 2 (see text)
-------	---	------------------

Wound components

Coils and chokes

2.2μH	2	L1, 2, (Maplin WH31J)
10μH	2	L4, 5, (Maplin WH35Q)
1.5 turns	1	L3 (see text)

Transformers

240V/6-0-6V 1A	1	T1 (Maplin YJ50E)
240V/9-0-9V 250mA	1	T2 (Maplin YN15R)
240V/3-0-3V 100mA	1	T3 (Maplin YN12N)

Miscellaneous

Knob (Maplin RW86T); Knob (Maplin RW87U); Pointer (Maplin HB47B); Antenna (Maplin LB10L); Case (Maplin XB69A); Sub-chassis (Maplin LF13P); Valve base B9A unskirted ceramic, silver plated (2); Loudspeaker (Maplin WB13P); Tag strip 14-way (Maplin FL29G); Fuseholder (Maplin KU33L); Insulating boot (Maplin FT35Q); Fuse 20mm, 160mA time delay; Enamelled copper wire 18s.w.g. (1.2mm dia.).

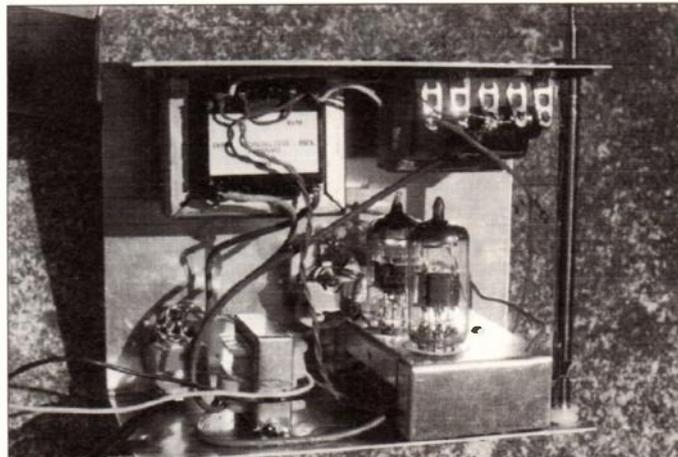
Sources of components

The ECC88 and valve base can be obtained from:
Colomor Electronics, 170 Goldhawk Road, London W12 8HN.

effectively 'grounds' one end of L3 at r.f. whilst still allowing h.t. to pass through it to the anode of V1b. Resistor R2 and capacitor C3 set the supersonic quench frequency at about 150kHz. Audio is taken from the anode of V1a to the junction of C9, L1, R5 & R6. The combination of R6 and C10 form a simple low pass filter to attenuate the quench signal before it is passed via C11 to the audio amplifier V2a. Finally, the audio signal is passed via C14 and the volume control R11 to the output stage V2b. Note that only one half of the secondary of T3 is connected to the

loudspeaker.

The power supply (Fig. 1.1b) uses two transformers instead of the usual type with combined h.t. and l.t. windings. This is simply because the old 'valve' type of transformer is no longer commonly available. T1 is used to supply 12V to the 6.3V valve heaters connected in series and its secondary is also connected to the 'h.t.' transformer T2 which is another low voltage transformer wired 'backwards'. As there is no need for a supply as high as 240V the 12V output of T1 is connected to the 18V input of T2 which gives an off-



load a.c. output of about 160V. If 240V h.t. had been required then two 12V transformers back to back would have provided this.

D1 serves as a simple half wave rectifier with smoothing provided by C7, C14 and R9.

Part 2 will provide the constructional details for this interesting v.h.f. receiver project.

Special Offer: Flight Simulator Session

Godfrey Manning, our regular 'Airband' columnist, tried this in the DC-10-30 simulator at Crawley, near Gatwick. Strapped into the captain's seat, with a night-time view of Gatwick's runway visible through the cockpit window, it is hard to remember that this is only a simulation. The simulator, made by the world famous Rediffusion Simulation, is the same one approved by the Civil Aviation Authority for training commercial pilots - so it had to seem real!

Obviously, all the instruments and controls work and feel the same as in

You've read about it in 'Airband' - now try your hand at flying for real! Here's your chance to sit in the captain's seat and land an airliner. It's all so believable - but you never leave the ground, in the safety of a flight simulator.

the actual aircraft. Outside, the picture is generated by a colour television system but projected in such a way as to give a three-dimensional appearance. The only reminder that this is artificial is a black shadow interrupting the picture if you try to look across the cockpit through the opposite window. A full motion system gives the feel of flying. When accelerating down the runway, the entire cockpit tips backwards, but

the picture stays still. This fools the pilot's brain into feeling as though the whole simulator really is gaining speed - even though it's firmly fixed to the spot!

In the photo, you can see Godfrey at the controls while taking off from Gatwick's runway 26L, then coming in for an instrument approach. You've read Godfrey's explanations of these procedures in his 'Airband' column, now come and try

them for yourself. Godfrey admits that he made a heavy landing on the first try, but his other two attempts were successful. This is what you, too, might manage in a typical 20 minute session at the controls. All told, you will probably spend 60 minutes on board and share the time with perhaps two other would-be pilots. There is often room for a guest to stay in and observe the proceedings - Christine Mlynek took the photos you see here, and sat in the flight engineer's seat for some of the ride!

The normal price for this would be £145 but as a special offer, *Short Wave Magazine* readers can buy a 20 minute session at the controls (60 minutes total time on board) for £125 if they present the coupon. Offer valid until 25 September.

For bookings contact **John Hughes at The Aviation Experience, PO Box 737, Horley, Surrey RH6 9FZ. Tel: (01293) 822262.**



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The VC6G is a non-isolated voltage converter with a continuous output of 6A. It is surge rated at 8A. Normally the Dropper is offered in board-only format.

For further details contact:
Diplomat Communications Systems Ltd. Tel: (01256) 381656, Fax (01256) 381571.

Station Directory on a Floppy

New from Twrog Press - the publishers of *The Rig Review* is *The Dial Disk*. Essentially a Broadcast Station Directory on an PC floppy. The directory comprises a single EXE file. Minimal processing power is required to run the program, it appears that the minimum requirement is DOS 3 running on an 8088 with 640Kb of RAM.

Stations are listed in both frequency and time order. Station Addresses are included as are occasional programme details.

Twrog intend to update *The Dial Disk* on an on-going basis. At £5.00 inc P&P per copy, it's going to be feasible to buy more than one per year!

The objective for producing the disk was to provide a fast response directory without all the problems associated with typesetting.

The Dial Disk can be obtained from Dave Morgan GW4KYZ, **Twrog Press, Penybont, Gellilydan, Blaenau Ffestiniog, Gwynedd LL41 4EP. Tel: (01766) 590341.**



Waters & Stanton have informed the *New Products* desk that they will be importing a US product, aimed at water proofing coaxial connectors and terminations. Similar in texture to Blu-Tack, the sealant is presented on a roll 15mm wide on a paper backing strip.

The sealant is flexible and can be moulded by hand to fit almost any shape. Ideal for protecting from water ingress and eventual corrosion. Coax-Seal costs £3.95 plus £0.50 P&P, per 1.5m roll which is reckoned to be sufficient for nine terminations. Contact: **Waters & Stanton, 22 Main Road, Hockley, Essex SS5 4QS. Tel: (01702) 206835, Fax: (01702) 204965.**

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- ★ Review - Rob Mannion G3XFD tries out the Alinco DJ-G5 hand-held, ideal for single-handed operation!
- ★ PW goes 'Dutch' and visits radio amateur friends in Holland.
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*****MESSAGE NUMBER 873*****

DEUTSCHE LUFTHANSA FLIGHT NO: 470 POSITION: 57N 0-20W TIME: 16:04 UTC AIR TEMPERATURE: -57C WIND 100 KNOTS AMERICAN AIRWAYS FLIGHT NO: 109 POSITION: 55N 0-30W TIME: 16:04 UTC AIR TEMPERATURE: -46C WIND 74 KNOTS

*****MESSAGE NUMBER 704*****

BUOY REPORT FROM SHIP (MOBILE) COMPILED BY TOULOUSE (MET CENTRE) IN FRANCE DATA FOR REGIONAL EXCHANGE FOLLOW MINIMUM TEMPERATURE: 17.9C CLOUD INFORMATION - LOWEST CUMULUS AND STRATOCUMULUS LEVELS ALTOSTRATUS MAINLY SEVERAL CIRRUS IN THE FORM OF DATA FOR REGIONAL EXCHANGE FOLLOWS:- MAXIMUM TEMPERATURE MINIMUM TEMPERATURE

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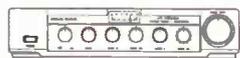
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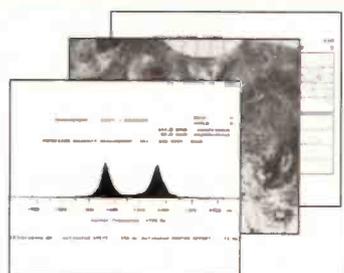


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- ASCII - CDTT 8, variable character lengths/binary
- ARQ-R-ARQ 100 Baud Simplex ARQ
- S-ARQ-ARQ-S - ARQ1000 simplex
- SWED-ARQ-ARQ-SWE - CGR 518 - variant
- ARQ-E-ARQ1000 Duplex

- ARQ-N - ARQ1000 Duplex variant
- ARQ-E3 - CGR 519 - variant
- POL-ARQ - 100 Baud Duplex ARQ
- TD4242-ARQ-242 - CGR 342 with 1/24th channel
- TD4343-ARQ-342 - CGR 342 with 1/24th channel
- FEC-A - FEC100A/FEC101
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ANALYSIS:

- Shift & Baudspeed to 0.0001 Baud
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 - Automatic System identification
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- SPECIALS: Piccolo, Coaxnet 8 & 13, TOR10191, ROU-FEC (aka RAM)
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Aerial Techniques

Reflections

Throughout the second world war both sides used electromechanical systems for the transmission of coded and plain text messages. One such machine, known to the German army as a Feldfernschreiber, can be seen on the left of the equipment in **Dick Rollema's PAOSE station, Fig. 1**, in Leiderdorp, Holland. Dick told me that this machine is a Hellschreiber and that "the system was invented by Dr. Rudolph Hell at the end of the twenties for use by news agencies." Furthermore, like the well known Creed Teleprinters, built in the UK, it remained in use by some of these organisations until well after the war ended.

I learnt from Dick that "a small but persistent group of European amateurs keep the Hell-system alive on the amateur bands." Hell-signals, a kind of chirping sound, may be found on Sundays from 1330 (continental time) around 7.040MHz and from 1630 around 3.580MHz. Our congratulations to all concerned in this unique operation.

Since 1977, when Dick started using the Hellschreiber, he has made contact with 76 European amateur stations. Briefly, the set operates from a 12V d.c. supply and connects, via two terminals at the upper right of the cabinet, to a pair of communications lines. This equipment was widely used by the Wehrmacht during the war because, said Dick, "it still works over landlines or radio links that are of too poor quality to transmit speech." My thanks are also due to **Dave Penny G3PEN** (Braintree) who saw a Hellschreiber working early in his engineering career, **Dick Rollema** and **Walter Farrar G3ESP** for sending me copies of data about this machine and the system. The latter will be passed on to the Hon. Curator of the Vintage

Wireless section at the Chalk Pits Museum, Amberley, West Sussex.

Recent Observations

With the kind co-operation of a number of astronomers and radio enthusiasts I am able to publish regular information about auroral, magnetic, solar and weather activity. The idea is to give you the opportunity to compare the times and dates of such events with your own radio logs. A comparison which may clear up a doubt in your mind about the unusual behaviour of radio and television signals at a particular time.

Solar

During his daily solar observations in April, **Ron Livesey** (Edinburgh) using a 2.5in refractor telescope and a 4.0in projection screen, located one active area on the Sun's disc on days 2, 12, 13, 15, 20 and 21 and two on the 16th-19th. From his observatory in Selsey, **Patrick Moore** kindly sent a drawing, **Fig. 2**, of the sunspots that were seen on his projection screen at 0850 on the 14th.

Aurora

Ron Livesey, the auroral co-ordinator for the British Astronomical Association, received reports of aurora described as 'homogeneous arc' for the overnight periods on April 7/8, 8/9 and 26/27, 'rayed arc or band' on 7/8, 'rays' on 1/2 and 22/23, 'active or flickering' on 1/2, 2/3, 7/8, and 26/27 and 'overhead corona' on 7/8, from observers in Scotland and the USA. In his April report to the BAA, Ron said that the storm on 7/8



Fig. 1.

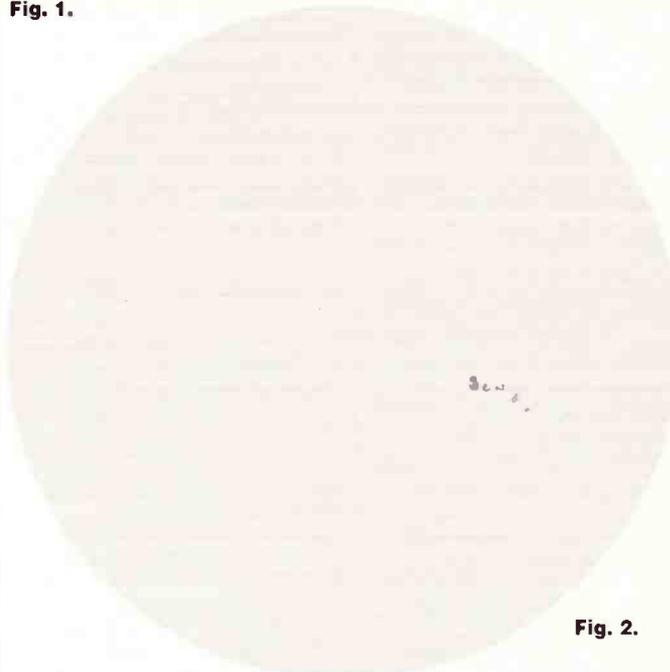


Fig. 2.

was a big auroral event with rays reaching a height of 60° at Alness and was three quarters sky at Glen Ullin in North Dakota.

Magnetic

The magnetometers used by **John Fletcher** (Tuffley), **Tony Hopwood** (Upton on Severn), **Karl Lewis** (Saltash), **Ron Livesey**, **David Pettitt** (Carlisle), **Tony**

Rickwood (Gillingham) and **Tom Rackham** (Goostrey), between them recorded strong disturbances to the earth's magnetic field on April 7 and lesser events on days 1, 2, 6, 8, 9, 10, 22-24, 26 and 27.

Continued on page 53

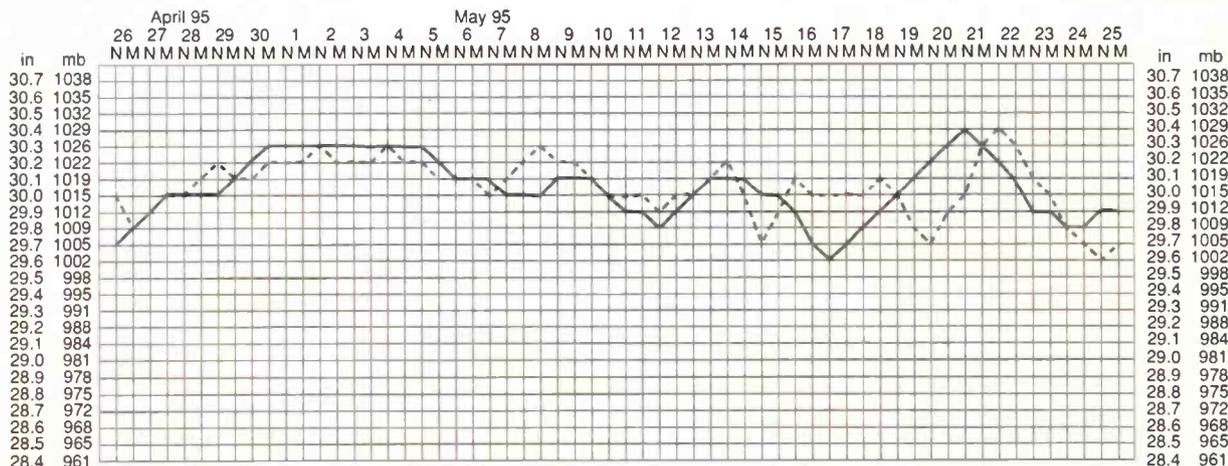


Fig. 3.

Satellite TV News

The Latest from the Clarke Belt

Reception at C Band (3.6-4.2GHz) has always implied use of a large satellite dish, certainly nothing under 1.8m (6 foot) for any chance of reception and perhaps much larger to entertain the exotic signals that are to be found within this band. Unfortunately large dish structures rarely find favour with planners and even use of a 1.8m dish may be impossible in some areas - apart from the financial implications for the potential owner.

At the April Cable and Satellite Show in London, Chaparral displayed their latest creation - a compact C Band LNB/combined feed horn assembly - that certainly differed from the usual scalar rings unit. The 'Micropak' features a very compact feed tube and 25K LNB but the usual feed tube wave stub had been replaced with a small dipole assembly. The dipole itself physically rotated via a rear mounting servo motor, thus moving between vertical and horizontal polarisation - and all points in between. The large scalar rings had been deleted, only a small feed tube with its integral rotating dipole faced into the tube with a large mounting ring surrounding the 'Micropak' as the picture shows. Chaparral tell of greatly improved performance resulting from the very low noise/+60dB high gain LNB, minimal dish shadowing and precise control of polarity. In parts of Asia use of a 1.5m dish in C Band is now practical such as with Star TV via AsiaSat. For us European sat-zappers living in a largely Intelsat environment we must wait for Chaparral to develop a 'Micropak' capable of resolving left- and right-hand circular polarisation.

If you're into C Band reception then contact Chaparral Europe B.V. direct - Industriestraat 1, 1704 AA Heerhugowaard, Holland.

Recently the case of Ian Waller, near Lincoln was reported whereby his retrospective application for retained use of a 3.65m C Band dish in his garden was refused - but he won on appeal. A letter from **Councillor Laurie Vaisey**, Chairman - City of Lincoln Planning Committee arrived after my press report. Laurie advises that Ian Waller lives in a neighbouring authority's patch - not the City of Lincoln. Certainly in Lincoln discussion between Ian, neighbours and the planners would have achieved a happy end to the dish siting. The suggestion of the working man winning against 'big

brother' at appeal that I implied in my article he feels may encourage others to ignore the system, the councils' win more planning appeals rather than the appealer himself. Laurie stresses that enthusiasts should talk to the planning and the local councillor - they are human and will always try to say 'yes' if at all possible. It's encouraging to see a planning 'decision maker' taking the trouble to write and project his own views to us, readers please note and **don't** buy that 30m telescopic mast or Jodrell Bank dish without consulting first!

Heavenly Sightings

Following up the queries on Morse (c.w.) sequences heard on various satellites, **Len Wolley** (Bude) comments that he has monitored several such c.w. offerings that are all used for identification purposes, more on this subject can be read in the *American World Satellite Almanac* by Mark Long, a hefty tome costing around £60 but can be ordered from libraries. A typical Intelsat ident comprised '881 211 1004145794 310 574 4400 PSS1 STAR', a Eutelsat version was similar in length but terminated with 'STI KUJ'.

Thanks to **Colin Paton** (Greenock) who advises us to keep a look out for MIR TV downlinks with live space linkups/walks (10.820GHz at 16°E) from the STS71 *Atlantis* MIR/Shuttle expedition in June '95. Obviously over when this article is read, later expeditions such as STS70 *Discovery* on July 13 launch or STS69 *Endavour* on July 30 will use similar communication frequencies. Check out 145.84MHz with your scanner for f.m. voice communications in the 2m band, if there is space action then there may be pictures.

Panagiotidis Stathis (Thessaloniki, Greece) is an enthusiastic sat-zapper and he reports that the new 'Filmnet-Multichoice Hellas' is now on-air with 24-hour scrambled format. A popular channel that is retransmitted terrestrially at u.h.f., offering local and international football together with midnight adult films! Both **Ian Waller** (Lincoln) and **John Locker** (Wirral) have received the satellite downlink on an Eastern spot via Eutelsat I F4 (25°E) at 11.095GHz. Panagiotidis also advises that the Cable Plus (+) programme is now down-linked

from Kopernikus DFS-2 at 28°E 11.475GHz hor with both clear PAL and Videocrypt scrambling. Premiera TV is visible from the same bird at 11.525GHz hor in clear PAL.

John also mentions that the wandering NBC programme feed into Europe from the 'States has again moved and is - at the time of writing - resident on Intelsat 506 at 31°W - 11.135GHz.

Very recently 'Air Force Satellite News' was monitored on the Orion Atlantic 1 bird at 37°W, numerous packaged video items about USAAF activities around the world - 11.617GHz vertical. The air force programme ex USA is usually transmitted Monday evenings from around 1900 UK local time for perhaps 20 minutes or so and features air bases around the World, using 525 lines NTSC - System M and I am told uplinked out of KENS-TV, San Antonio, Texas.

An old friend, TVDXer and now sat enthusiast is **Bandula Gunasekera** from Colombo, Sri Lanka. Bandula is fortunate in that for many years he has enjoyed satellite television at u.h.f. from the Russian Ekran satellite at 99°E, on 2 channels at 714 and 754MHz. Bandula's enthusiasm for satellite TV encouraged him to build his own dedicated u.h.f. satellite receiver - the results encouraged him to sell a few receivers to neighbours (complete with helical aerial). Now Bandula imports p.c.b.s from India, assembles all the components and fits the p.c.b. in a metal case, constructs the antennas with a low-noise head amplifier and has an active business selling the receiver packages to Colombo dealers.

Folk, however, are not watching the delights of Russian TV, in this age of commercial growth across the former Communist empire the satellite u.h.f. downlinks are now used for programming into Asia with offerings such as the 'Apna TV' and the 'Tamil Bimbam' channels. Apna TV that we in the UK view on the Russian Express 2 satellite at 14°W, is also seen in SE Asia from the Russian Horizons' 21 at 103°E and 4 at 130°E - in C Band.

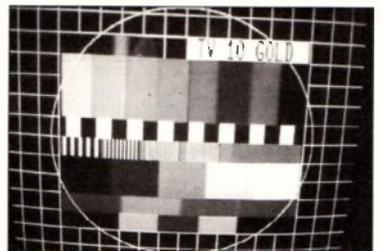
Across to the Emerald Isle and **Aidan Murphy**, Co. Meath was fortunate in receiving an invite for a special trip around the RTE facility in Dublin, lots of dishes out back including a 9m on the EBU 7°E bird, this is a fully motorised dish system and continuously monitors any movement on the satellite with dish correction via the motor



A Sarajevo news feed via Orion Atlantic 1 from 37°W, as the seconds count down the clock revolves each second



Eutelsat II F1 at 13°E carried the Atlantic Skylink caption via a France Telecom lease



Another offering of an attractive test card via Orion at 37°W - from John Locker



A live SNG feed into the morning GMTV programme via Eutelsat 16°E from the site of a recent air crash - John Locker



Recent action over former Yugoslavia by the USAAF, taking off from Aucario air base, Italy via Intelsat 515 at 18°W

system, it occasionally whirrs into life and adjusts to compensate.

Roy Carman (Reigate) has sent in a mega-log of his satellite receptions! Interesting to see his listing of early evening activity in early June across the Clarke Belt. At 1900 hours Roy logged 34 active feeds between PAS-1

at 45°W and Kopernikus 2 at 28°E. The latter bird is extremely active with Central European studio links and if you're into regional German studio idents then this is the satellite to watch. Roy backtracks to the Oklahoma City explosion and an Intelsat K news feed originating within the wreckage of the shattered building itself, this showed why the rescue operation had to move slowly in the interests of safety. The workers had code-named various sections of the building such as 'The Pit', 'The Cave' etc. - only pictures of the dead were avoided - as Roy comments 'This is television at its most terrifying, this was not some Hollywood movie, this was life and death!'

A quick note from **Julian Redwood** (Christchurch), he too has seen the 'Asianet' ident on Orion 37°W and like others no programming - only the caption! The 'TV 10 Gold' programme feed on this same bird has been replaced by 'TMF' - The Music Factory - and RTP Internacional seem to think that they are downlinking on Express 2 at 14°W! Congratulations to Julian, he's

just found a job after 14 months unemployment (I know the feeling!).

And finally from **John Locker** (Wirral) has arrived a listing of TV downlinks from the American Shuttle, when it's up check out 2.205 and 2.250GHz for S Band pictures, on 2.2175 and 2.2875GHz for data which your scanner may register - i.e. feed the output of the LNB into the scanner or from a 70MHz looping output if on the satellite receiver.

Orbital News

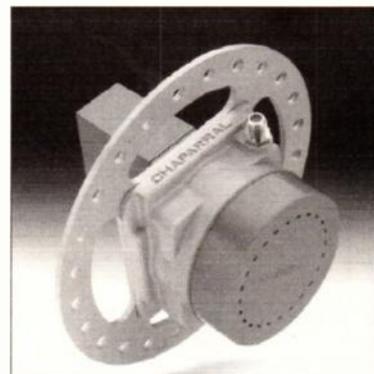
Let's start this month with news in Europe, so often this column features the fast developing SE. Asian region. Aidan Murphy (Co.Meath) writes of a forthcoming experimental TV transmission lasting over 3 hours via Astra at 19°E using 11.358GHz vertical. Using uplink sites in Eire and the UK, the programme will feature topics relating to satellite experimentation and is something not to be missed. The actual date/time isn't known as I type (June 21) but will be advised if sufficient time allows given the publishing

delay process.

The new Intelsat 706 satellite launched successfully mid May and is now stationed 51°W offering both C and Ku band coverage of the Americas and Western Europe. The payload includes 26 C Band and 14 Ku Band transponders.



Aidan Murphy's recent trip to the RTE Dublin studio centre - one of their tracking satellite dishes.



The Chaparral Micropak C Band package comprising integrated dipole, polarity servo motor and 25K noise LNB.

Reflections (continued from page 51)

Sporadic-E

"As I expected May produced a number of Sporadic-E openings," wrote **Richard Wood** (Redditch) and pointed out that "the signals seemed to get stronger as the month progressed." He received pictures in Band I, at times, from Spain's TVE1, on Ch.E3 (55.25MHz), on the 5th, 19th and 22nd and watched a news programme from Italy (RAI UNO) on Ch. 1a (53.75MHz) at 1132 on the 22nd.

The Troposphere

Although for **Arthur Grainger** (Carstairs Junction) most of May was fine with some showers and long sunny spells, he was amazed to awake on the morning of the 12th to find snow. "This was one week after we had blisteringly hot temperatures and people were catching their first sun tans," said Arthur.

On the DX front, Arthur received RDS and radiotext data from BBC Radio Nan Gaidheal for the first time, identifying itself as 'BBC Geal', on May 6. Also on the 6th he logged a very strong signal on 106.2MHz from the London transmission of Radio France International. On occasions during the month Arthur heard France Info on 103.4MHz, Manx Radio, Melody and Virgin FM and Studio Brussels from Belgium.

During May, I recorded a mere 0.76in of rain compared to 3.45in for the same period in 1994. The first eight days of the month produced a spell of fine settled weather with midday temperatures between 80° and 85°F. It changed here in the south on the 11th and was overcast and really cold on the 12th. The first and heaviest rain fall was 0.5in on

the 17th with 'nuisance' amounts of 0.08in, 0.10in and 0.08in on the 27th, 28th and 31st respectively.

The daily atmospheric pressure readings for the period April 26 to May 25, seen in **Fig. 3**, were taken at noon and midnight from Arthur Grainger's barometer (dotted trace) in Lanarkshire and my own barograph down here in Sussex.

"The weather seems to be OK at present. It's not too hot - approx. 39°C during the day and 22° at night," wrote **Lt. Col. Rana Roy** from Meerut, India on May 6.

DXTV In India

Rana Roy received pictures in Band III mainly from Amritsar on Ch.E7, Bareilly and Islamabad on E8, Jalandhar E9, Kasauli E6, Lahore (Pakistan TV) E5, Sialkot E10 and STN (Pakistan TV) E11, during tropospheric openings on March 10, 14-16, 21, 23, 24, 26-29 and 31 and April 1, 2, 6 and 9.

The strength of these signals can be judged by the photographs Rana took of the video from Lahore at 0745 on March 10, **Fig. 4** and STN at 2215 on the 23rd, **Fig. 5**. Rana also reported receiving fluttery and distorted pictures from South East Asia, in Band I, while Trans Equatorial Propagation (t.e.p.) events were in progress on March 15 and 27 and on April 9. A typical t.e.p. signal was received by Rana from an unidentified station, **Fig. 6**, at 1520 on the 15th.

SSTV

During April and May, **John Scott GM7UIK** (Glasgow) exchanged slow-scan television pictures, for the first time, with GMOBWR and

Fig. 4.



Fig. 5.

Fig. 6.



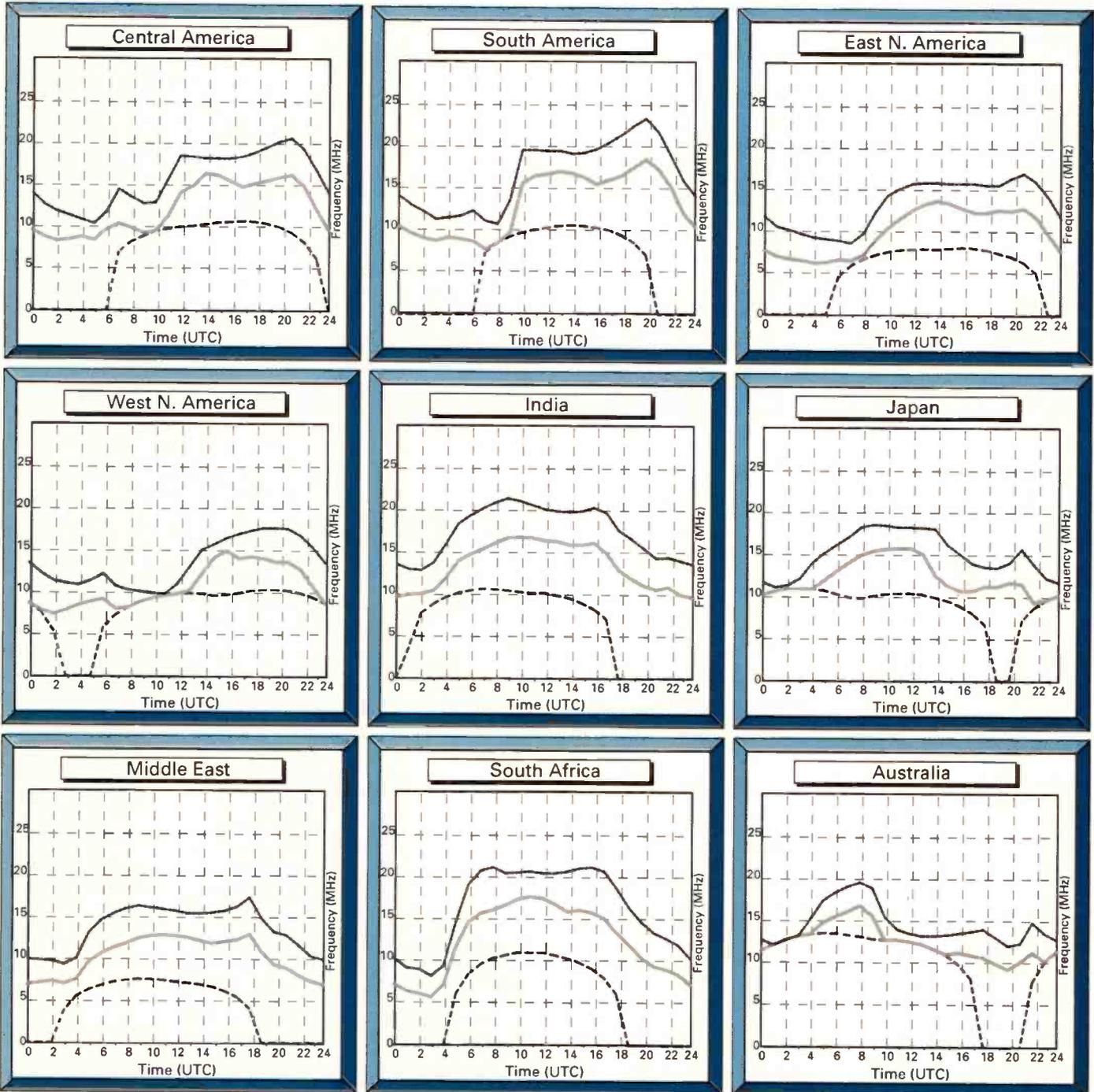
Fig. 7.

GMOVRP, in the Stirling area, on 144.5MHz. On the h.f. bands he copied general pictures from England, Germany and the USA and calling captions from Hungary, **Fig. 7**. With thanks to GM8HGT, John now has a new 'slim-line'

power supply for his 144MHz transmitter and receiver. After modification, an ex-computer power unit, "that originally had plenty of amps at 5V," said John, now provides the 13.75V at 9A required for his gear.

World Propagation Forecasts August

Circuits to London



How to use the Propagation Charts.

The charts contain three plots. The lower dashed line represents the lowest usable frequency (LUF), or ALF (Absorption Limiting Frequency). The chances of

success below this frequency are very slim.

The middle line indicates the optimum working frequency (OWF) with a 90% probability of success for the particular path and time.

Lastly, the upper dashed line, represents the maximum usable frequency (MUF) a 50%

probability of success for the path and time.

To make use of the charts you must select the chart most closely located to the region containing the station that you wish to hear. By selecting the time chosen for listening on the horizontal axis, the best frequencies for listening can be

determined by the values of the intersections of the plots against frequency.

Good luck and happy listening.

Amateur Bands Round-up

Listening to the Amateurs

Because of upcoming holidays, the Box number was cleared very promptly this time, so if anyone who wrote hasn't got their mention, we'll cover their letters next time.

We have a very interesting letter from Mark Malone of Great Horwood to kick off with. Mark had an indoor active antenna, but was finding so much man-made noise that he gave up listening for some time.

Then, he tried using an active antenna **outside** and noted a marked improvement. Why?

Inside our houses we tend to have most of the wiring going up to the loft. Also, we have many more electrical appliances in the house, most of which generate electrical noise; thermostats, for instance, or switching contacts, the heating system, neighbours with electric drills or mowers. Most of this noise is transmitted into the mains wiring, and then onward. Thus the loft tends to be full of electrical noise. Taking the antenna down the garden gets it away from the mains wiring and the noise. Further improvement can come for example if the coaxial cable from the garden antenna can be buried; and of course the power for the active antenna needs attention. Perhaps you can feed a stabilised and suppressed supply out to the active antenna. If you **must** take the mains out to the active antenna, then treat it to a suppresser at each end. Finally, go round your own patch and attend to any sources of electrical noise; usually an increase in noise from an appliance means something needs mending anyway! Don't forget during this exercise that you can find ordinary electric light bulbs generating noise, let alone fluorescents. It perhaps bears repetition that these man-made noises are usually, but not always, vertically polarised.

Mark in fact made such an improvement that he included a list; on 14MHz he logged A71A, A92Q, BV7GA, CN8LI, EA9AU, ET3AA, WB2LBF/FS, FY5FJ, HS0VB, HZ1AB, JA7AKH, KC0NA in Minnesota, NM3B, PP7GAG, XX9AS, ZF1UK, ZP6LA, 3V8BB, IK2BHX/4J0, 5N0GC, 5Z4PL, 7X2DB, 9K2YA, 9L1PG, and 9Y4LR; while on 18MHz he managed CU3YY, PJ8AD, T17DBS, 4X6TT, 5T5BN, and 7K2PMJ.

A correspondent who wishes to be anonymous mentions his problems with waterproofing coaxial cables, and in particular waterproofing the end that lives up in the air. Our reader noted that his

trap dipole seemed to be very 'dead' as compared to antennas of other locals; so he pulled the thing down. Firstly the traps were inspected and cleaned up, followed by a look at the coaxial cable; the outer braid had gone green, and the green had migrated into the polythene between inner conductor and braid. So much for 'waterproof' fittings!

The basic problem is that the coaxial braid acts like a wick in a candle, allowing water even to go against gravity, by capillary action.

Replacement of the coaxial cable removes the basic difficulty, but there remains the problem of keeping it dry at the top. Almost anything made of **any** form of plastics material will itself degrade and crack due to exposure to ultra-violet light; which lets out most forms of the 'upended plastics bottle' arrangements, not to mention the self-amalgamating tape schemes. At the moment I am experimenting with an arrangement fitting into a black plastics pillbox as used for 35mm roll film; the 'centre fitting' is a bit of Veroboard, so as to keep the braid well away from everything, and the whole shebang is filled with bearing grease well forced home to eliminate air pockets. The cable comes out of a close-fitting hole in the lid. The whole thing is well covered with old-fashioned cloth insulation tape to keep the ultra-violet rays at bay. So far, so good; but come a hot summer's day followed by a rainy one, and I suspect this might fail to answer! Since the impedance of the dipole is around 50Ω, it doesn't matter too much if the cover is mildly lossy just so long as water doesn't get into the coaxial cable. I recall, years ago, putting up an antenna one Saturday morning and forgetting to waterproof it; oh, we said, let it wait 'til Monday evening, it won't matter. By Sunday afternoon water was dripping out of the bottom end connector!

Please, all you folks out there - let's have a few suggestions for the benefit of us all!

Television

Talking of antenna problems, Yours Truly takes a TV signal from the local relay station at Llandinam which is probably 'a relay of a relay of a relay'(!). The signal is extracted from an antenna in the loft. It is quite noticeable that the four available channels all offer different field strengths; but whichever is the

strongest always depends on the weather; it's as though the antenna system resonance moves through the band! Obviously, somewhere along the chain of relays, there is a system which takes exception to the weather conditions.

Valves

Dennis Sheppard in Earl Shilton has acquired a KW2000 transceiver - the original version with the single 6146 output stage - which he has been using as an amateur bands receiver. The sensitivity is well up to scratch, as is the stability, but Dennis has had problems with the meter circuitry chasing this problem out, he has established that there are a couple of very tired 12AT7 type valves. If anyone out there has a couple of good ones, please let me know and I'll pass the word on to Dennis. Incidentally, this rig, such a work-horse in the early years of the s.s.b revolution is still quite useful, provided you have a selection of the valve type for the v.f.o. which was, if memory serves me right, an ECF82. If you try several different specimens in the v.f.o. valve-holder, you will find a 'good' one making a spectacular improvement. However, like all valved rigs they take a few minutes to stabilise, but after fifteen minutes they should be as stable as anyone could want.

For those thinking about starting short wave listening 'on a shoe-string' this raises an interesting question. The best of the valved receivers - HRO, AR88, SX28 represented the peak of an established technology; the early solid-state receivers rapidly became fashionable, but it was a couple of decades before they were competitive in terms of dynamic range, which is the ability to copy a weak signal in the presence of a 'loudenboomer' nearby. Given the handbook is available or can be obtained, other things being equal the valved receiver is probably the best bet if your pocket isn't very deep. However, do be warned. The valved receiver has a high voltage line of around 200 volts d.c. plus a valve heater supply of around 6.3 or 12.6 volts a.c. Hence when you want to investigate, disconnect the receiver from the mains first before you slip the cover off. Now set it up on the bench on its side, so you can see into both top and bottom easily. Now you can switch it on let it warm up for a few minutes and take a test-

meter to it. When using the test meter always **Keep One Hand In Your Pocket** and preferably stand on a rubber mat.

A late letter came in from Karl Drage in Woodford, Northants. Karl was entangled with the GCSEs and things during the previous month, so his log was a bit down. On 3.5MHz we see GD4PTV on the Isle of Man, GI3JQR, GMOEKM, GROVE from HMS Dolphin, GR5VE from HMS Robert, LX9UN/A, LX95VEC, LY3NCU, PA50MPM, UT100UDX, VK4SP, YC2BQF, Z22JE and 4L8A, for a nice mix of near and far. Up on 14MHz we note AH8A in American Samoa, AP2EH, A92BE, BV7GA, CJ1YX, CT7B(IOTA EU-040), GB8RC from Rockingham Castle, HG47VEK, HS1NGR/8, HS7CI, HV3SJ, HV4NAC, IC8GVV in Capri, IL6/IK4IDW, J11CZB, JN1EXA, JR1HUA, JW0C, JY5AL, KL7XD, KP4/8P6AH, NH6JO, NH6NG, NH6SM, NL7V, OD5MM, OH0/SM3SGP, OJ0/OH8AAPY2RF, RX1DX/FJL from Franz Josef Land, SK0WJ, SV2CUS, SV/MY3V, S92YL, VE6VK, VK2RR, VK2XU, VK3DMA, VK4LW, VK5LR, VU2BLJ, VU2OO, WH6ASW, WL7BOO, XX9AS, VE9BT, ZB2JO, ZD7WDG, ZL3AE, ZL4NF, ZL4TT, ZS6YQ, ZS95RWF, 3A2MD, 4L8A, 4X1VF/M, 4X47ID, 8R1WD, 9H1BY, 9I2CC, 9K2HN, 9K2MU, 9M8DB, and 9M8DJ, not, of course, counting the multitude of specials celebrating 100 years of radio....they did get to be a bit of a drag towards the end. On a different tack, Karl wants to know how to get the *DX News Sheet*. That's an easy one; subscription enquiries all go to **RSQB, Lambda House, Cranborne Road, Potters Bar, Herts EN6 3JE**. The presentation printing and distribution has been taken over within the past few days by Chris Page, G4BUE who nowadays has his own printing business....maybe something to remember when you want some printing done?

Finale

As usual, the deadline is to reach me by the first of the month at PO Box 4, Newtown, Powys SY16 1ZZ, with your logs, notes news and questions - the more the merrier, then I can con the Editor for some more space. 'Bye now'.

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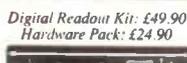
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73 from Dave G4KQH, Technical Manager.

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SSB Utility Listening

HF Sideband

Last month, I had to drop an item to make room for the news about the RAF frequency changes, so this month it appears below.

The more observant amongst you will see that the heading at the top of the page now lists an Internet address. I have had this address for a few months, but I wanted to see what the Internet had to offer before deciding to continue using it. At the moment, I only use the service for mail, so I am happy to receive letters, logs, information and questions via this method. Those of you who prefer the more personal touch can still write to the usual address at the top of the page.

ABC

I know that I have mentioned this before, and so has Godfrey Manning in his 'Airband' column, but I get lots of questions about it, so it is worth repeating.

There is a simple way to find out much more about civil flight heard on h.f. as they fly around the world. A little bit of detective work will allow you to find out where a flight came from and where it is going to. You can also find out what sort of aircraft is operating the flight without having to rely on Selcall checks.

Almost all Travel Agents have a copy of the *ABC Flight Guide*. This is a huge two-volume book, just like a telephone directory, which is updated and re-issued every month. The purpose of the *Guide* - for Travel Agents - is to allow them to see which airlines and flights operate from 'A' to 'B' so that they can book passengers onto the flights.

When a new copy of the guide arrives, the old copy is thrown away (or put in the re-cycling skip), but if you ask nicely, they will usually let you have their old copies.

Once you have a copy, you can use it in the following way. Say you hear a flight on h.f., working either an ATC station or an LDOC station. Other books will provide you with the airline code when you hear the call sign, and also the country where that airline is based. With that information, you can start to search through the flights from that country until you find the one with the same flight number that you heard. This will allow you to find out where the flight started, and where it is going to. You can narrow down the search by ignoring those destinations which would not put the aircraft where you heard it. For example, KLM 597 heard in the far east; KLM is the Dutch airline, based in Amsterdam, so I would check flights starting from there. I would ignore all the flights from Holland to the USA, Europe or Africa. Once you have

found the flight, you can note down the aircraft type and departure and arrival times.

Once you know where the flights final destination is, it is a simple matter to look for flight from that location back to the home country of the airline. With this information, you can work out when the flight is most likely to be heard again, but on the return journey.

USAF FLIP

A few months back, I asked if anyone had any questions which they wanted answered. A number of letters arrived, with questions ranging from "please can I have a list of frequencies used at 'Area 51' in Nevada?", to "Where can I get a *USAF Flight Information Handbook*?". To the person who sent in the first question, I think that you mis-understand the nature of this column; this is all about h.f. s.s.b. utility stations, and I don't think that 'Area 51' has any h.f. capability. The latter questions seems to crop-up quite often, and I even mentioned it a few months ago as a request from **D. C. Stewart**. I'm glad to say that it provoked some readers to write in.

In recent months I have received information about two different sources of this book. For those who are not aware of what is contained in the *USAF Flight Information Handbook (FLIP)*, it is a comprehensive list of information for aircrew not covering v.h.f. and u.h.f. frequencies. Therefore, it contains masses of information and maps relating to h.f. communications; there are diagrams of the major h.f. networks, full details of the USAF Gh.f.s stations, and full frequency listings for both.

The first source of this book is a company called **Diagraphics Ltd., 258 Ipswich Road, Slough SL1 4EP**, who supply all sorts of aeronautical maps, charts and publications for aviators. The *FLIP* itself is issued every 32 weeks, and *Diagraphics* will always provide the latest issue available. The book costs £18 per copy, plus £2 post & packing. This sounds very expensive, but *Diagraphics* point out that they are ordered individually from their suppliers in the USA. They also add that the price drops for bulk orders, but I can't see any readers wanting more than one copy each.

John Berezin from the USA writes with details of an alternative source. The *USAF FLIP* is published by the US Department of Defence - Defence Mapping Agency, however they do not accept orders from the public. Instead, you can write to the National Oceanic and Atmospheric Administration (NOAA Distribution

Branch N/CG33, National Ocean Service, Riverdale, Maryland, 20737-1199, USA). By ordering direct from them, the price drops to \$2.75 for a two-issue subscription which includes overseas airmail postage - however payment from outside the USA must be made using a cheque payable on a US bank, or by International Money Order (IMO). Before you start writing to NOAA, check the cost of an IMO - UK banks charge about £10 for each one, so you will not save much by dealing directly with the USA.

If you do decide to write to NOAA, ask them for copies of two free publications which they produce. They are both catalogues of the products

they offer - they are the *NOAA Aeronautical Charts & Related Products* catalogue, and the *DMA Aeronautical Charts & Publications* catalogue.

Questions

A few months back I mentioned a request from **Kenneth P.** from Exeter who wanted to know about h.f. VOLMET broadcasts from France. I have done some research on this, and I can only find v.h.f. transmissions (... on 126.0 and 125.15MHz). Unless the French Air Force make an occasional VOLMET broadcast, I'm afraid that's it for France.

Traffic Log

(all frequencies in MHz, all times UTC)

- 5.205 (10/5, 13.28) Shadow 64 working Blackcat. '64 said that he would be staying in his 'present location' for one more night. Shadow 64 should be a USAF C-130 Hercules from the 67thSOS now based at RAF Mildenhall. 'Blackcat' (in this case) may be at either Mildenhall, Incirlik in Turkey, or at Brindisi in Italy.
- 5.680 (3/4) Two unidentified station with American accents. Plymouth Rescue called them and asked them if they were aware that they were using the international distress frequency. The stations said that they were in Greenland and were aware of the usage; they told Plymouth that their set-times for using this frequency were 08.00z - 20.30z, and that they also used 6.553, 4.050 and 5.2815MHz. They moved to the latter frequency after Plymouth had spoken with them. *A real mystery, who could this station be?*
- 5.696 (23/5, 22.02) Air Force Rescue 863 (a USAF HC-130 Hercules) working USCG CamsLant Boston. '863 was at position 31°37'N 60°44'W, and was about to drop 3 para-rescue people to a vessel (no name given). At 22.40, '863 requested a phone-patch to 'King Ops' at Patrick AFB, Florida; Boston asked them to QSY to 6.212MHz.
- 6.212 (23/5, 22.42) Air Force Rescue 863 working 'King Ops' via CamsLant Boston. '863 reported that they had 'deployed their package' and 3 para-rescue men to the vessel (again, no name). The patient had suffered a cardiac arrest, but the vessel will continue to Bermuda; '863 will land at Bermuda and wait for the vessel to arrive.
- 8.279 (27/5, 17.24) MV 'Sibirskiy 1201' (callsign UYNS) working Helsinki Radio (On 8.803MHz split frequency) for two calls to Russia. This vessel is a sea-river cargo ship, which was in the Caspian Sea at the time.
- 10.1635 (26/4, 08.22) A German Navy ship with the callsign DRAT calling DHJ59 (German Navy, Wilhelmshaven) for a radio check. There was no reply from DHJ59. *Does anyone know which German ship uses this callsign?*
- 10.805 (27/4, 20.41) KLM 597 working Stockholm radio with a passengers phone-patch. After the call, the KLM pilot mentioned that it was difficult to contact Stockholm from the far east (where they were). Stockholm suggested that they try them on 13.342MHz.
- 11.175 (1/4, 17.30) SAM 125 working NIGHTWATCH, reporting their departure from Kiev, and estimating Moscow at 01.58z. *This is not a normal SAM callsign, but I have a theory; I would like to hear from anyone who hears any of the following SAM callsigns:- SAM 125, SAM 675, SAM 676 or SAM 787.*
- 11.175 (10/5, 07.40) SAM 681 (a VC-9 aircraft from the 89thAW) working Croughton with a phone-patch to Andrews VIP. '681 requested some working frequencies, and was told to QSY to F267 (6.730MHz) primary, or F311 (11.220MHz) secondary.
- 11.175 (26/5, 00.09) Navy 53442 (a USN P-3 Orion aircraft) working Ascension with a phone-patch to 'OCC' at Norfolk Naval Station, Virginia. This aircraft had been flying a regular race-track pattern across central Africa and the Sahara during May. Always flying at 19,500 feet, it called OCC every time it reached a specific point; for this contact, it was at 16°14'N 07°59'W. *Does anybody know what this aircraft was doing?*
- 11.220 (10/5, 08.06) SAM 681 working Andrews VIP requesting a weather forecast of EINN (Shannon, Ireland).
- 11.470 (22/5, 22.06) Connie 806 working Miami Radio with a phone-patch to Connie Ops. '806 reported that they were on the ground at Fort Lauderdale, and passed details of their aircraft defect. They made a second phone-patch a while later to say that they had been waiting on the US Customs Ramp for 45 minutes, and they could not unload the aircraft until the US Customs showed up.



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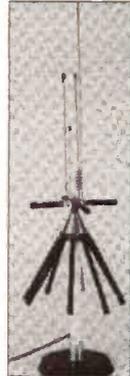
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Tel: 0121-460 1581/0121-457 788



Bandscan America

The new political winds which swept into the US Capitol last fall may result in the biggest short wave story of the decade! The fresh effort to bring the US national budget under control has put a lot of government programs and agencies under the gun, including America's official short wave voices - the Voice of America, Radio Marti and Radio Free Europe/Radio Liberty. Depending on which version of which plan (if any) is finally passed, the VOA and its cousins could be downsized over time until they no longer exist! Or downsized and moved into the US Department of State. Either way there are major changes ahead, none of which involve expansion. The word is that VOA-Europe will close before the end of the year. It looks unlikely that the Sao Tome relay station will be completed. And it seems highly unlikely that Radio Free Asia, designed as an Asian equivalent of RFE/RL and now under construction in the US Northern Marianas will ever go on the air.

Radio Marti, the US Government's special service to Cuba, has already undergone some radical changes. The VOA Bethany (Ohio) relay - which aired most of the Radio Marti service was closed last fall. The government is now buying time to air Marti on WHRI, which is airing the service from 0200-0500 (except Sundays and Mondays) on 9495.

KGEI - This California station, was one of the oldest in the United States when it was closed down last summer by its owner, the Far East Broadcasting Company. Now, news reports say it will return in a new location and under a new owner - Calvary Chapel, near Twin Falls, Idaho. It will even use its old slogan - The Voice of Friendship and, as before, focus its effort on Latin America.

More USA - The Oklahoma City bombing brought media and government attention to the extreme right wing broadcasters who produce so-called 'super patriot' programming. Some of the private US short wave broadcasters made the news because they carry a lot of these programmes. WWCR in Nashville, Tennessee suspended broadcasts of one such programme.

One of the oldest US broadcasters, WINB in Red Lion, Pennsylvania has also been caught up in this. WINB had signed with something called "Main Street Media" to carry this type of programming exclusively but then cancelled the contract before such broadcasts began, reportedly because the engineers refused to correct the

technical problems the station's been having if it went ahead with the change. WINB is listed for operation on 11.915, 11.950 and 15.715MHz at various hours, should you want to check their current status. At the time of writing, the station remains silent.

Many North American DXers made an effort to pick up a special series of test broadcasts on the high edge of the medium wave band this past spring. KUSA operated from Las Vegas, Nevada with 10kW on 1660kHz operated during the annual convention of the National Association of Broadcasters. The station was set up to run on-the-air tests of digital audio on medium wave.

Alaska - Station KNLS now offers a series of four special QSL cards, one for each broadcast period in the year. However, there are only 200 in each series and once those are gone the regular KNLS cards will be issued until the next period begins.

KNLS can be reached at P.O. Box 473, Anchor Point, Alaska 99556.

Brazil - The government station, Radiobras, broadcasts to Europe on 15.265MHz, carrying Portuguese at 1620-1750, English 1800-1920 and German from 1930 to 2020.

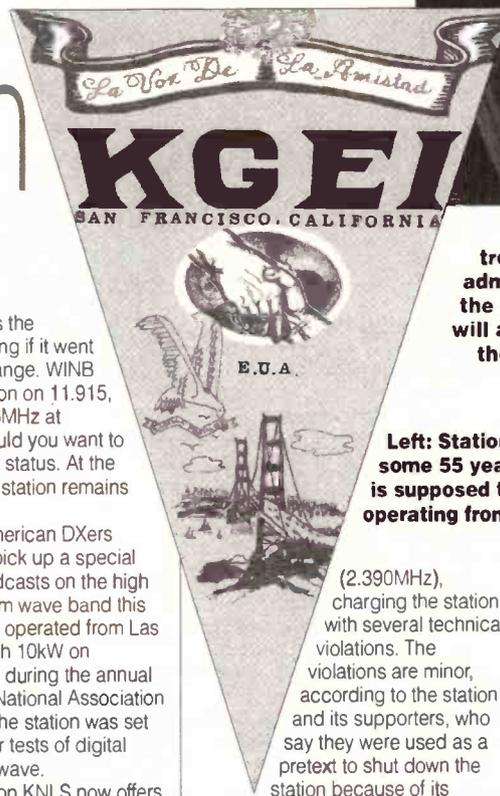
Radio Juratel, a religious broadcaster, is now being carried on Radio Bandeirantes on 11.925MHz. Reports for these broadcasts may be sent to Sr. Ielton Nascimento, Radio Loureco de Azevado, 241 (VI. Morse); Sao Paulo, SP 05624-060, Brazil. The exact times at which Bandeirantes carries Juratel are not yet known.

A Quick Look at Latin America

Radio N103 (la N103) in the Dominican Republic, has resumed short wave operations on 4.797MHz. Sani Radio in Honduras has also returned - heard on 6.299MHz at 0100. And, in Nicaragua, the sporadically active Radio Miskut is active again, noted on 5770 to 0115 closing. Watch for a new station to come on the air from Uruguay. Emisora Ciudad de Montevideo will begin operations using 9650 and 15230.

Probably the least often reported of the several Costa Ricans is Radio Universidad on 6.105MHz. That's being heard of late, around 0200, all in Spanish. Radio For Peace International has reactivated their 15.050MHz frequency.

Mexico - The Mexican telecommunications authority has closed little Radio Huayacocotla



Above: The Voice of America is in trouble, thanks to Congressional and administration budget cutting plans. If the VOA doesn't disappear over time it will at least be cut back. Shown here is the master control room at the VOA's Washington, DC headquarters.

Left: Station KGEI, which had operated for some 55 years before it was closed last summer is supposed to return under a new owner, operating from the state of Idaho.

(2.390MHz), charging the station with several technical violations. The violations are minor, according to the station and its supporters, who say they were used as a pretext to shut down the station because of its sympathy and support for an increasingly restive indigenous population.

Peru - Here's a quick look at some of the recent changes in the short wave activity list from Peru: (frequencies MHz)

- 3.160 - Radio Jerusalem in the Cajamarca area.
- 3.260 - Radio La Voz de Santa Cruz, probably from Santa Cruz in Loreto Province
- 3.370 - Radiodifusora Huancabamba, a new station
- 3.818 - La Radio de la Integracion, Rioja
- 4.672 - Radio Soledad
- 5.275 - Estacion Laser, Nueva Cajamarca
- 5.547 - La Voz de Andamachay, reactivated
- 5.526 - Radio La Inmaculada (tentative)
- 5.720 - Radio San Miguel Archangel, Cajamarca, reactivated here
- 6.544 - Radio Imperial, Huancabamba

Cuba - Here's a chance to win a free trip to Cuba. Radio Havana has an essay contest underway, seeking your answer to the question "What has Radio Havana Cuba meant to you in these 35 years?" The five best entries will win their authors an all-expense paid one week trip to Cuba. The entry deadline is 31 March 1996. Entries should be mailed to: **35th Anniversary Contest, Radio Havana Cuba, Box 6240, Havana, Cuba.**

Argentina - Radio Rivadavia, a medium wave outlet which used to be relayed on short wave by a communications station on a regular basis, has reappeared on 5081 in single sideband. These relays are intended for Argentines in Antarctica. Other Argentine medium wavers, such as Radio El Mundo and Radio del Plata, have appeared on short wave in this fashion in the past, but

usually only for a short time and very much on a catch-as-catch-can basis. It's impossible to predict when or where this sort of thing will occur.

Radio Nacional de Mendosa has been back on the air for more than a year now and can be heard occasionally on variable 6.180MHz. Sign on is usually sometime before 0900.

Paraguay - Adventist World Radio (AWR) has been granted approval for their broadcast station near Asuncion. There will be two 50kW short wave transmitters employed to cover South America. AWR also plans to operate on medium wave and f.m. but approval has not yet been gained. The station says that it will not begin construction of the short wave station until the other two are also approved. The facility would also include a satellite uplink so AWR programming could be available to local stations throughout the continent. While we wait for these new signals from Paraguay, we can most always count on good reception from Radio Nacional de Paraguay, 9.735MHz, which always offers enjoyable music during the US evenings, from around 0000.

Haiti - A couple of very fortunate US DXers managed to log the US government's Radio Democratie (1035kHz) station when it broadcast to Haiti from an EC-130E Commando Solo aircraft during the US/Haitian crisis last year. Now some are receiving 'prepared card' QSL replies via an Air National Guard installation in Pennsylvania.

Chile - Put a 'hold' on the planned purchase of the former Radio Nacional de Chile/La Voz de Chile facility, announced sometime ago. Unspecified problems have arisen and the entire status of this is unknown at present.

Palau - KHBN, the Voice of Hope station on this island, will put a third 100kW transmitter on the air later this year and is already in the process of installing a number of new antennas. The additional facility will enable better coverage of India and China.

That's all for this time. We'll be back in three months with more news from this side of the world. Until then, good listening!

Airband

As you all like the Red Arrows, here are dates that I know about for displays in the British Isles. Note that cancellations or changes might happen after you read this, so check first to avoid disappointment. In July: Shawbury (27th) and Blackpool (28th). August: Lands End & St. Mawgan (2nd); Bournemouth & Swanage (3rd); Sunderland (5th & 6th); Humberside (6th); Whitby (14th); Cromer & Weymouth (16th); Dawlish & Fowey (17th); Eastbourne & Torbay (18th); London (19th, VJ Anniversary); Dartmouth (23rd); Clacton (24th); Cleethorpes (25th); Leicester (27th) and Elvington (28th). September: Swanton Morley (6th); Guernsey & Jersey (14th) and Leuchars (16th). That should keep them busy. The Reds are associated with Scampton and I'm grateful to **John Evans G7CEC** (Leicester) for sending a copy of the *Salute to Scampton* broadsheet.

Apologies for two errors in last month's issue. I'm sure you all spotted that the top photo was the Mooney and the bottom one wasn't a Yak at all! In fact it was a Robin HR.100/285R. Also, page 69, second column, end of second paragraph, 080C should of course (pun?) read 080°.

Your Experiences

A bad experience in this case. **Claude Moreira** (London) was disappointed at the lack of spectator facilities at London (Stansted). I predict that newly 'privatised' airport authorities won't give any priority to spending money on spectators who won't boost the shareholders' profits. This is unfair on 'meeters and greeters' who want to see the arrival/departure of their friends/relatives, and means that enthusiasts and 'spotters' will obstruct unsuitable parts of the airport. Other more enlightened authorities recognise this latter problem and maintain spectator facilities so that the inevitable enthusiasts don't become a problem.

As a consolation, Claude was offered a place to stand "...outside on the terminal forecourt..." and a voucher for a free children's meal at the airport's fast-food outlet. It is not stated whether the aircraft can be seen from the fast-food place.

Continuing is the bad experience of **Peter Vallance** (Gatwick) who is still awaiting definitive permission to retain his historic aircraft collection on his site. Having visited, I can report that the site is well screened

from neighbouring properties by trees and separated by an expanse of grass. Although Peter's aircraft were silent, the peace was disturbed at regular intervals by movements at Gatwick. Aircraft taxiing for 08 departure can be seen through the trees!

A little later I was able to view the site from the air. The aircraft are plainly visible just left of the 08 approach and it's hard to believe that they're not actually a part of the airport. So here's my verdict: Gatwick is a suitable place to keep aircraft!

Why not go and see for yourself, and lend support to Peter's campaign? He's holding an open day on September 16 and 17, 1000-1700 local, admission £3. Other attractions will include vintage vehicles, amateur radio station, autojumble and others. Vallance By-Ways is in Lowfield Heath Road, Charlwood, contact (01293) 862915.

Best wishes for the success of a project in which the son of **Mrs. B.** (Isle of Man) is assisting. The aim is to re-engineer a glider cockpit to make it acceptable to a disabled person. Let me know the result of the flight tests!

Frequency and Operational News

The CAA *GASIL* (3 of 1995) introduces a new VDF on Biggin's existing frequencies of 129.4 and 134.8MHz. Cranfield are trying something on 118.25MHz, but ATC aren't monitoring - can anyone tell me what's going on? Changed allocations are as follows: Clacton is now 135.4 (was 122.325); Fife (Glenrothes) 130.45 (airfield was temporarily closed); Hawarden 130.25 (was 129.85); Portsmouth Danger Area Activity Information Service is now from London Information 125.475 (was 134.7); and Shoreham a.t.i.s. 132.4 (was 121.75MHz). RAF Wyton loses its Military Aerodrome Traffic Zone.

Graham Swift (Newcastle-under-Lyme) has some frequency updates. Trouble is, Graham, you don't tell us which services the frequencies belong to. With the European listing alone occupying 290 pages of the *AERAD Supplement* I can't be expected to search for them! Anyway, quoted as Graham sends them (all MHz): 128.05 still operational; 133.7 replaced by 131.125 or 129.1; 133.6 carries arriving North Atlantic traffic 0600-0800 (presumably local). Traffic southbound in the Manchester area is on 124.2 and 133.4 then changing

Peter Vallance's Shackleton.

Christine Mlynek.



F-GHME (025) ATR-42 of Brit-Air seen at Rennes.

Christine Mlynek.



to 129.2 or 131.125MHz. So, readers, please help the rest of us by stating which service is on any frequency that you write to me about.

Airtours callsign is now Tourjet (was Kestrel).

AIC 39/1995 reminds us that Honington will be home to F15s until the end of the year while Lakenheath and Marham have their runways resurfaced. Control is by Lakenheath 128.9MHz.

concepts was assumed before it had been expounded. For its price, I would have expected fuller explanations and better quality photos.

There was some muddle over Precision Approach Radar as compared to the more usual Surveillance Radar Approach; also, the difference between a Flight Information Region and unregulated airspace catches many people out. Least forgivable is defining Special VFR as being VFR in poor conditions flown by an experienced pilot. Actually, it's VFR flight in airspace that is usually reserved for instrument flights - such as Heathrow's control zone - coordinated by a controller, of course. I'd be unhappy to recommend this book to an absolute beginner. Once you've gained some experience, and have some questions to be answered, then's the time to buy this book. Read it, and if you still need to know more, write to this column with your questions.

In the Cockpit

By popular request, you wanted to see what aircraft-style equipment looks like. Over the last few months I described the Automatic Direction Finder that displays the position of n.d.b.s on the Radio Magnetic Indicator.

Now for a new subject. Chris's photo this time shows the cockpit control panel for a Secondary Surveillance Radar (SSR) Transponder. As with most large-aircraft fits, the transponder itself is tucked away in an electronics rack, possibly beneath the cockpit floor.

Air Traffic Control (ATC) have two sorts of radar: primary and secondary. You're probably familiar

Book Reviews

Blame my nephews **Kieran & Adam** (St. Albans) for this one. *Tales from the Crewroom* by David Berry (Osprey Aerospace, ISBN 0-85045-977-X) describes the life of Transport Command aircrew on the Britannia fleet in the late 1960s. I personally flew in a civilian Britannia in 1968 so this brought back memories. Although some general flying background is covered, I think the book will appeal most to those who were actually associated with squadron service during the period covered.

Of wider appeal will be **The Airband Jargon Book** by Ron Swinburne (from the *Short Wave Magazine* Book Store). Ron is to be congratulated on his aim of making light aircraft flying more understandable, something that he has in common with this column. It's a shame that it's let down in places by poor sub-editing. I know that correct grammar is no longer fashionable but there were parts I had to read twice in order to understand their meaning. Some of the explanations were too brief and might confuse those whom they were intended to help. This was worse where knowledge of some



SSR transponder controller.

Christine Mlynek.

with the principal of primary radar: a pulse of radio waves is sent in a fixed direction, and the time for the reception of any reflected 'echo' radio signal is measured. The speed of travel of radio waves is known, so the distance to the reflecting object can be calculated. Also, the direction in which the pulse was sent is known, so in fact the bearing and distance of the reflecting aircraft is now known. Practical radars have a continually rotating antenna that puts out many pulses per second. The radar looks in one direction, checks for a reflection, then moves round by a tiny amount to the next direction and looks again, and so-on. In fact the antenna turns in a smooth, continuous movement, sending out pulses as it goes.

The reflections are displayed on a screen. Unfortunately, they are weak and don't always give a clear image. SSR is a development by which the aircraft emits a strong reply signal when hit by one of the ground radar's pulses. The ATC transponder (labelled 'ATC TRANS' in the photo) does this. The secondary ground radar transmits its interrogation pulse on 1030MHz and the aircraft transponder replies on 1090MHz. Primary radar is usually on different frequencies in the 23 and 10cm bands.

The aircraft's reply consists of more than just another pulse. It is a stream of pulses that carry information as a binary code - the same sort of code used to hold information in a computer's memory.

Abbreviations

AIC	Aeronautical Information Circular
ATC	Air Traffic Control
a.t.i.s.	automatic terminal information service
ATR	Avion TransRegional
CAA	Civil Aviation Authority
cm	centimetres
GASIL	General Aviation Safety Information Leaflet
MHz	megahertz
n.d.b.	non-directional beacon
VDF	Very high frequency Direction Finder

The code consists of four digits, each of which can take a value between 0 and 7 inclusive. In the photo, you can see that our transponder is sending out the code number 7000 that could be received by ground-based radar. The number 7000 could appear next to the target 'blip' on the controller's display screen. Below each code-number window is a pair of concentric knobs that are turned to set the required code. That's what the pilot does when told to 'squawk,' in this case, we are squawking 7000. Next month I'll tell you more about what the codes mean.

arranging to feed large airlines from local airports. Their small aircraft might even be painted in the colours of the large airline with which the agreement has been reached, although the actual operator's name is usually still visible in small lettering. Overheard when about to board a Brit Air flight, the ATR-42 being adorned in a big airline's colours: "That airline must have problems. They've borrowed an engine from Brit Air - it says on it!" I bet he couldn't see what was inside the cowling.

The next deadline (for topical information) is August 11. Replies always appear in this column and it is regretted that no direct correspondence is possible. Genuinely urgent information/enquiries: 0181-958 5113 (before 2130 local please).

And Finally...

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Scanning

A real mixed bag this month, with letters concerning many issues - including, once again, the vexed question of scanning and the law.

I have forgotten the number of times I've made the situation about scanning clear within the column - and, while I daresay regular readers will be growing fed-up with it - and the repeated mention of legislation, actual practise and court cases - it seems many more are still uncertain about exactly where they stand on this. Let me firstly state the position quite clearly and then I'll show you what happens if you fail to understand the situation.

Scanning - and most radio listening for that matter - is ILLEGAL. The authorities tend to concentrate mostly on scanner users because of the ability of the sets to intercept communications between 'government bodies' like the Police, HM Customs and Excise and so on. Mobile 'phones also constitute a massive part of this action but, in the main, the reason listening is illegal is because of the following.

Interception of communications is illegal unless you are authorised to do so - and that has to come from the Secretary of State. Again, the only people liable to get such permission would be agencies like the Police, HM Customs and Excise, the various Intelligence Departments....and then only with good reason. You and I - Joe and Josephine Public - aren't allowed to do this. This is irrespective of whether you bought your scanner under the table at the pub or over the counter at Tandy.

Now, Individual Cases

Jake Harkness of West Lothian knows only too well what can happen. Jake thought he heard an EPIRB - Emergency Position Indicating Radio Beacon - squawking on 121.500MHz and, being public minded, contacted the nearest HM Coastguard station to report it. The Coastguard turned out with a detector and pinned the noise to a neighbour's automatic door mechanism. Jake wondered why the police had to be involved and this is down to the fact that 'inter-agency' work between HMCG and elements like the police are vital. Had there have been a crash in the locality, HMCG - amongst others - would require police assistance in informing whoever needed to know about the situation, like relatives and so forth. It's a hand-in-glove relationship. It also works very well.

Despite this 'community spirit', Jake was charged by the police for 'Behaviour likely to cause a breach of the peace'. Now, whether this was solely a Scottish response is still something I haven't determined. Jake obviously acted correctly and reported what - unlikely though it is - he thought was something HMCG or other authorities couldn't hear. For his pains he now faces a charge and the consequent criminal record.

Again, a story from *The Skegness News* of 5 May 1995 tells of a man who was charged for simply having the scanner. It wasn't switched on. It wasn't even his! He was given a 12 month conditional discharge - his crime? Listening to Skegness Lifeboat. However, when it was switched on by Police, it scanned

listen to should never be memory stored - part of getting the charge to 'stick' is evidence and if you don't have the frequencies in memory then it would be harder to prove you were listening to a particular area - like Police channels. I also believe such a charge could be contested, although this is an academic point.

Lastly, if we promote responsibility within the hobby, we will be treated with some degree of leeway. Driving a car festooned with antennas is bound to attract the eye of a police patrol and I have no sympathy with you if they stop and question you and discover their frequencies in the memory of your scanner. If that's hard then tough. I never publicly display a scanner except at air shows, I don't have an antenna on the car and - at the QTHR - my verticals are slim and unobtrusively sited. One of the reasons I will not use a nest of dipoles is because of the obvious reason for them. This is not a joke - people have been charged and equipment confiscated, some have had heavy fines....

....and it happens. With unfailing regularity, it happens. Be warned. Be aware and lastly - BE CAREFUL.

Your Letters

That aside, time to move in to more radio orientated mail.

Some info now for K.L. Jones of Oswestry, via **Leslie Grenville G4SUJ** who wrote in with an answer to a question posed about aircraft in that area. Oswestry lies under Amber 25 and Upper Amber 25. Controlled by London ATCC, with a relay from

further information, then write to me and I'll pass on Mr. Grenville's address. I also apologise in being late in reporting back and in answering Mr. Jones' query via Mr. Grenville - with my divorce due, things got lost in the rush away from my previous address. Once again, apologies.

Mike Newell G1HGD wrote with a couple of good points! You asked why I feel confident in reporting some frequencies rather than others. Well, that's because some are less sensitive than others - simple as that! Also, I can't see some train driver attempting to hassle me after reporting his channels when the same cannot be said of the police! Horses for courses, Mike. What's one man's interest is not really someone else's - and the giving away of police frequencies could possibly aid criminals. Consequently, they're left out of it. I don't want to be charged with aiding and abetting!

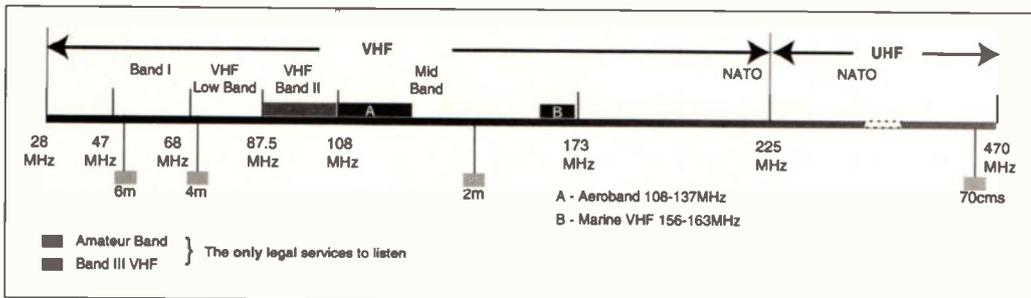
Mike asks if anyone knows of a way to enable the missing block of TV frequencies on his Realistic PRO-2006. Mike can be contacted at: 90 Arthur Street, Kenilworth, Warwickshire CV8 2HG.

I'm sure someone can help. Also, with computer aided systems for the same set - if you've used or are using one, then please give Mike the rundown on it.

He also goes on to ask when Yupiteru and AOR will bring out proper base station versions of their MVT-7100 and AR-8000. He ends by saying that he believes these sets would prove popular but what do we know? We're just the buying public! A moot point!

A small complaint now from **D. Rile** of Woodgreen. Aimed at InterProducts and Spa, Mr. Rile asks whether two versions of their lists could be brought out? A Northern and Southern version - but still maintaining the excellent airband spreads and h.f. sections. A tall order! I would guess it would have something to do with cost, really, but I'm sure someone from the organisations mentioned will put me right.

Mr. Rile also explains why London Underground channels cannot be heard well. You have to live within a 8-16km radius of the station/depot, above sea level and within sighting distance of the track. Apparently the system works on a long wire duplex system, low powered, via trackside repeaters. There's also a separate question about the London Ambulance Service viz: Why can't LAS Medivac be heard from base? G-HEMS OPs. Has anyone the proper frequencies for this - some



What can you listen to? This month I've included a diagram which is general, and shows where you can listen. You will note that holders of licenses - such as, for example, my v.h.f. radio licence - allow me to expand my area of listening. That's the only time I'd ever be allowed 'out' of the normal listening area. It should be clear enough.

and locked into the local Police Channel 1....

I'm not going to sit in judgement on these cases. I'm no authority on law or its foibles - but I will tell you, again, that owning a scanner is more than just a 'harmless pastime'. What you have is a very powerful tool that has the capability to intercept messages which could be sensitive. My advice? Any frequencies you

Clee Hill. Traffic is usually Manchester bound, as well as for Glasgow for example. To the North of Oswestry is Wallasey, which is used as a reporting point and is overflowed by aircraft going out into the Atlantic and for Dublin and back - as well as by flights to the Isle of Man. Monitor frequencies here are 133.6 and 128.05MHz.

Should Mr. Jones require any

appeared last month and the month previously.

Talking of helicopters, a letter from **Dave** of Merseyside concerns the Air Support Unit and their Aerospacial AS355 Squirrel - G-BOOV - carrying all manner of radio kit! It is rumoured she can communicate - via a NATE set (Northern Air TEchnology) - with almost anything! Heard on various frequencies, this aircraft is fitted with a GAT antenna - Ground Air? General Air? Transmitter - as well as FLIR downlink - Forward Looking Infra Red - cameras that relay pictures, via a microwave link, to the control room. NATE, reportedly, can communicate with almost anything from 25MHz upwards....!

Dave also mentions other aspects of scanning interest. BR, for example, have been observed operating on 169.0875 Edge Hill Shunters. Merseyrail Electrics on 204.850/453.850. BR Trackmen on Channel 1 - 453.550 and Channel 2 - 453.900. Dave also reports that any BR road vehicles displaying a black phone symbol are linked into the same radio/telephone system as the trains. Apparently, operating is simply a matter of inputting a simple number. The first three being the area, the last four the destination. How this links in to a radio is unknown - and someone out there must know this....! Dave requests frequencies for the Merseyside Inshore Lifeboat Service

operated from the Pier Head, at Liverpool. They used to operate on 442.675 but have since moved to a new frequency with the arrival of new p.m.r. sets. 456.825 is still Southport ILB - I believe I'm correct in saying that these are not RNLI funded, but private rescue companies. Can anyone help?

Mike Beaumont G4VCX writes in to aid the Didcot listener having problems with data bursts interfering with his listening to airband. Mike suggests that the Mercury National Paging Network may well be one of the culprits. Operating on 138.0750/138.1750 nationally, they have been known to cause a great deal of hassle to listeners. The 144MHz amateur band, for example, also gets hit quite hard. Mike even suggests that p.m.r. equipment suffers if close to a transmitting antenna. Seems it is pretty spectrum greedy - and about time any professional users suffering got it brought into line! It seems that the local Fire Brigade do not cause this interference for Mike.

Mike also mentions the Amateur Radio Station GB4TCF at Stonleigh's Town and Country Fair on August 26-29. Operating on h.f., 144/145MHz and possibly 430MHz, it could well be the place to go over the Bank Holiday. If you're in or around Warwickshire, why not give it a go?

R. Laverick writes in with

frequencies on marine v.h.f. for the Humber. If you're in the area, it may well be worth listening to movements from pilot to berth, thereby following a total ship handling operation from start to finish. You can hear these on the following.

Channel 16 - 156.800 - initial call for 'Spurn Pilots', thence to **Ch. 14** - 156.700 - for traffic exchange.

Channel 13 can also be used if busy (156.650). After that, on entering or moving in the Humber, calling 'VEE TEE ESS HUMBER' and exchanging to Ch. 12 will provide all movements to and from the estuary and docks.

Intership would be carried out on **Ch.13, 10** or **15** after contact on **Ch.12** - 156.650 / 156.500 / 156.750 - and used for navigation only. A listening watch must be maintained on 12, however.

Grimsby Docks operate on **Ch's 74/18/79** (156.725 / 156.900 + 161.500 / 156.975 + 161.575).

Immingham Docks operate on **Ch's 68/19** (156.425 / 156.950 + 161.550).

Saltend Jetties operate on **22/9/11** (157.100 + 161.700 / 156.450 / 156.550).

King George Dock operate on **11/9/22**.

Alexandra Dock operate on **11/9/22**.

Albert Docks operate on **9/11/22**.

Blacktoft Jetty operates on **14/19/9**.
Goole Docks operate on **14/19/9**.

Tetney Oil Jetty operates on **73/21/74**.

Immingham Oil Terminal operates on **69/17/19/73/71**.

River Hull Port Op's Service operates on **22/11**.

The call signs will be simplistic - e.g. 'Tetney Base' or 'Goole Docks Radio' - and, if you are a marine monitor with a keen interest in ships then you should be able to follow a tanker berthing from picking up the pilot at Spurn Head to berthing alongside at Tetney, to discharging - use of mixed marine v.h.f. and shipboard handhelds on u.h.f. - and sailing again. It adds a new dimension to the hobby!

TTFN

That's about it again! The Mini Nationals are due soon - next month - so I'll be hitting the M-way in my Clubman and hoping for prizes, college starts again in September - more work! - and last, but not least, there's a bit of exploring to do around the locality on sigs intercept missions! Be aware of the law, use your scanner wisely and have fun. Remember, however, that your consideration for the hobby can bring hours of entertainment - but that's not always the authoritarian view.

Catch you next month - good scanning!



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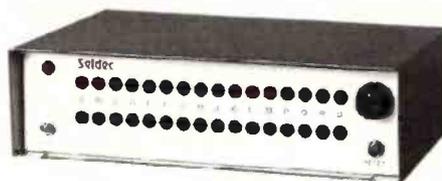
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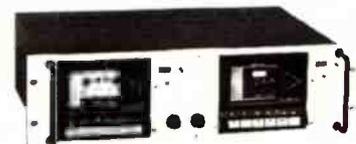
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Info In Orbit

With so much news on the WXSAT scene I am glad this is a monthly column! In June, we had announcements from NOAA concerning the future re-organisation of its WXSAT programme, and the new GMS and GOES WXSATs started operations. The only 'fly in the ointment' is the imminent plan by EUMETSAT to impose a heavy charge on all users of METEOSAT Primary Data, without exception. No other comparable organisation does this.

Current WXSATs

There are two active NOAA WXSATs using 137.62MHz. (NOAAs 9 and 14,) and periodically their widely-spaced orbits overlap for a few minutes at a time during a period of several days. For this reason, during early June the a.p.t. signal (137.62MHz) and beacon (137.77MHz) of NOAA-9 was switched off. Interestingly, during such periods, NOAA-9 is still in virtually full operation, and the ground station collects recorded data, switching off NOAA-14's transmitter for several minutes when necessary, while this happens. Because of its mid-day ascending orbit, NOAA-14 produces high contrast images in both visible and infra-red light during the summer months.

On the METEOR scene, METEORs 2-21 and 3-5 continued to operate on 137.85MHz, transmitting imagery only during the daylight part of their orbits. **Graeme Cale** of Aberdeen sent a picture on disk - **Fig. 1** - received during February from METEOR 3-5.

Some of the veil of mystery behind METEOR WXSAT operations has been lifted! After making some round-the-world enquiries on the Internet, I managed to obtain a regular copy of the *FANAS Bulletin* - 'Forecast for Ascending Node for Automatic Satellites'. This is also broadcast on the h.f. utility bands, but reception has proved unreliable. The *FANAS Bulletin* is a regular source of CIS WXSAT operational forecasts for two weeks in advance, so those receiving my WXSAT Kepler elements print-out each month (see end of column) can expect an occasional advance notification of changes!

The other image-producing satellite operating in the 137MHz band, is OKEAN-4 (or 1-7). Several readers have sent images recorded during April. OKEAN-4 is the latest in the line of CIS oceanographic WXSATs, though I am not sure that WXSAT is the correct description for a satellite that carries a radar and microwave sounder as part of its

hardware. OKEAN does not transmit continuous telemetry on 137.40MHz, but is restricted by its controllers to transmissions during certain parts of its orbit. It can often be heard on low elevation passes over to the east - that is - while passing over the territories of the former USSR.

Les Hamilton of Aberdeen reports that he also recorded signals while the satellite was on an ascending pass over the north Atlantic on April 27. On such occasions I would presume that it was under the control of a ship in that area. OKEAN carries recording equipment, and sometimes transmits recorded images while within sight of the UK. Some years ago I recorded such an image during an Atlantic crossing, but have not done so recently. I also admit to having an image from OKEAN that neither Les nor I can identify - and it is a visible-light image!

Future Launches

Shuttle launches currently scheduled include STS-69 on July 30, followed by STS-73 on September 21. Launch dates may be postponed. My Shuttle manifest is updated continuously from NASA press releases and can be obtained by sending me an s.a.e. and one extra stamp - (or 20p coin), towards collection costs.

Geostationary WXSATs - All Change!

During the last few weeks, a number of changes have occurred in the operational status of both the Japanese (GMS) and the American geostationary (GOES) WXSAT constellations. GMS-5 started formal operations at 0532UTC on June 13, when it replaced GMS-4. By June 15 it was in its nominal position at longitude 140° east. Meanwhile, GMS-4 was then drifted to its backup position at 120° east. The headers of the METEOSAT GMS format images transmitted on channel 2 (1694.50MHz) from METEOSAT, now show GMS-5.

The recently launched CIS geostationary WXSAT GOMS, now called ELEKTRO, is positioned over India at longitude 76° east, but is not transmitting regular telemetry. My thanks to **Mike Kenny** of Satellite Engineering, Bureau of Meteorology, Melbourne, Australia for providing some of this information.

The CIS WXSAT GOMS, now called ELEKTRO and positioned near 76° east is not yet transmitting regular or reliable WEFAX.



Fig. 1.



Fig. 2.

GOES-9 Becomes Operational

Following the successful launch of GOES-J, on the morning of May 31, it successfully completed the last major orbital manoeuvre to achieve semi-geosynchronous orbit. A number of milestones are always scheduled during the early orbit days of all satellites. For GOES-9 the solar arrays were partially deployed a couple of hours after launch, and the satellite was formally renamed GOES-9 the same day. Hours later, the solar array was further deployed to half-normal status, then the imager and sounder were switched on.

Having been in such an operational situation myself, during the active days of the British space programme during the 1970s and 80s, when commanding ARIEL-6, followed by IRAS, I am only too familiar with the care with which every on-board system is treated. Each process involves numerous individual checks, accompanied by much wiping of the brow! The GOES spacecraft is allowed to outgas before the detector cooler covers are opened.

Checkout for GOES-9 is carried out at longitude 90° west. NOAA has not decided where to put GOES-9 operationally, after the post-launch tests are completed in late summer. Tests include routine imaging and sounding, performance evaluation, leading to full operations around September.

The first visible-light image transmitted by GOES-9 to American sites, from its temporary position at 90° west can be seen in **Fig. 2**. My thanks to the National Oceanographic and Atmospheric Administration for making this image available through

the Internet.

GOES-7 acts as the GOES-'west' WEFAX WXSAT, providing regular images of the western coast of the Americas. Similarly, GOES-8 provides images from its easterly position - see later. The European Space Agency (ESA) WXSAT METEOSAT-5 (MOP-2) is positioned over the longitude of Greenwich from where anyone in Europe with a suitable METEOSAT WEFAX decoding system can receive images on both s.h.f. channels.

GOES-8 Schedule

For those wondering what is available from the new WXSAT, its schedule includes both infra-red and visible-light transmissions from sections of the globe, as seen from its position above the east coast. Additionally, GOES transmits selections from METEOSAT-5, in a similar manner to the GOES pictures re-transmitted by METEOSAT-5 in the LY, LR and LZ slots. Also included are ice charts and FAX weather forecast charts. Images from NOAA-14, taken during its crossing of the poles, are included in the schedule, in both visible and infra-red formats in Mercator projection. Other sequences of forecasts are included, as well as the daily operations schedule, and, of course, TBUS data. I am hoping to produce a separate feature on GOES-8 images. If anyone wants a printed copy of the schedule, just send an s.a.e. and one extra stamp (or 20p coin).

METEOSAT - The Future

I feel sad about changes planned for the costs of accessing Primary Data from METEOSAT. There are relatively



Fig. 4.

few people currently decoding Primary Data, but this market seemed to have a healthy future, that, in my view, has been seriously compromised. The imposition of a charge of 700ECU (over £500) for the required electronics, followed by an additional charge for a key interface to the decoding computer, must affect the interest that was growing in this area. I must be one of many who simply cannot afford such a cost, even if it is once only. Virtually full encryption of Primary Data is scheduled from September this year, the only concession being the non-encryption of one image every six-hours. It remains to be seen whether the images remain accessible through other sources!

It is important to appreciate that METEOSAT WEFAX is not affected by this change. Would-be purchasers can expect to be able to continue to receive METEOSAT WEFAX for at least four years, before the next generation of METEOSAT satellites becomes operational. This column will keep everyone informed as information becomes available.

NOAA-K... The Next Generation

In the spring of 1996, a new series of operational, environmental satellites begins with the launch of NOAA-K. NOAA-K, L, and M are the successors to the current NOAA-operated, polar orbiting satellites. The new satellites will carry a series of instruments that have been modified and improved compared with those now in orbit on the current operational satellites.

The Advanced Very High Resolution Radiometer (AVHRR/2) has been modified. The new instrument, AVHRR/3, adds a sixth channel in the near-IR, at 1.6µm. This will be referred to as Channel 3A and will operate during the daylight part of the orbit. Channel 3B corresponds to the previous Channel 3 on the AVHRR/2 instrument, and will operate during the night portion of the orbit. The operational scheduling of the Channel 3A/3B switching has not been precisely determined yet. A flag in the telemetry will indicate which of the two channels is operating. Splitting Channel 3 in this way maintains the HRPT data format that was designed to handle five AVHRR channels.

Automatic Picture Transmission (a.p.t.) users will receive the AVHRR/3 Channel 3A the same as Channel 3B, with an ID wedge equivalent to grey scale wedge 3.

High Resolution Image From Russia!

As mentioned last month, I have made contact with scientists in the Commonwealth of Independent States (CIS) who have set up a computer link to the Internet. During recent weekends I have exchanged E-mail with a number of staff at their Institut(e) and they are now allowing downloading from their image archives. I collected an h.r.p.t. infra-red image of the Aral Sea, **Fig. 3**, recently taken by a NOAA WXSAT. They have added grid and other outlines to the image to aid analysis. During an interview with our local paper (in which I write a fortnightly column on astronomy) I expressed surprise at the extent to which CIS scientists use NOAA h.r.p.t. imagery. The specification of imaging hardware on-board CIS METEOR WXSATs is itself impressive.

Letters

Several good images have been received on disk, following my mention an edition or two back that these can now be accepted for submission. **Alan Jarvis** of Cardiff sent in a selection, from which I have included his picture, obtained from NOAA-14 on May 17, of the region of the Black Sea, **Fig. 4**. WXSATs pass over this region, though at low elevation as seen from Britain, so a good south-easterly horizon is essential. Interestingly, Alan uses an attic turnstile antenna to feed his ProScan receiver and the JVFAX7 software. I have not tried using a WXSAT antenna in the loft, and wondered about the possible affect of rain sheets on a wet roof, attenuating the 137MHz signal. Alan's picture is extremely clear and shows what can be seen using a.p.t.

Beginners Start Here!

Many letters have been received requesting a "How do I start receiving satellites?" article, so this edition starts the first in a Beginners' section. I hope more experienced readers may write to add their own thoughts and expertise. My thanks to **Chris Thwaites** and others who included suggestions.

What Can Be Heard?

If you have a scanner that can be programmed to monitor the band between 136 and 138MHz, and you

connect a suitable external antenna to the receiver, you could have difficulty in avoiding picking up satellites! Virtually all those you may hear have been identified. It is important to appreciate that an external antenna is almost essential. Although you can hear signals using an indoor antenna, (I have such an antenna myself, amongst others), there is a significant improvement in signal strength, and therefore the number of satellites heard, using an outdoor antenna.

Logging the times when you hear signals that are likely to be satellites, can be very instructive. After spending hours doing this, you realise that many signals are heard after intervals of 90 to 100 minutes. This is the average interval between the orbits of many satellites. The following should be heard when using the

Sat ID	Satellite	Frequency (MHz)
1964-083D	TRANSIT 5B-5	136.65
1970-025A	NIMBUS 4	136.50
1971-093A	PROSPERO	137.56 (ex-British scientific satellite)
1987-018A	MOS 1	136.1125
1990-013A	MOS 1B	136.1125
1995-014B	ORBCOMM FM2	137.40 & 137.68
1971-110C	DOD	137.08

modest equipment described above: This list includes satellites that I have personally identified after matching signals (frequencies listed elsewhere) with current orbital elements, using the satellite tracking program InstantTrack. The first entry (TRANSIT 5B-5) continues to be under investigation, in view of possible inconsistencies. All this adds to the intrigue!

Because of the ease with which these satellites can be heard, I would suggest to people who want to start satellite monitoring, and who already have a suitable scanner, to use a satellite tracking program and current Kepler elements. The only warning needed is that monitoring and identification can be addictive!

The main group of satellites heard in this band are the WXSATs, whose frequencies are always given at the end of the column. Hearing them is no problem - five watts power passing overhead! Decoding them? Not with this set-up.

Other Satellites

Many other types of satellite can be monitored; the AMSATs, and the communication/navigation satellites that use the 150MHz band - all of these can be heard using the previously mentioned equipment.

Several types of satellite cannot be heard without expensive or unobtainable hardware; high resolution imaging satellites, such as SPOT and LANDSAT, are employed to monitor land usage, but because of increased data flow, they operate at much higher frequencies, so cannot normally be monitored by amateurs. Next time I shall describe the additional facilities required to get a quality signal from the WXSATs.

New Products

I am expecting a new WXSAT receiver for review. New models appear infrequently so watch this column.

Following my request, Timestep have produced an update to the PROsatII software that now synchronises GOES-8 WEFAX telemetry. If you live on the western side of the UK and are able to receive GOES-8, you may wish to upgrade. For pricing details contact them on (01440) 820040.

Kepler Elements

The current options are:

1: For one print-out of the latest WXSAT elements and MIR, send an s.a.e. and separate, extra stamp. Transmission frequencies are given when operating. This data originates from NASA.

2: I also send monthly Kepler print-outs to many people. To join the list, please send a 'subscription' of £1 (plus four self-addressed, stamped envelopes) for four editions.

3: A computer disk file containing recent elements for the WXSATs, and a large ASCII file holding elements for thousands of satellites is available. A print-out is included, identifying NASA catalogue numbers (for the WXSATs, Amateur Radio satellites, and others of general interest). Enclose £2 with your PC-formatted disk and package.

Finally

A weather satellite special is scheduled later this year, giving me an opportunity to show a larger selection of pictures sent by readers. Some were moved to next month to accommodate the GOES-9 and Aral Sea images.

Frequencies

NOAAs 9, 14 a.p.t. on 137.62MHz; NOAA 12 on 137.50MHz; NOAA beacons on 136.77 and 137.77MHz; METEORs currently on 137.85MHz; OKEAN-4 may use 137.40MHz occasionally; METEOSAT-5 uses 1691.0 and 1694.5MHz for WEFAX; GOES-8 (western Britain) uses 1691.0MHz near west horizon.

Timestep

PROsat II is used by most leading Weather Satellite enthusiasts. They have come to rely on the vastly superior features of PROsat II. Features such as 1,000 frame full screen full colour animate, 3D, direct temperature readout, latitude-longitude overlays and country outlines from NOAA, and Windows export make Timestep products preferred by most serious users. All satellites are catered for including the awkward Japanese GMS and the very infrequent Soviet Okean series. All current SVGA cards are supported. NOAA images contain full resolution visible and infrared data in a stunning 2.4Mb file!

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Decode

All the Data Modes

Martin Younger of Bicester is new to utility decoding and has a number of questions he would like answered through the column. A check through a number of readers' letters shows the problems to be common, so I'll cover the answers here. The first concerns the apparent smudging of the text at the bottom of one of his FAX images. Martin asks if this is due to multi-path propagation. In this particular case a close inspection shows that there is clear ghosting of the text, but there is also quite a lot of noise present.

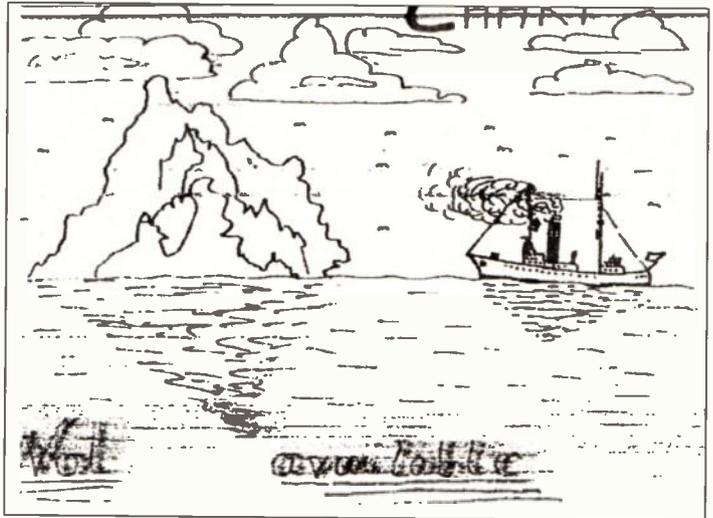
Noise usually shows itself as a band of random dots on the received image and you can see them clearly in Martin's ice chart. The fact that most of the image is clean but with just the one band showing both multi-path and a high noise level means that the signal was actually suffering from quite severe fading. This is an extremely common phenomena on the h.f. bands and can normally only be avoided by a change of frequency.

For the second question, Martin asks if there is a package that will decode Packet signals using just the standard HAMCOMM/JVFX interface. The answer is a qualified yes. The program PKTMON12 that I supply with HAMCOMM will do just that. However, it will only work successfully on a PC operating with at least a 386 processor. I'm not aware of any other software with this facility - if you know different please let me know.

Finally, Martin asks if there's anything he can do to help the reception of the weaker of two SITOP signals when they are very close together. The answer is to employ some form of additional filtering to reduce the level of the unwanted station. This can either be done using a modern d.s.p. filter or, alternatively, a good analogue filter. One of the most popular is the Datong FL2 or FL3 and these are available at good prices both new and second-hand. I've used an FL3 for a couple of years now and can thoroughly recommend it.

In one of his regular letters, **Les Crossan** offers some advice for those thinking of building a HAMCOMM/JVFX interface. Les has pointed out, quite rightly, that the 741 op-amp normally used for the decoder is very limited in its slew rate. In layman's terms, this is the time it takes for the output signal to swing from one extreme to the other. Les has done some work looking for the most cost effective solution and can recommend changing the 741 for a CA3130 or LFxxx series. By changing to a faster chip and using a wider receive bandwidth you can usually improve

Example of combined noise and multipath distortion from Martin Younger.



the detail resolution of the FAX image. If you already have one of the ready-made Pervisell interfaces, you don't have to reach for your soldering iron, they've been using a faster chip for years.

Martin A. van Duinen from Holland has been busy chasing the complex modes and has sent in an interesting analysis of what is thought to be a NATO system. The transmission can be found on 7.716MHz and uses an eight-tone multi-frequency format. Any more information would be welcomed.

Naval Metoc Command

Les Crossan of Wallsend has recently sent me a QSL pack that he received from the American Naval Pacific Meteorology and Oceanography Centre at Pearl Harbour, Hawaii. Like most US stations, the Navy are always extremely generous with their QSLs. In addition to the formal acknowledgement of the QSL, they have sent an information leaflet on the station along with a full transmission schedule. The prime FAX broadcast is known as Fleet Facsimile or FFAF.

In addition to their standard FAX schedule, the centre provides a wide range of other facilities to seafarers. One of the more interesting is the Optimum Track Ship Routing or OTSR. This service provides advice on the best ship routes to minimise sailing time yet minimise the risk of damage from high seas or storms. There is also a service known as Mobile Environmental Teams or METs that provides on site help and advice. These two person teams come equipped with mobile forecasting equipment and can operate anywhere in the Pacific. The home bases for the three current teams are San Diego, Pearl Harbour and Yokosuka. The transmission details for the NPM FAX station are:

Honolulu 4.855MHz 0600-1600UTC & 21.785MHz 1600-0600UTC
Stockton 6.453MHz & 9.09MHz 2024hr
Adak 8.494MHz 24hr.
If you would like to QSL with this

station the address is Naval & Pacific Meteorology & Oceanography Centre, Box 113, Pearl Harbour Hawaii 96860-5050. Don't forget, if you want a successful QSL, you will need to send proof of reception, ideally with a copy of a received chart.

Atari & Amiga Software

B & J Telecommunications have written with full details of their range of Shareware and supporting hardware for radio hobbyists. In addition to a good range of PC based items, they also have a fine range of support for Atari and Amiga computers. Rather than just supplying the software, they also offer a support service to help you get started.

Looking through their catalogue it was clear that the Atari ST has the best range of programs and this included RTTY, FAX and SSTV as well as all the usual utilities such as log books and satellite tracking systems. Although the Amiga appeared less well supported, with only one RTTY decoder, there was a cunning plan in place. At the top of the list of Amiga programs was an Atari ST emulation program. So all you have to do is get this program and you have access to the wide range of programs available for the Atari ST! The prices appeared to be very reasonable at £3.00 each for 1-5 reducing to £2.75 for 5-20 and finally £2.50 for ten or more. For more details contact B & J Telecommunications, 9 Queens Walk, Thornbury, Nr Bristol BS12 1SR. Tel: (01454) 883912.

DSP Detail

Following the introduction of the d.s.p. starter disk, many readers have asked for more information. As this seems to be a popular way to sample d.s.p. technology, I thought it's appropriate to spend some time discussing the Shareware programs in some detail.

Although all the programs were originally designed with the radio amateur in mind, they all have a role

for the listener.

Let's start by looking at the two programs designed for use with the Texas Digital Starter Kit or DSK. Although this is a very powerful d.s.p. system, you need to appreciate that the kit is really designed as a learning tool for programmers. Because of this, the documentation assumes you have a fair degree of computing knowledge and some programming skills. Having said that, the board is actually quite easy to use with third party software such as that on offer here. The only connections required are audio input and output, power and a 9-way D-type connector for the connection to your computer's serial port.

There are two programs on the starter disk that you can use with the Texas DSK. The first is called DSKMODEM and is an implementation of a d.s.p. modem that can be used with Johan's PC-TOR program or G4BMK's decoding software. The use of a d.s.p. modem has several advantages, but one of the most important is the adaptive filtering. This is where the modem automatically adjusts its filtering characteristics to best suit the incoming signal. Whilst many of these adjustments can be performed with a conventional analogue filter, it's the speed of response that gives the d.s.p. filter the edge. Another strong point is the very steep sided filter characteristics of the d.s.p. filter. This enables the filters to better reject interference from adjacent signals. I suppose the final most significant advantage of the d.s.p. system is that its function can be completely transformed by just down-loading new software.

The second DSK program on the disk is called TOR306.EXE and provides a complete AMTOR, RTTY and ASCII transceiver including the necessary DSK modem code. The programs come as a self extracting archive so all you have to do is copy the file TOR306.EXE into a sub-directory of your choice and run the program. This will automatically unpack all the supporting files. Once this is complete, you can then delete the program as it's no longer required.

Before you start trying to run the software, I would strongly recommend you print-out the documentation files. The main information is contained in the file called DOCS. Probably the easiest way to print this is to set your printer for 12 characters per inch and simply copy the file to PRN. I can promise you that an evening spent reading this file will save you a lot of frustration!

Once you've got over the initial familiarisation, you will find PC-TOR to be a very fast and effective decoding program.

If you're not too keen on getting involved in potentially complicated development board systems such as the Texas DSK, you will find the AdSP or PSA soundcard approach much more friendly. Incidentally, the abbreviations stand for Advanced digital Signal Processor and Personal Sound Architecture. In this system we take advantage of the d.s.p. chips that are now quite common on certain computer soundboards. One of the first to appear on the market was the Orchid SoundWave 32 and the programs on the starter disk have all been tested with one of these boards. I suspect the programs may work with the SoundBlaster AWE32 but this has not been tested. If anyone manages to run the programs on this board please let me know the details.

The starter disk contains three main AdSP programs that will prove of interest to the listener. For each of these programs the audio output from your receiver is connected either to the microphone or line input socket of the soundboard. You then turn the receiver's volume right down and listen to the signal through the computer's speaker system.

The first program is called DSPSND5 and is version 5 of Johan Forrer's d.s.p. audio filter. This provides high quality audio de-noise and notch filters. The 'denoise' is an effect that's virtually unique to the world of d.s.p. and relies on the dsp program analysing the incoming signal and removing all components that appear to be random. Although this sounds very simple, it demands some very sophisticated and fast programming techniques. The end result is a very significant drop in all that irritating background mush.

The notch filter is probably more well known and is primarily used to eliminate annoying heterodynes from adjacent signals. The d.s.p. implementation scores over analogue systems as it can take out several tones or whistles at the same time and automatically track any changes in pitch. To give you an idea of its effectiveness, you can tune into a busy c.w. section of the h.f. bands, switch in the filter and all you hear is key clicks! As with all the other dsp programs, the filter comes as a self extracting archive that you can unpack once the main file has been copied to an appropriate sub-directory.

When you type RUN the appropriate code is loaded into your computer's soundcard and you are presented with a display at the top of the screen showing a bargraph

display for signal level and the detail settings of the various filter parameters. To alter any of the parameters you simply hit the appropriate function key and use the up and down arrows to change the settings. You also have the option to switch the filter in and out as well as choosing any combination of noise, notch or both. As well as making an effective filter in its own right, this program provides a very useful introduction to the benefits you will see from stand-alone d.s.p. filter units.

The second AdSP program is called FFTSCOP and provides a novel audio spectrum analyser. The on-screen display is extremely responsive and shows the complete spectrum from 0 to 4kHz. There are only two controls available from within the program - pause to freeze the display and persistence to build-up an image of all the signals. The program has very limited use for most listeners, but does demonstrate the processing speed available from AdSP soundcards.

The final and most powerful program is PSATOR23. This is complete AMTOR and PACTOR program using a d.s.p. modem. The program includes all the usual features and is very responsive. In operation you will find that the d.s.p. modem manages to produce clean copy through quite difficult conditions.

After you've finished running these d.s.p. programs you will probably need to reboot your computer to restore proper operation of your soundcard with other programs. This is because these d.s.p. programs will have overwritten the SoundBlaster or similar emulation code in your soundcard. As a result any programs that try to use the soundcard may well crash. Don't worry, nothing will be damaged and none of the code has been lost - it will just load again when you re-boot your computer.

The Texas kit costs around £68 plus VAT and Carriage and is available from Macro (01628) 604383.

Decode Special Offers

Here's a summary of the special offers currently available to Decode readers.

IBM PC Software:

JVFAX 7: A full featured FAX and SSTV transceive program with fully automated reception of weather pictures.

HAMCOMM 3: Provides RTTY, ASCII and AMTOR transceive facilities with a built-in translator for decoding SYNOP and SHIP weather reports.

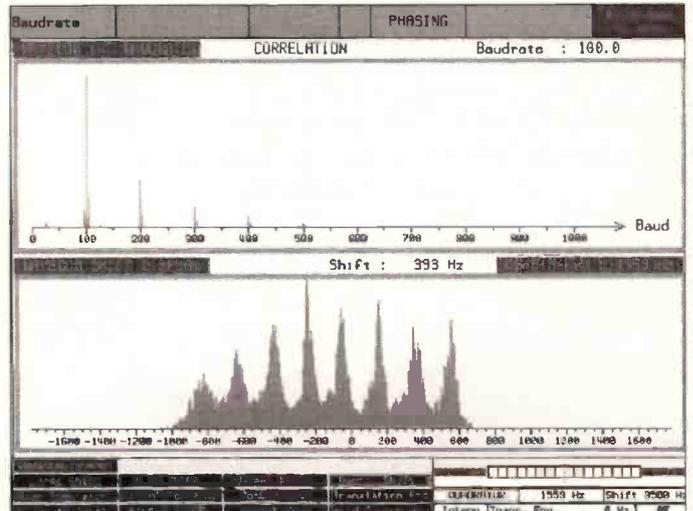
d.s.p. Starter Disk: A selection of digital signal processing programs as described in this month's Decode.

Literature:

Day Watson Beginners List: A chronological listing of reliable signals - essential reading for those new to decoding.

Decode List: Straightforward listing of frequencies logged by Decode readers over recent months.

Complex Modes List: A listing by signal type of the more complex transmission types.



Eight tone m.f.s.k. analysis of 7.716MHz.

- FactPack 1** *Interference:* Provides step-by-step guidance for clearing-up common interference problems.
- FactPack 2** *Decoding Accessories:* How to choose those vital accessories from a.t.u.s to speakers.
- FactPack 3** *Starting-Out:* Advice for those contemplating utility decoding.
- FactPack 4** *HAMCOMM/JVFAX Primer:* Step-by-step instructions to receive your first RTTY and FAX signals.
- FactPack 6** *Internet Starter:* A selection of tips and explanations to help you cut through the hype.

To receive any of these offers just send a self addressed sticky label plus 50p per item or £1.50 for 4, £2.50 for 6 or £3.00 for 8 items, £4.00 for 9 or more items. If you're ordering JVFX or HAMCOMM you will also need to send a blank formatted 720Kb disk for each program or just one 1.4Mb disk. For the new d.s.p. starter you will need to send one 1.4Mb formatted disk.

Frequency List

This month's frequency list comes thanks to **Day Watson, Ned Stephens, and Mr D.**

Freq (MHz)	Mode	Speed	Shift	Call	Time	Notes
2.2945	ARQ E	96	120	—		GSK Bonn
2.474	RTTY	75	850	PBC	1740	Dutch Navy
3.390	RTTY	75	850	MGJ	1707	Navy
4.570	FAX	120	576	DHJ51	-	Grenel Met
4.598	FAX	120	576	-	-	Unidentified German Met
5.0248	ARQ E	96-	-	L		KA Stuttgart
5.2875	SITOR A	100	170	-	-	MOI Spain-Met
5.773	POL ARQ	100	250	-	0957	Unidentified
6.321	SITOR B	100	170	FFT	0910	St. Lys, France
6.972	RTTY	50	400	YOG59	6141	ROMPRES
7.646	RTTY	50		DDH7	1045	Hamburg Met
7.658	RTTY	50	400	YZI223	1705	TANJUG, Belgrade
7.842	RTTY	50	400	CNM20	1X1705	MAP Rabat
7.946	RTTY	100		DHJ51	1030	Grenel Met
8.165	RTTY	50	4005	YD	1745	AIR Nairobi
10.017	SITOR A	100	170	-	1707	Arabic Text
11.039	RTTY	50		DDH9	1050	Hamburg Met
11.133	RTTY	50	400	BZG41	1625	XINHUA, Beijing
11.430	RTTY	50	400	HMF55	0955	KCNA, Pyongyang
11.541	ARQ34	296	400	RFLI	0858	Fort de France
12.185	RTTY	50	400	-	1740	JANA, Tripoli
12.2125	RTTY	50		YZ07	1725	TANJUG Belgrade
12.2284	RTTY	75		BZR6Z	1730	XINHUA Beijing
13.372	RTTY	50	250	5YD	1625	Nairobi, Kenya
14.356	RTTY	75	170	GFL4	1725	Bracknell
14.367	RTTY	75	400	BZP54	0903	XINHUA, Beijing
14.476	RTTY	50	400	DDH8	1720	Hamburg Met
14.760	RTTY	50		CNM61	1120	MAP Rabat
15.633	RTTY	50		HMF26	1115	Pyongyang Korea
16.951	RTTY	75	400	6WW	1000	French Navy, Senegal
18.174	RTTY	50	400	STK	1717	AIR, Sudan
18.496	RTTY	50	400	CNM80XII	1331	MAP Rabat

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SCANCAT GOLD	£89.00	OPTOScan 456 kit	£299 (£6 s/h)
SCANCAT 6.0	£49.00	UPGRADE TO GOLD	£19.00
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SKY-NEWS

SYNOP now available for most PC decoders

SkyComm have released a new version of the popular Skyview Systems SYNOP program aimed at users of third party decoders.

The 5 figure groups that many people decode from a RTTY signal can now be turned into impressive weather maps by using "Weather Chart", developed from their present SYNOP product.

So if you can decode RTTY and save it to disk using your PC, then you can now have ability to convert those 5 figure groups to intelligent data.

Skyview WeatherChart
Only £49.95

Icom Control Software with New Interface

Computer aided control of Icom receivers will now be a lot more affordable thanks to the latest version of ICRX from Skyview Systems.

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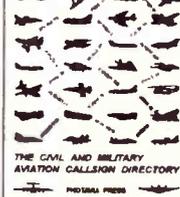
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LM&S

Long, Medium and Short Waves

At this time you may be packing your bags, loading a film in your camera and putting new batteries in your portable before setting off to the holiday location of your choice. No doubt there will be much to see and plenty to interest you when you arrive, but don't forget to explore the broadcast bands too! When you return home please compile a brief report on radio reception at your holiday location, so that readers of LM&S may be aware of your findings.

Long Wave Reports

Note: l.w. & m.w. frequencies in kHz; s.w. in MHz; Time in UTC (=GMT). Unless otherwise stated, all logs were compiled during the four week period ending May 28.

An interesting comparison between reception during daylight (0800-0900UTC) and at dusk (2030-2100UTC) was made by **Fred Pallant** in Storrington. He found the high power N.African outlets at Bechar, Algeria on 153kHz (1000kW); Medi-1 Nardor, Morocco 171 (2000kW); Tipaza, Algeria 252 (1500kW 1/2 power 1800-0600) were inaudible until dusk, when sky wave paths exist.

At 2150 on May 25 **Sheila Hughes** (Morden) noticed weak co-channel interference to the 2000kW transmission from Allouis, France on 162. By listening intently to the interfering signal she was able to establish that a man was talking and a woman was singing in a language which she could not identify. It seems likely that the sky waves from the TRT 1000kW outlet at Agri, Turkey on 162 were reaching Morden. Sheila logged them as SINPO 12221 at 2210 and may now keep a check on that frequency.

Medium Wave Reports

The long hours of daylight during May were not conducive to the reception of m.w. signals over transatlantic paths at night, but one report indicated that the broadcasts from CJYQ in St. John's, Newfoundland on 930 reached the UK on May 22. It came from **Harry Richards** in Barton-upon-Humber, who logged them as 23332 at 0015. He heard faint signals on other frequencies, but none could be identified.

In contrast, the sky waves from some stations in Africa and the

Middle East did reach the UK after dark - see chart. A broadcast from Kenya BC via their 20kW outlet at Nakuru on 1368 was picked up at 0038 by **Eddie McKeown** in Newry. At best it peaked 25412.

On May 30 a new local station called Radio XL started broadcasting 24 hours a day to Asian listeners in the Birmingham area. Their transmission from Langley Mill is on 1296, a frequency used by the BBC World Service.

John Wells says XL puts a strong signal into E. Grinstead, which is still readable when the BBC WS 500kW transmitter at Orfordness starts up at 1115. Down in Dorset however, **Bernard Curtis** (Stalbridge) has observed that their broadcasts are obliterated when the BBC WS commences. Impressed by the strength of their signal in Derby, **Roy Patrick** sent a report to them and received a QSL letter in five days. Up in Lanarkshire **Arthur Grainger** (Carstairs Junction) has found he can receive XL by day or night, with very little interference from the BBC WS. He rated the ground waves from XL 22322 at 0817. Often their sky waves peak S4 at night!

In nearby Largs, **John Stevens** has been receiving the ground waves from the 2kW Redruth outlet of BBC R. Cornwall on 630 around 0900. His checks show that signal strength varies considerably from day to day.

Reports on the reception of Premier Radio, the new London Christian radio station on 1305, 1332 and 1413 would be very welcome for this series.

Short Wave Reports

Propagation in the **25MHz (11m)** band is now so unpredictable that broadcasting therein has ceased.

The propagation conditions vary daily in the **21MHz (13m)** band, but it is still being used to advantage by some broadcasters. Quite often R. Australia's broadcast to Asia via Darwin on 21.725 (Eng 0630-1100) reached the UK during May, but reception varied from SIO111 in Largs to SIO444 noted by **Norman Thompson** in Oadby.

Also received here before noon were DW via Julich? 21.680 (Eng to S.E. Asia 0900-0950), noted as 45544 at 0906 by **Tim Allison** in Middlesbrough; BSKSA Saudi Arabia 21.495 (Ar [Holy Quran] to S.E. Asia 0900-1200) 24333 at 0945 by **Rhoderick Iilman** in Oxted;

Long Wave Chart

Freq kHz	Station	Country	Power (kW)	Listener
153	Bechar	Algeria	1000	F* G* H* L
153	Donebach	Germany	500	B,C,D,E*,F*,G,H,I,J,L,M
153	Bod	Romania	1200	G*
162	Allouis	France	2000	B,C,D,E*,F,G,H,I,J,L,M*
162	Agri	Turkey	1000	E*
171	Nador Medi-1	Morocco	2000	H*
171	Kaliningrad	Russia	1000	B,D,F*,G*,H,J,M
177	Oranienburg	Germany	750	D,F*,G*,H,I,J,L,M*
183	Saarlouis	Germany	2000	B,C,D,E,F,G,H,I,J,K,L,M
198	Droitwich BBC	UK	500	B,C,D,F,G,I,J,K,M
198	St. Petersburg	Russia	150	F*
207	Munich	Germany	500	D,F*,G*,H,I,J,L,M
207	Azilat	Morocco	800	L
216	Roumoules RMC	S France	1400	B,D,E,F*,G,H,I,J,L,M
225	Raszyn Riev	Poland	?	BD* E* F* G* J,K,M
234	Beidweiler	Luxembourg	2000	B,C,D,E,F,G,H,I,J,L,M
243	Kalundborg	Denmark	300	B,D,E,F*,G*,H,I,J,K,M
252	Tipaza	Algeria	1500	D*,E*,G*,H*,J*,M*
252	Atlantic 252	S. Ireland	500	A,B,C,D,E*,F,G,H,I,J,K,M
261	Burg(R. Rode)	Germany	200	H*
261	Taldom Moscow	Russia	2000	E* G* J,M*
270	Topolna	Czech Rep	1500	B*,F*,G*,H,I,J,L,M
279	Minsk	Belarus	500	E*,F*,G*,J,L

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

- Listeners:**
- (A) Tim Allison, Middlesbrough.
 - (B) Paul Bowery, Burnham-on-Crouch.
 - (C) Noel Carrington, Sutton in Ashfield.
 - (D) Martin Dale, Stockport.
 - (E) Sheila Hughes, Morden.
 - (F) Eddie McKeown, Newry.
 - (G) George Millmore, Wootton, IoW.
 - (H) Fred Pallant, Storrington.
 - (I) Martin Price, Shrewsbury.
 - (J) Harry Richards, Barton-on-Humber.
 - (K) Tom Smyth, Co.Fermanagh.
 - (L) John Stevens, Largs.
 - (M) Andrew Stokes, Leicester.

UAER, Dubai 21.605 (Eng to Europe 1030-1055) SIO322 at 1030 by **Tom Smyth** in Co.Fermanagh; UAER, Abu Dhabi 21.735 (Ar to Europe 0900-1200) 33333 at 1035 by **Robert Connolly** in Kilkeel; DW via Wertachtal? 21.600 (Eng to W.Africa 1100-1150) 22341 at 1118 by **Michael Griffin** in Ross-on-Wye; R. Ukraine Int 21.800 (UK WS 0900-1700?) 44344 at 1136 in Newry.

After mid-day, RCI via Sines, Portugal 21.455 (Eng to Europe, M. East, Africa 1330-1400) 44333 at 1330 by **Thomas Williams** in Truro; UAER, Dubai 21.605 (Eng to Europe 1330-1355) 45344 at 1331 by **Paul Bowery** in Burnham-on-Crouch; BBC via Ascension Is 21.660 (Eng to W/E/S. Africa 1100-1700) SIO253 at 1550 by **Kenneth Buck** in Edinburgh; WYFR Okeechobee, USA 21.525 (Eng to Africa 1600-1700) 35333 at 1605 by **Gerry Haynes** in Bushey Heath; R. Japan via Moyabi, Gabon 21.700 (Jap to Europe, M. East, Africa 1600-1700) 35343 at 1608 by **John Eaton** in Woking; UAER, Dubai 21.605 (Eng to Europe 1600-1640) 14441 at 1637 by **David Edwardson** in Wallsend; BBC via Limassol, Cyprus 21.470 (Eng to E. Africa 1300-1700) 43333 at 1645 in Stalbridge; WYFR via Okeechobee, USA 21.745 (Eng to Europe 1600-2200?) 35333 at 1954 by **Darren Beasley** in Bridgwater.

The propagation conditions in the **17MHz (16m)** band have also varied daily. When favourable, R. Australia via Carnarvon 17.750 (Eng to Asia 0000-0530, 0700-0900) was logged as 44554 at 0425 by **John Parry** in Larnaca, Cyprus; KWHR Naalehu, Hawaii 17.780 (Eng to E. Asia 0400-0800) was noted as 35122 at 0435 by **Fredric Collin** in Tokorozawa-shi, Japan; R. Romania Int. 17.720 (Eng to Pacific areas 0645-0745) SIO333 at 0645 by **Francis Hearne** in N. Bristol; BBC via

Masirah Is 17.790 (Eng to India, W. Asia 0600-0915, 1000-1130) 24323 at 0835 in Bushey Heath; R. Australia via Carnarvon 17.715 (Eng to Asia 0100-0900) 35343 at 0840 in Ross-on-Wye; R. Austria Int via Moosbrunn 17.870 (Ger, Eng to Australia 0800-1100) 33333 at 0945 in Truro; Israel R, Jerusalem 17.575 (Eng to Europe, Asia, Pacific 1000-1030) 33333 at 1000 by **Clare Pinder** in Appleby; AIR Delhi 17.387 (Eng to Pacific areas 1000-1100) SIO444 at 1015 by **John Slater** in Scalloway; SRI via Schwarzenburg? 17.515 (Eng, Fr, Ger, It to Far East, S.E. Asia) 44343 at 1103 in Newry; R. Pakistan, Islamabad 17.900 (Eng to Europe 1100-1120) 54444 at 1116 by **Chris Shorten** in Norwich; DW via Wertachtal? 17.860 (Eng to W. Africa 1100-1155) 34434 at 1118 in Burnham-on-Crouch; Vatican R, Italy 17.700 (Sp to Americas 1130-1200) 44343 at 1130 in Oxted; BSKSA Riyadh 17.880 (Ar [Holy Quran] to S.E. Asia 0900-1200) SIO343 at 1140 in Edinburgh.

After mid-day RCI via Sackville, Canada 17.820 (Eng, Fr to Europe, M. East, Africa 1330-1500?) was 45454 at 1330 in Woking; Africa No. 1, Gabon 17.630 (Fr to W. Africa 0700-1600) SIO333 at 1425 by **Philip Rambaut** in Macclesfield; DW via Meyerton? 17.800 (Eng to C. Africa 1600-1700) 34543 at 1625 in Bridgwater; VOA via Tangier, Morocco 17.895 (Eng to Africa 1600-1900) 24332 at 1652 in Middlesbrough; BBC via Ascension Is 17.830 (Eng to W/C. Africa 0730-2030) 32323 at 1817 by **Martin Dale** in Stockport; Monitor R. Int via WSHB 17.510 (Eng to W. Africa 1800-2000) 45444 at 1830 by **Vera Brindley** in Woodhall Spa; BBC via Ascension Is 17.880 (Fr to W. Africa 1745-1915) 44334 at 1855 by **Peter Pollard** in Rugby; R. Netherlands via Bonaire 17.605 (Eng to S/E/W. Africa 1830-2025) 55544 at 1930 by **Ross Lockley**

Medium Wave Chart

Freq kHz	Station	Country	Power (kW)	Listener	Freq kHz	Station	Country	Power (kW)	Listener	Freq kHz	Station	Country	Power (kW)	Listener
531	Ain Beida	Algeria	600	N*O*	918	Madrid(R.Int)	Spain	20	C*,I*,K*	1449	Catania	Italy	6	K*
531	Torshavn	Faeroe Is.	100	N	927	Voltertem	Belgium	300	B,C*,H*,I,K*,O,P	1449	Squinzano	Italy	50	I*
531	Leipzig	Germany	100	B,C*,H*,I*,K,O*	936	Bremen	Germany	100	C*,H*,I*,K*,O,P	1449	Redmoss(BBC)	UK	2	K*
531	RNE5 via ?	Spain	?	H*,I	936	Venezia	Italy	20	I*	1458	Lushnje(Tirana)	Albania	500	O
531	Beromunster	Switzerland	500	K	945	Toulouse	France	300	H*,I*,K*	1467	Monte Carlo(TWR)	Monaco	1000/400	F*,H*,I*,M,O,O
540	Wavre	Belgium	150/50	B,C,G,H*,I,K,O,P	954	Brno(Dobrochov)	Czech Rep.	200	H*	1485	Alcoy(SER)	Spain	2	O
540	Sidi Bennour	Morocco	600	I*	954	Madrid(CI)	Spain	20	C*,H*,I*,K*,O*	1494	St.Petersburg	Russia	1000	B*,F*,H*,I*,O
540	Vitoria(EI)	Spain	10	O*	963	Pori	Finland	600	F*,H*,I*,K*,O*	1503	Stargard	Poland	300	I*
549	Les Trembles	Algeria	600	C*,H*,I*,K,O*	963	Paris	France	8	B,H*	1503	RNE5 via ?	Spain	?	I*
549	Thurnau (DLF)	Germany	200	C*,G,H*,I*,K,O	963	Tir Chonaill	Ireland(S)	10	I*	1512	Woltertem	Belgium	600	A*,B,F,H*,I*,J*,K*,M,O
558	Espoo	Finland	100	I*,K,O*	963	Tunis-Djedeida	Tunisia	200	I*	1521	Kosice(Cizatica)	Slovakia	600	H*,I*,O
558	RNE5 via ?	Spain	?	C*,H*,I*,M,O*	972	Hamburg(NDR)	Germany	300	H*,I*,K*,O	1521	Duba	S. Arabia	2000	B*,I*,O
567	Berlin	Germany	100	H*	972	RNE1 via ?	Spain	?	H*,I*	1530	Vatican R	Italy	150/450	B*,H*,I*,O*
567	Tullamore(RTE1)	Ireland(S)	500	B,C,E,F*,G,I*,K,M,O,P	981	Alger	Algeria	600/300	C*,F*,H*,I*,K*,O*	1539	SER via ?	Spain	?	I*
567	RNE5 via ?	Spain	?	I*	990	Berlin	Germany	300	H*,I*	1557	Nice	France	300	K*
576	Muhlacker(SDR)	Germany	500	B,C*,G,H*,I*,K,O*	990	R.Bilbao(SER)	Spain	10	C*,H*,I*	1566	Sarnen	Switzerland	300	I*
576	Barcelona(RNE5)	Spain	50	H*,I*,O*	990	Redmoss(BBC)	UK	1	K*	1566	Stax	Tunisia	1200	B*,F*,H*,I*
585	Paris(FIP)	France	8	G,I	999	Schwerin(RIAS)	Germany	20	H*	1575	Genova	Italy	50	B*,H*,I*
585	Madrid(RNE1)	Spain	200	C*,H*,I*,K,M,O*	999	Madrid(COPE)	Spain	50	K*,P*	1575	SER via ?	Spain	5	B*,I*,K*,O
585	Dumfries(BBCScot)	UK	2	K	1008	Rheinfild(Hilv-5)	Holland	400	B,C,H*,I,O	1593	Holzkirchen(RFE)	Germany	150	B*,F*,H*,I*,M*
594	Frankfurt(HR)	Germany	1000/400	C*,G,H*,K,L*,M,O*	1017	Rheinsender(SWF)	Germany	600	C*,F*,H*,I,M,O*,P	1602	SER via ?	Spain	7	K*
594	Oujda-1	Morocco	100	I*	1017	RNE5 via ?	Spain	?	H*	1602	Vitoria(EI)	Spain	10	B*,I*,K*,M*,O
594	Muge	Portugal	100	H*,I,O*	1026	SER via ?	Spain	?	I*	1611	Vatican R	Italy	15	H*,O
603	Sevilla(RNE5)	Spain	50	C*,H*,I*	1035	Lisbon(Prog3)	Portugal	120	H*					
603	Newcastle(BBC)	UK	2	L	1044	Dresden	Germany	250	H*					
612	Athlone(RTE2)	Ireland(S)	100	C*,F*,G,I*,K,M,O*	1044	Sebaa-Aioun	Morocco	300	F*,H*					
612	RNE1 via ?	Spain	10	I*,O*	1044	SER via ?	Spain	?	F*,K*,O*					
621	Wavre	Belgium	80	B,G,H*,I*,K,M,O	1044	S.Sebastian(SER)	Spain	10	I*					
621	Barcelona(OCR)	Spain	50	I*	1053	Zaragoza(COPE)	Spain	10	C*,O*					
630	Vigra	Norway	100	C*,H*	1053	Talk Radio UK via ?	UK	?	B,C,I,K*,L,O					
630	Tunis-Djedeida	Tunisia	600	C*,H*,I*,K	1062	Kalundborg	Denmark	250	B,H*,I*,K*,O*					
639	Praha(Liblice)	Czech	1500	H*,I*,K,O*	1071	Brest	France	20	I					
639	RNE1 via ?	Spain	?	C*,H*,I*,K,O*	1071	France-Inter via ?	France	?	C*					
648	RNE1 via ?	Spain	10	H*	1071	Lille	France	40	H*,O					
648	Orfordness(BBC)	UK	500	B,C*,I,K,O*,P,Q*	1071	Bilbao(EI)	Spain	5	I*					
657	Madrid(RNE5)	Spain	20	H*,I*,O*	1071	Talk R.UK(IN castle)	UK	?	C*,K*,O*					
657	Wrexham (BBCWales)	UK	2	B,C,F,G,K,O,P	1080	Katowice	Poland	1500	H*,I*,O*					
666	Messkirch(Rohrd (SWF)	Germany	300/180	C*,H*,K,M,O*	1080	SER via ?	Spain	?	H*,I*,K*					
666	R.Vilnius	Lithuania	500	H*	1089	Talk Radio UK via ?	UK	?	C,I,K*,L,M,O					
666	Lisboa	Portugal	135	I*,O*	1098	Nitra(Jarok)	Slovakia	1500	C*,H*,I*,O*					
675	Marseille	France	600	I*,O*,P	1098	RNE5 via ?	Spain	?	H*					
675	Lopik(R10 Gold)	Holland	120	B,C,H*,I*,K,L,O	1107	AFN via ?	Germany	10	F*,O,P					
684	Sevilla(RNE1)	Spain	500	C*,H*,I*,K,M*,O*	1107	RNE5 via ?	Spain	?	O*					
684	Avala(Beograd-1)	Yugoslavia	2000	H*,K	1107	Talk R.UK via ?	UK	?	C,I,K*					
693	Droitwich(BBC5)	UK	150	B,C,I,K,M,O,P	1107	Talk R.UK Liverpool	UK	?	O*					
702	Flensburg(NDR)	Germany	5	B,C*,H*,I*,M,O*	1116	Bari	Italy	150	I*					
702	Zamora(RNE1)	Spain	10	C*,K*	1125	La Louviere	Belgium	20	H*,I*,O					
711	Rennes 1	France	300	B,G,H*,I*,K*,P	1125	Deanev	Croatia	100	K*,O*					
711	Layoune	Morocco	600	I*	1125	RNE5 via ?	Spain	?	I*,O*					
711	Murcia(COPE)	Spain	5	O*	1134	COPE via ?	Spain	2	H*,I*,O*					
720	Langenberg	Germany	200	I*	1134	Zadar(Croatian R)	Yugoslavia	600/1200	C*,H*,I*,K*					
720	Usnagarvey(BBC4)	Ireland(N)	10	K*	1143	Stuttgart(AFN)	Germany	10	H*,K*,O					
720	Norte	Portugal	100	H*,I*,K*	1143	COPE via ?	Spain	2	H*,I*					
720	Sfax	Tunisia	200	O*	1152	RNE5 via ?	Spain	10	I*,K*					
720	Lots Rd,Ldn(BBC4)	UK	0.5	C,I,M,O	1161	Strasbourg(Flint)	France	200	C*,H*,I*,O					
729	Cork(RTE1)	Ireland(S)	10	F*,I*,K*,M*	1179	SER via ?	Spain	?	H*,K*					
729	RNE1 via ?	Spain	?	C*,H*,I*,K*,O*,P*	1179	Solweborg	Sweden	600	C*,H*,I*,K*,O*					
738	Paris	France	4	B,I	1188	Kueme	Belgium	5	H*,I*,K*					
738	Poznan	Poland	300	H*,I*,K*	1188	Riechenbach(MDR)	Germany	5	K*					
738	Barcelona(RNE1)	Spain	500	C*,H*,I*,K*,M*,O*	1188	Szolnok	Hungary	135	I*					
747	Flevo(Hilv2)	Holland	400	B,C*,H*,I*,K*,O	1197	Munich(VDA)	Germany	300	C*,H*,K*,O*					
756	Braunschweig(DLF)	Germany	800/200	C*,H*,I*,K*,O	1197	Virgin via ?	UK	?	B,C,I,K*,O					
756	Bilbao(EI)	Spain	5	I*,K*,O*	1206	Bordeaux	France	100	H*,K*,O*					
756	Redruth(BBC)	UK	2	I,M	1206	Wroclaw	Poland	200	H*,I*					
765	Sottens	Switzerland	500	C*,H*,I*,K*,O	1215	Virgin via ?	UK	?	C,I,K*,L,M,O					
774	Enniskillen(BBC)	Ireland(N)	1	M	1224	Virgin via ?	UK	?	I*,M					
774	RNE1 via ?	Spain	?	C*,H*,I*,K*,O	1233	Liege	Belgium	5	H*,K*					
783	Burg	Germany	1000	H*,K*,M,O	1233	Virgin via ?	UK	?	C,O					
783	Miramar(R.Porto)	Portugal	100	H*	1242	Marseille	France	150	H*					
783	Dammam	S. Arabia	100	I*	1242	Virgin via ?	UK	?	C,K*,O					
792	Limoges	France	300	C*,I*,K*,P	1251	Huisberg	Netherlands	10	C*,H*,I*,K*,O*					
792	Sevilla(SER)	Spain	20	C*,H*,I*,K*,O*	1260	SER via ?	Spain	?	H*					
801	Munchen-Ismaning	Germany	300	C*,H*,K*,O*	1260	Guildford(IV)	UK	?	I*					
801	RNE1 via ?	Spain	?	C*,H*,K*	1269	Neumunster(DLF)	Germany	600	C*,H*,I*,K*,O*					
810	Madrid(SER)	Spain	20	H*,I*,K*	1278	Strasbourg	France	300	I					
810	Westerglen (BBCScot)	UK	100	C*,F*,I*,K*,M,O*,O*	1278	Dublin/Cork(RTE2)	Ireland(S)	10	C,F*,I*,K*,M*,O					
819	Batra	Egypt	450	I*	1287	RFE via ?	Czech Rep.	400	H*,I*,O					
819	Toulouse	France	50	H*,I*,O*	1287	Lerida(SER)	Spain	10	K*					
819	Warsaw	Poland	300	K*	1296	Valencia(COPE)	Spain	10	H*,I*,O					
828	Hannover(NDR)	Germany	100/5	C*,H*,O*	1296	Orfordness(BBC)	UK	500	K*					
828	Barcelona(SER)	Spain	50	C*,H*	1305	Rzeszow	Poland	100	H*,I*,K*					
837	Nancy	France	200	C*,I,M*	1305	RNE5 via ?	Spain	?	I*,K*					
837	COPE via ?	Spain	?	C*,H*,I*	1314	Kvitsoy	Norway	1200	B,C*,F*,H*,I*,K*,M,O,P					
846	Rome	Italy	540	C*,H*,I*,K*,O*	1323	Wachenbrunn (RMWS)	Germany	1000/150	H*,K*,M*,O					
855	Berlin	Germany	100	H*,M*,O*	1332	Rome	Italy	300	H*,I*,K*,O*					
855	RNE1 via ?	Spain	?	C*,H*,I*,O*	1341	Lisnagarvey(BBC)	Ireland(N)	100	C,F,I*,K*,M,O*					
864	Santah	Egypt	500	I*	1341	Tarrasa(SER)	Spain	2	I*,K*					
864	Paris	France	300	C*,G,H*,M*	1350	Nancy/Nice	France	100	H*,I*,K*,O*					
864	Socuellamos(RNE1)	Spain	2	D*,I*,K*	1350	Cescayne/Kuldiga	Latvia	50	I*					
873	Frankfurt(AFN)	Germany	150	C*,F*,H*,I*,K*,L,O,Q*	1359	Arganda (RNE-FS)	Spain	600	H*,I*,K*,O					
873	Zaragoza(SER)	Spain	20	H*,I*,O*	1368	Foxdale(Manx R)	I.O.M.	20	A*,C,F*,I*,K*,M*,O*					
873	Enniskillen(R.U.I)	UK	1	M	1377	Lille	France	300	H*,I*,K*,O*					
882	COPE via ?	Spain	?	H*,I*,K*,O*	1386	Nakuru(KBC)	Kenya	20	H*,I*,K*					
882	Washford (BBCWales)	UK	100	C,F,G,I,K*,M,O,P	1386	Bolshakovo	Russia	2500	H*,I*,K*					
891	Algiers	Algeria	600/300	C*,F*,H*,I*,K*,O*	1395	B'shakovo	Russia	2500	A*,B*,H*,O*					
891	Huisberg	Netherlands	20	H*,I*	1404	Lushnje(Tirana)	Albania	1000	B*,H*,I*,K*,M*,O					
900	Milan	Italy	600	C*,H*,I*,K*	1404	Brest	France	20						

Local Radio Chart

Freq (kHz)	Station	ILR	e.m.r.p (kW)	Listener	Freq (kHz)	Station	ILR	e.m.r.p (kW)	Listener
558	Spectrum R	I	0.80	A.C.J.L.M.N.R	1161	Southern Counties R	B	1.00	A.J.M.O.R
585	R.Solway	B	2.00	E.L.N	1161	Tay AM	I	1.40	E.L
603	Cheltenham(CD603)	I	0.10	C.F.J.L.Q.R	1161	Humberside(Gt.Yks)	I	0.35	C.L.N
603	Invicta SG (Coast)	I	0.10	A.J.M.N.R	1170	GNR Teeside	I	0.32	E
630	R.Bedfordshire(3CR)	B	0.20	A.C.F.I.J.L.M.N.Q.R	1170	Hi Wycombe 1170AM	I	?	M.R
630	R.Cornwall	B	2.00	J.P.R	1170	Portsmouth(SCR)	I	0.12	E*.H.J.M.R
657	R.Citwyd	B	2.00	E.J.L.M.N.R	1170	R.Orwell(IGSR)	I	0.28	A.E*.R
657	R.Cornwall	B	0.50	J	1170	Signal R(S.Gold)	I	0.20	C.E*.L.Q
666	Gemini AM	I	0.34	F.J.L.M.R	1242	Swansea Sound	I	0.58	E*
666	R.York	B	0.80	C.E.L.N.Q.R	1242	Invicta Snd(Coast)	I	0.32	M.R
729	BBC Essex	B	0.20	A.H.J.L.M.N.Q.R	1242	Isle of Wight R	I	0.50	J
738	Hereford/Worcester	B	0.037	C.D.F.J.L.M.Q.R	1251	Saxon R(IGSR)	I	0.76	E*.L.M.N.R
756	R.Cumbria	B	1.00	E	1260	Brunel R(Ci.Gold)	I	1.60	E*.M
756	R.Maldwyn	I	0.63	C.J.L.R	1260	Marcher Snd(Gold)	I	0.64	C.E*.L
765	BBC Essex	B	0.50	C.H.J.L.M.N.Q.R	1260	Sunrise R, Midlands	I	0.29	E.N.Q.R
774	Gloucester(3CSG)	I	0.14	C.F.J.L	1260	R.York	B	0.50	N
774	R.Kent	B	0.70	A.E*.J.M.R	1278	Bradford(Gt.Yks)	I	0.43	L.N.O*
774	R.Leeds	B	0.50	C.E.N.Q.R	1296	Birmingham(R.XL)	I	?	B.E.K.L.R
792	Chiltern(S.Gold)	I	0.27	A.C.E*.I.J.L.M.N.Q.R	1305	Barnsley(Gt.Yks)	I	0.15	C.L.N.Q
801	R.Devon & Dorset	B	2.00	C.D.I.J.L.M.O*.R	1305	Touch R	I	0.20	E*.J.M.R
828	Chiltern(S.Gold)	I	0.20	F.M.Q.R	1323	R.Bristol(Som.Snd)	B	0.63	L.M.R
828	R.Aire(Magic828)	I	0.12	C.N	1323	Brighton(SCR)	I	0.50	A.J.M.R
828	R.WM	B	0.20	L	1332	Hereford R(WGMS)	I	0.60	A.E*.J.L.M.N.Q.R
828	2CR(Ci.Gold)	I	0.27	A.F.J	1332	Wiltshire Sound	B	0.30	E*.J.M.R
837	R.Cumbria/Furness	B	1.50	E.L	1359	Essex R(BreezeAM)	I	0.28	A.H.L.M.R
837	R.Leicester	B	0.45	A.C.D.J.L.M.N.Q.R	1359	Mercia Snd(Xtra-AM)	I	0.27	E.L.Q
855	R.Devon & Dorset	B	1.00	E*.J.M	1359	R.Solent	B	0.85	E*.J.R
855	R.Lancashire	B	1.50	C.E.N	1368	R.Lincolnshire	B	2.00	E*.M.N.O.Q.R
855	R.Norfolk	B	1.50	A.J.M.N.Q.R	1368	Southern Counties R	B	0.50	J.M.R
855	Sunshine R	I	0.15	E.F.L.R	1368	Wiltshire Sound	B	0.10	J
873	R.Norfolk	B	0.30	C.D.I.J.L.M.N.Q.R	1431	Essex R(BreezeAM)	I	0.35	C*.K.L.M.Q.R
936	Brunel R(Ci.Gold)	I	0.18	D.H.J.M.R	1431	R.210(Ci.Gold)	I	0.14	E*.H.J.K.M.N.R
945	R.Trent(Gem AM)	I	0.20	A.C.E*.J.L.M.N.Q.R	1449	R.Peterboro/Cambs	B	0.15	A.L.M.N.Q.R
954	Gemini AM	I	0.32	E*.J.M	1458	Fortune	I	5.00	C.E.L.O
954	R.Wyvern(WYVN)	I	0.16	C.E.F.L.M.N.R	1458	R.Cumbria	B	0.50	E
990	WABC(Nice & Easy)	I	0.09	C.L.Q.R	1458	R.Devon & Dorset	B	2.00	J.R
990	R.Devon & Dorset	B	1.00	J.M.R	1458	Sunrise R	I	50.00	A.C*.E.G*.J.M.N.Q.R
990	Hallam R(Gt.Yks)	I	0.25	C.M.N.Q.R	1476	Guildford(M.Xtra)	I	0.50	A.E.J.L.M.R
999	R.Solent	B	1.00	A.E*.H.J.R	1485	R.Humberside (Hull)	B	1.00	E.N
999	R.Trent(Gem AM)	I	0.25	C.L.M.N.Q.R	1485	R.Merseyside	B	1.20	A*.C.E.H*.L.O
999	Red Rosa(Gold)	I	0.80	C.E.L	1485	Southern Counties R	B	1.00	J.M.Q.R
1017	Beacon R(WABC)	I	0.70	C.E.H*.J.L.M.N.Q.R	1503	R.Stoke-on-Trent	B	1.00	A*.C.E.H*.J.L.M.N.Q.R
1026	Downton R	I	1.70	E.L.O	1521	Reigate(M.Xtra)	I	0.64	E.J.L.M.R
1026	R.Cambridgeshire	B	0.50	A.C.E*.H.M.N.Q.R	1530	Huddersfield(Gt.Yks)	I	0.74	C.E.N
1026	R.Jersey	B	1.00	J.M.R	1530	R.Essex	B	0.15	H.J.M.R
1035	Country 1035	I	?	A.C*.E*.G*.J.M.R	1530	R.Wyvern(WYVN)	I	0.52	E.J.L.Q.R
1035	NorthSound Two	I	0.78	K.L	1548	Capital R(Cap G)	I	97.50	A.G*.J.M.R
1035	R.Sheffield	B	1.00	C.N.O.Q	1548	R.Bristol	B	5.00	J
1035	West Sound AM	I	0.32	E.L	1548	Liverpool(City G)	I	4.40	A*.C.L.D*
1107	Moray Firth R	I	1.50	E.D	1548	R.Forth(Max AM)	I	2.20	E.O
1116	R.Derby	B	1.20	C.L.M.N.Q.R	1548	Sheffield(Gt.Yks)	I	0.74	N.Q
1116	R.Guernsey	B	0.50	E*.J.M.R	1557	Northants R(S.Gold)	I	10.76	E*.N.O.S*
1152	BRMB(Xtra-AM)	I	3.00	F*.Q	1557	Southampton(SCR)	I	0.50	H.J.M.R
1152	LBC(LondonNewstalk)	I	23.50	A.G*.J.M.O.R	1557	R.Lancashire	B	0.25	C.L
1152	Piccadilly R(Gold)	I	1.50	C.L	1557	Tendring(Mellow)	I	0.125	A.R
1152	R.Broadland	I	0.83	A.M.R	1584	Kettering(KCBC)	I	0.04	M.O.R
1152	R.Clyde(Clyde 2)	I	3.06	E.L	1584	R.Nottingham	B	1.00	A*.C.E*.H*.M.N.Q.R
1161	Brunel R(Ci.Gold)	I	0.16	H.J.M.Q.R	1584	R.Shropshire	B	0.50	L
1161	R.Bedfordshire(3CR)	B	0.10	M.Q.R	1584	R.Tay	I	0.21	E.H*.L
					1602	R.Kent	B	0.25	E.L.M.R

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

Listeners: - Local Radio Chart.

- (A) Paul Bowery, Burnham-on-Crouch.
- (B) Bernard Curtis, Stalbridge.
- (C) Martin Dale, Stockport.
- (D) John Eaton, Woking.
- (E) Arthur Grainger, Carstairs Junction.
- (F) Francis Hearne, N.Bristol.
- (G) Francis Hearne, while in S.W.London.
- (H) Sheila Hughes, Morden.
- (I) Rhoderick Illman, Oxted.
- (J) George Millmore, Wootton, IoW.
- (K) Roy Patrick, Derby.
- (L) Martin Price, Shrewsbury.
- (M) Martin Price, while in Orpington.
- (N) Harry Richards, Barton-upon-Humber.
- (O) Tom Smyth, Co.Fermanagh.
- (P) John Stevens, Largs.
- (Q) Andrew Stokes, Leicester.
- (R) John Wells, East Grinstead.
- (S) Thomas Williams, Truro.

R.Japan via Montsinery, Fr.Guiana 11.895 (Eng to C.America 0300-0330) was 33333 at 0306 in Norwich; BBC via Skelton & Woofferton UK 12.095 (Eng to Europe, N/W.Africa 0400-2230) 34222 at 0745 in Morden; HCJB Quito 11.615 (Eng to Europe 0700-0830) 44333 at 0815 in Truro; RTV Malienne, Bamako 11.960 (Fr to W.Africa 0758-1757) 15222 at 0956 in Burnham-on-Crouch; R.Korea Int via Sackville, Canada 11.715 (Sp, Eng to S.America 1000-1100) 34443 at 1037 in Middlesbrough.

During the afternoon R.Romania Int, Bucharest 11.940 (Eng to Europe 1300-1400) was 55544 at 1300 in Broxbourne; R.Cairo via Abis 12.050 (Ar [Home Sce Relay]) 34444 at 1430 in Oxted; Voice of the Mediterranean via Cyclops, Malta 11.925 (Eng. Ar to N.Africa 1400-1600) 44444 at 1438 in Woodhall Spa; R.Australia via Shepparton 11.695 (Eng to Pacific areas 1430-1700) 44434 at 1443 in Penmaenmawr; FEBC Philippines 11.995 (Eng to S.E.Asia 1300-1600) 33333 at 1513 in Bushey Heath; R.Australia via Carnarvon 11.660 (Eng to S.Asia 1430-2100) 42333 at 1530 in Barton-upon-Humber; R.Ukraine Int 11.705 (Uk WS 0900-1800) 55555 at 1600 by **Bill Griffith** in W.London.

Later, BBC via Kranji, Singapore 11.750 (Eng to Far East 1100-1800) was 45554 at 1747 in Wallsend; BBC via Kranji 11.955 (Eng to Oceania 1800-0000) 23333 at 1834 in Storrington; AIR via Bangalore 11.620 (Eng, Hi to Europe 1745-2230) SIO444 at 1850 in Edinburgh; R.Bulgaria, Sofia 11.720 (Eng to W.Europe 1900-2000) heard in Oadby; R.Netherlands via Flevo 11.655 (Eng to S/E/W.Africa 1730-2125) 45444 at 1953 in Woking; Voice of Armenia, Yerevan 11.920 (Eng to Europe? 2030-2057) 32432 at 2040 in Newry; R.Kuwait via Kabd 11.990 (Eng to Europe, N.America 1800-2100) SIO333 at 2050 in Swindon; R.Japan via Moyabi, Gabon 11.865 (Eng to Europe 2100-2200) 42333 at 2100 in Appleby; R.Havana Cuba 11.705 (Eng to Europe 2100-2200) 45333 at 2140 in Ross-on-Wye; R.Finland via Pori 11.755 (Eng to Europe 2130-2200) 44544 at 2146 in Bridgwater; BBC via Ascension Is 11.835 (Eng to

noted as 35433 at 1803 in Storrington; BBC via Ascension Is 15.400 (Eng to Africa 1430-1930) 44333 at 1825 in Stockport; WVHA via Scotts Corner, USA 15.745 (Eng to Europe, Africa 1800-1900) 34433 at 1830 in Oxted; RNB Brazil 15.265 (Eng, Ger to Europe 1800-2020) 33543 at 1842 in Bridgwater; Voice of Greece, Athens 15.650 (Gr, Eng to S.Africa 1800-1850) SIO333 at 1850 in Largs; R.Portugal via Sines 15.515 (Eng to Africa 1900-1930) SIO444 at 1900 in Scalloway; BBC via Woofferton & Skelton, UK 15.070 (Eng to Europe, M.East, N/C.Africa 0500-2130) 32333 at 1928 in Rugby; R.Nederlands via Bonaire 15.315 (Eng to S/E/W.Africa 1830-2025) 34433 at 1947 in Woking; R.Damascus, Syria 15.095 (Eng to Europe 2005-2105) SIO333 at 2005 by **Tony King** in Swindon; RCI via Sackville 15.150 (Eng to Africa? 2000-2130) 35433 at 2017 in Bushey Heath; Monitor R.Int via WSHB 15.665 (Eng to Europe 1800-2200) 43333 at 2050 in Stalbridge; VOA via Morocco 15.205 (Eng to Europe, M.East, N.Africa 1700-2200) 34443 at 2111 in Middlesbrough.

Reception in the **13MHz (22m)** band was reported as good

from some areas. In the morning R.Austria Int via Moosbrunn 13.730 (Ger, Eng, Fr, Sp to Europe 0400-1800) was SIO444 at 0745 in N.Bristol; SRI via Sottens? 13.685 (It, Eng, Fr, Ger, Port to Australia, S.Pacific 0830-1100) 44333 at 0845 in Truro; UAER, Dubai 13.675 (Eng to Europe 1030-1055) 23442 at 1031 in Middlesbrough; SRI via Sottens? 13.635 (Eng, Fr, Ger, It to Far East, S.E.Asia 1100-1300) SIO433 at 1100 in Macclesfield; Croatian R, Zargreb 13.830 (Cr, Eng to Europe 24hrs) was heard in Oadby.

During the afternoon ISBS Reykjavik 13.860 (Ic [u.s.b.+ p.c.] to Europe 1205-1300) was 34453 at 1205 in Woking; SRI via Sottens? 13.685 (Eng, Fr, It, Ger to S.E.Asia 1300-1500) 55444 at 1300 in Ross-on-Wye; AWR via Slovakia 13.595 (Eng to Asia 1400-1500) 44433 at 1400 in Morden; R.Nederlands via Flevo 13.700 (Eng to S.Asia, M.East 1330-1425) 43343 at 1420 in Norwich; R.Pakistan, Islamabad 13.590 (Eng to M.East 1600-1630) 34344 at 1615 in Barton-upon-Humber; UAER, Dubai 13.675 (Eng to Europe 1600-1640) 44554 at 1637 in Wallsend; VOA via Selebi-Phikwe, Botswana 13.710 (Eng to

Africa 1630-1900) 45444 at 1740 in Woodhall Spa.

Later, KOL Israel 13.750 (Heb [Home Sce Relay] 0400-2000) was 43343 at 1839 in Oxted; Monitor R.Int via KHBI Saipan 13.770 (Eng to Europe, M.East 1800-2000) 34222 at 1903 in Newry; WEWN Birmingham, USA 13.695 (Eng to Europe 1900-2000) 44444 at 1943 in Bushey Heath; R.Denmark via RNI 13.805 (Da to Europe?, Africa? 1930-1955) SIO343 at 1950 in Scalloway; RCI via Sackville 13.650 (Eng to Europe, M.East, Africa 2000-2130) 35232 at 2013 in Bridgwater; WHRI South Bend, USA 13.760 (Eng to E.Asia, Europe 1500-2200) 44444 at 2150 in Penmaenmawr; UAER, Abu Dhabi 13.605 (Eng to USA 2200-0000) SIO433 at 2200 in Edinburgh; WJCR via Millerstown, USA 13.595 (Eng 12hrs, Chin 12hrs) 23442 at 2215 in Broxbourne; Monitor R.Int via WSHB 13.770 (Eng to S.Europe, N.Africa 2200-0000) 43333 at 2220 in Stalbridge; AWR Costa Rica 13.750 (Eng to America 2300-0100) SIO333 at 2305 in Swindon; WWCR Nashville, USA 13.845 (Eng to E.Asia 1400-0100) 45544 at 2308 in Burnham-on-Crouch.

In the **11MHz (25m)** band

Tropical Bands Chart

Freq MHz	Station	Country	UTC	DXer	Freq MHz	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	1931	E,H	4.950	R.Nacional, Mulenvos	Angola	2019	H,L,R,T
2.325	ABC Tennant Creek	Australia	2015	E,H	4.950	AIR Jammu	India	0050	E,H
2.485	ABC Katherine	Australia	2018	H	4.955	R.Cultura, Campos	Brazil	0120	K
3.200	TWR Manzini	Swaziland	1931	H,R	4.955	R.Marajoara, Belem	Brazil	0035	E,K
3.220	Channel Africa	S.Africa	0255	K,Q,R	4.955	R.Nac. de Colombia	Colombia	0245	G,R
3.220	R.Kara, Lome	Togo	2035	E	4.960	Mulenvos	Angola	2019	L
3.230	SABC Meyerton	S.Africa	2310	E,F,P,R	4.960	AIR Delhi	India	0040	E
3.240	TWR Shona	Swaziland	1901	H,R	4.960	Hanoi 2	Vietnam	2100	O
3.245	R.Clube Varginha	Brazil	0010	E	4.965	R.Zambia, Lusaka	Zambia	1949	H,R
3.245	AIR Lucknow	India	1715	E,H	4.970	R.Rumbos, Caracas	Venezuela	0025	E,F
3.255	BBC via Maseru	Lesotho	2009	B,E,G,H,K,P,R	4.975	R.Uganda, Kampala	Uganda	2022	K,L,R,T
3.270	SWABC 1, Namibia	S.W.Africa	1941	B,E,H,K,P,R	4.980	PBS Xinjiang, Urumqi	China	0020	E
3.280	R.Beira	Mozambique	2145	E	4.980	Ecos del Torbes	Venezuela	2330	B,E,F,G,K,P,R,T
3.290	SWABC 2, Namibia	S.W.Africa	2029	E,H,R	4.990	AIR Ext.Service	India	0035	E,K
3.300	R.Cultural	Guatemala	0400	E,K,P,R	4.990	FRON Lagos	Nigeria	2034	R,T
3.305	R.Western, Daru	Pap N.Guinea	2025	E	4.995	R.Andina, Huancayo	Peru	0200	E
3.306	RFI Di-2	Indonesia	2155	E	5.005	R.Libertad, La Paz	Bolivia	2140	F
3.306	ZBC R-27	Zimbabwe	1846	G,H,I,K,L,P,R	5.005	R.Nacional, Bata	Eq.Guinea	1915	B,E,H,I,K,L,M,P,R
3.315	AIR Bhopal	India	1705	H	5.005	R.Nepal, Kathmandu	Nepal	1646	H
3.320	SABC Meyerton	S.Africa	2150	E,H,M,P	5.009	R.Madagasikara	Madagascar	1955	H
3.325	FRON Lagos	Nigeria	2020	E,F	5.010	Guangxi 2, Nanning	China	0031	K
3.335	CBS Taipei	Taiwan	2019	H	5.010	AIR Thirupuram	India	0035	E,R
3.345	AIR Jammu	India	1724	H	5.020	PBS-Jiangxi Nanchang	China	0155	E
3.358	R.Botswana	Gaborone	2150	E,K,R	5.020	Voz del Upano, Macas	Ecuador	0140	R
3.359	RTV Madagascar	Madagascar	1944	H	5.020	La V du Sahel, Niamey	Niger	2110	B,K,L
3.365	GBC R-2	Ghana	2200	B,E,F,K,M,N,D,P,R,T	5.020	SLBC Tamil Home Sca.	Sri-Lanka	1706	H
3.365	AIR Delhi	India	1826	H	5.025	R.Parakou	Benin	2040	B,E,F,J,L,P,R
3.375	R.Nacional S.Gabriel	Brazil	0130	E	5.025	R.d'Transamazonica	Brazil	0200	E
3.377	R.Nacional, Mulenvos	Angola	2009	H,R	5.025	R.Rebelde, Habana	Cuba	0122	K
3.380	NBC Biantyre	Malawi	1847	E,F,H,L,M,R	5.025	R.Uganda, Kampala	Uganda	1945	K,R
3.395	ZBC Gweru	Zimbabwe	0313	G	5.030	AWR Latin America	Costa Rica	0432	K,P,R
3.915	BBC via Kranji	Singapore	2200	E,F,K,M,P,S	5.035	R.Banqui	C.Africa	2110	B,E,F,K,L,P,R,T
3.925	NSB (R. Tampa)	Japan	2121	E,P	5.040	Voz del Upano, Macas	Ecuador	0150	E,R
3.955	BBC via Skelton	England	1916	K,T	5.045	R.Cultura do Para	Brazil	0035	E,F
3.955	R. Budapest	Hungary	2100	A,J,K,M,S	5.047	R.Togo, Lome	Togo	2115	B,C,E,F,J,K,L,P,R,T
3.965	RFI Paris	France	2012	E,F,J,K,T	5.050	AIR Atzawi	India	0040	E
3.980	VOA via Munich	Germany	1830	C,D,E,K,N,T	5.050	R.Tanzania	Tanzania	1840	I,K,L,R
3.985	China R via SRI	Switzerland	2100	J	5.055	RFI Cayenne(Matoury)	Fr. Guiana	0455	E,R
3.985	SRI Beromunster	Switzerland	2045	E	5.065	R.Candip, Bunia	Zaire	1820	H,R
3.995	DW via Julich	Germany	2200	E,F,J,K,T	5.075	Caracol Bogota	Colombia	0418	B,E,J,K,P,R,T
4.500	Xinjiang BS, Urumqi	China	2314	F					
4.735	Xinjiang, Urumqi	China	2317	B,E,F,P					
4.755	R.Educ CP Grande	Brazil	0457	E,R					
4.760	Yunnan PBS, Kunming	China	2314	F					
4.760	AIR Port Blair	India	1833	H					
4.760	ELWA Monrovia	Liberia	2025	H,K,R					
4.760	TWR Manzini	Swaziland	0300	I					
4.765	R.Integracao	Brazil	0035	E					
4.765	Brazzaville	Pep.Rep.							
4.770	FRON Kaduna	Nigeria	1947	D,R					
4.775	AIR Guwahati	India	1838	B,E,G,J,J,K,L,O,P,R,T					
4.775	R.Tarma	Peru	0434	P					
4.777	R.Gabon, Libreville	Gabon	2034	E,F,H,P,R					
4.783	RTM Bamako	Mali	2000	B,C,E,K,R,T					
4.785	R.Tanzania	Tanzania	0022	K					
4.790	Azad Kashmir R.	Pakistan	1832	E,H					
4.790	R.Atlantida	Peru	2355	E,F,G,R					
4.795	R.Douala	Cameroon	2215	E					
4.800	CPBS 2 Beijing	China	0010	E,K					
4.800	AIR Hyderabad	India	1652	H					
4.800	LNBS Lesotho	Maseru	2002	H,R					
4.805	R.Nac.Amazonas	Brazil	0005	E,R					
4.805	R.Villa Rica	Peru	2251	F					
4.810	R.San Martin Tara	Peru	2014	F					
4.810	SABC Meyerton	S.Africa	2045	B,E,J,T					
4.815	R.Difusora, Londrina	Brazil	0135	E					
4.815	R.diff TV Burkina	Ouagadougou	1922	B,E,F,K,L					
4.820	La Voz Evangelica	Honduras	2333	E,F,P,T					
4.820	AIR Calcutta	India	1711	H,I					
4.825	R.Cancao Nova	Brazil	0441	P					
4.828	ZBC R-4	Zimbabwe	1950	H,L,R					
4.830	R.Tachira	Venezuela	2310	E,F,K,P					
4.832	R.Reloj	Costa Rica	0440	G,P,R					
4.835	R.Tezulutlan, Coban	Guatemala	2255	E,T					
4.835	RTM Bamako	Mali	2020	B,C,E,F,I,J,K,O,P,R					
4.840	R.Interoceanica	Ecuador	0145	E					
4.840	AIR Bombay	India	1633	B,E,H					
4.840	R.Andahuaylas	Peru	2035	F					
4.845	Caracol, Bucaramanga	Colombia	0445	P					
4.845	RTM Kuala Lumpur	Malaysia	1839	F					
4.845	ORTM Nouakchott	Mauritania	2130	B,C,E,F,K,P,R,T					
4.850	R.Yaounde	Cameroon	2212	B					
4.860	AIR Kingsway(Feeder)	India	1922	E,H,L,P,R,T					
4.865	PBS Lanzhou	China	2200	B,E,F,M,R					
4.865	L.V. del Cinaruco	Colombia	0015	E					
4.870	R.Cotonou	Benin	2049	B,E,K,R,T					
4.875	R.Roraima, Boa Vista	Brazil	0100	E					
4.879	R.Bangladesh	Bangladesh	0015	E					
4.885	R.Clube do Para	Brazil	0300	E,F,M,R					
4.885	R.Difusora Acreana	Brazil	0150	E					
4.885	KBC East Sca Nairobi	Kenya	1834	B,L,R					
4.890	RFI Paris	via Gabon	0355	K,P					
4.890	ORTS Dakar	Senegal	0430	R					
4.895	Voz del Rio Arauca	Colombia	0020	E,K					
4.895	Pakistan BC	Pakistan	1842	H					
4.900	SLBC Colombo	Sri Lanka	1656	H					
4.905	R.Nat.N'djamena	Chad	1930	B					
4.907	Phnom Penh	Cambodia	0030	E					
4.910	AIR Jaipur	India	1627	H					
4.910	R.Zambia, Lusaka	Zambia	2108	H,L,R					
4.915	GBC-1, Accra	Ghana	2022	B,C,E,F,J,K,L,O,P,R,T					
4.920	AIR Medras	India	1536	B,H					
4.925	R.Nacional, Bata	Eq.Guinea	2058	E					
4.926	R.Cobiza 2000	Peru	0050	R					
4.935	KBC Gen Sca Nairobi	Kenya	2020	G,L,R					
4.940	AIR Guwahati	India	1644	H,T					
4.945	R.Difusora	Brazil	0025	E					

Note: Entries marked * were logged during darkness. All other entries were logged during daylight or at dawn/dusk.

- DXers:**
- (A) Tim Allison, Middlesbrough.
 - (B) Darren Beasley, Bridgewater.
 - (C) Paul Bowley, Burnham-on-Crouch.
 - (D) Vera Brindley, Woodhall Spa.
 - (E) Robert Connolly, Kilkeel.
 - (F) John Eaton, Woking.
 - (G) David Edmondson, Wallsend.
 - (H) P.Gordon Smith, Kingston, Moray.
 - (I) Bill Griffith, W.London.
 - (J) Sheila Hughes, Morden.
 - (K) Eddie McKeown, Newry.
 - (L) Fred Pallant, Storrington.
 - (M) Roy Patrick, Derby.
 - (N) Clare Pinder, while in Appleby.
 - (O) Peter Pollard, Rugby.
 - (P) Richard Reynolds, Guildford.
 - (Q) Chris Shorten, Norwich.
 - (R) John Slater, Scalloway.
 - (S) Tom Smyth, Co.Fermanagh.
 - (T) Andrew Stokes, Leicester.

Africa 1930-2315) SIO222 at 2200 in Elgin; WCCR Nashville, USA 12.160 (Eng to Europe? 1400?-0000?) 43333 at 2225 in Stalbridge; DW via Malta 11.865 (Eng to C/E.America 0100-0150) SIO323 at 0100 in Co.Fermanagh.

The broadcasters using the **9MHz (31m)** band include R.Nederlands via Bonaire, Ned.Antilles 9.720 (Eng to Australia, NZ 0730-1025) 34343 at 0745 in Middlesbrough; SRI via Lenk? 9.535 (Eng to Europe 1100-1130) 55555 at 1100 in W.London; R.Vlaanderen Int, Belgium 9.925 (Du to Europe 1100-1200) SIO322 at 1115 in Macclesfield; Polish R, Warsaw 9.525 (Eng 1300-1355) SIO444 at 1210 in Swindon; R.Norway Int, Oslo 9.590 (Norw [Eng Sun] to Europe 1300-1303) 44444 at 1300 in Appleby; VOA via Tinang, Philippines 9.760 (Eng to S.Asia 1400-1700) 32423 at 1430 in Oadby; R.Australia via Carnarvon 9.770 (Eng to S.Asia ?-1630) 35443 at 1535 in Woking; also via Darwin 9.615 (Eng to Asia 1430-1800) 43333 at 1635 in Penmaenmawr; R.Omdurman, Sudan 9.200 (Eng 1800-1900) 23342 at 1850 in Bridgewater; Voice of Vietnam, Hanoi 9.840 (Eng to Europe 1900-1930) 33443 at 1910 in Kilkeel; R.Portugal via Sines? 9.780 (Port to Europe 1900-1930) 23222 at 1924 in Stockport; VOIRI Tehran, Iran 9.022 (Eng to Europe 1930-2027) 43333 at 1940 in Norwich; Voice of Russia, Moscow 9.480 (Eng [WS] 2100-2200?) 43333 at 2110 in Stalbridge; China R.Int, Beijing 9.920 (Eng to Europe 2000-2155) 34333 at 2117 in Woodhall Spa; Voice of Turkey, Ankara 9.445 (Eng to USA 2200-2250) SIO433 at 2200 in Co.Fermanagh; AIR via Delhi? 9.950 (Eng to W.Europe 2045-2230) 33323 at 2200 in Truro; Voice of Russia, Moscow

9.530 (Eng [WS] 2200-2300?) SIO222 at 2202 in Elgin; R.Nac.del Paraguay 9.735 (Sp 0800-0400) 34543 at 2217 in Wallsend; AWR Alajuela, Costa Rica 9.725 (Eng to C/S.America 2300-0100) SIO444 at 0030 in Scalloway; R.Cancao Nova, Brazil 9.675 (Port 24hrs) 54544 at 0338 by **Chris Lawton** in Stoke-on-Trent.

Some of the **7MHz (41m)** broadcasts originate from WCCR Nashville, USA 7.435 (Eng 0000-0900) SIO444 at 0615 in N.Bristol; RFPF Costa Rica 7.385 (Eng 24hrs) 44333 at 0618 in Bushey Heath; R.Japan via Skelton, UK 7.230 (Jap. Eng to E.Europe 0400-0800) 23222 at 0752 in Woodhall Spa; Croatian R. via Deanovec 7.370 (Cr [News in Eng 0805]) 35543 at 0804 in Wallsend; Monitor R.Int via WSHB 7.535 (Eng [Various Sat/Sun] to Europe 0400-0955) 24343 at 0843 in Middlesbrough; VOFC Taipei, Taiwan 7.130 (Eng to Far East 1200-1300) 44433 at 1237 in Japan; R.Tirana, Albania 7.155 (Eng to Europe 1600-1615) 44434 at 1600 in Penmaenmawr; ERA Thessaloniki 7.430 (Gr to Europe 1400-2255) SIO555 at 1825 in Edinburg; Slovak R.Int via Velke Kostolany 7.345 (Eng to W.Europe 1830-1900) 54344 at 1830 in Norwich; R.Budapest, Hungary 7.130 (Eng to Europe 1900-1930) 53553 at 1920 in Bridgewater; R.Thailand, Bangkok 7.200 (Eng to Europe? 1900-2000) 33333 at 1900 in Appleby; R.Nederlands via Madagascar 7.120 (Eng to S/E.W.Africa 1730-2025) 42333 at 1905 in Rugby; WHRI South Bend, USA 7.315 (Eng to E.USA 2200-1500) 24312 at 0019 in Stoke-on-Trent.

The **6MHz (49m)** band carries many broadcasts to listeners in Europe. Some come from R.Japan via Skelton, UK 5.975 (Jap, Eng 0500-0800) 44444 at 0755 in Truro; R.Vlaanderen Int, Belgium 6.035 (Du, Eng, Fr, Ger 0800?-1200) SIO333 at 1116 in Macclesfield; R.Nederlands via Flevo 6.045 (Eng 1130-1325) 55555 at 1130 in Appleby; RFI via Allouis 6.175 (Eng 1600-1700) 55555 at 1600 in Bushey Heath; R.Sweden 6.065 (Eng 1600-1645) 42334 at 1630 in Oadby; BBC via Rampisham, UK 5.875 (Eng by Radio 1800-2300) 44444 at 1855 in Rugby; Vatican R, Rome 5.882 (Eng 1950-2010) 44444 at 1950 in Morden; China R.Int, Beijing 6.950 (Eng 2000-2157) SIO323 at 2000 in Largs; R.Korea via Skelton, UK 5.965 (Ger, Fr, Eng 2000-2230) 44444 at 2200 in Norwich; Croatian R. via Deanovec 5.895 (Cr [News in Eng 2305]) 34444 at 2300 in Middlesbrough; R.Japan via Skelton, UK 5.965 (Eng 2300-0000) 33233 at 2303 in Stoke-on-Trent.

Also noted were R.Japan via Kranji, Singapore 6.035 (Eng to S.E.Asia 2100-2200) 34433 at 2100 in Broxbourne; CKZN St.John's, NF 6.160 (Eng [Rly CBN] 0930-0500) 43443 at 2340 in Kilkeel; BBC via Antigua 5.975 (Eng to C/S.America 2100-0600) SIO444 at 0200 in Co.Fermanagh; R.Nigeria 6.050 (Various 0430-2305) heard at 0544 by **Richard Reynolds** in Guildford.

Due to gremlins, last month, we published the incorrect data in the Local Radio and Tropical Bands Chart. You can obtain the correct chart by sending an SSAE to the Editorial Offices, marking your envelope **July LM&S Charts**.

Station Addresses

Radio XL, KMS House, Bradford Street, Birmingham B12 0JD.

Radio Thailand, 236 Vibhavadi Rangsit Highway, Huaykhwang, Bangkok 10400, Thailand.

Radio Tampa, Nihon Short Wave Broadc.Co.Ltd, 9-15 Akaaka 1-chrome, Minato-ku, Tokyo 107, Japan.

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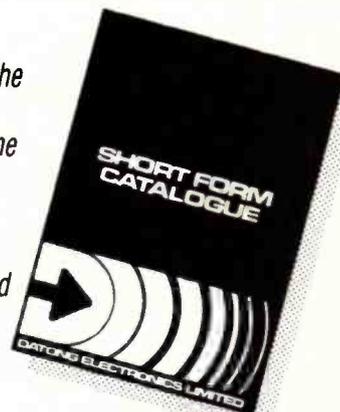
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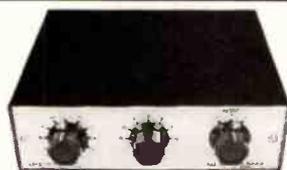
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Our quarterly Look at Amateur Television

Video On The Internet

It's funny how most countries seem to grow an undisputed leader in the ATV community. The USA has Tom O'Hara W6ORG, France has Marc Chamley F3YX and Australia has its John Ingham VK5KG, who made the first Australian ATV tape. In case you never saw this, it was an eye opener for British ATVers. John invited ATVers across Australia to contribute a ten-minute segment about their hobby, their ATV set-up and themselves. John then edited this together, added some extremely fancy graphics and sent over a 60-minute U-Matic tape to the BATC. I still have a copy on VHS and marvel at the professionalism of it all. Sadly, despite an abundance of hot air, we never really made a comparable product over here.

But that's by-the-by. The reason for this introduction was to remark that not much had been heard from John lately. The answer comes from Tom O'Hara, who writes: "John has been away from ATV for about two years and heavily into work doing video conferencing networking. Says he will retire in eight years and maybe get back into 'hamming'. He was more excited about doing video with others via the Internet, it seemed to me, than over the air."

Actually, that's a pretty powerful idea and with modern video compression techniques, it might well be a goer. Of course the cost, of Internet connection is pretty steep for most individuals at the moment but this will inevitably drop. CQ-TV via the Internet? I'd be pleased to have readers' comments on this.

Net Video Now

If you look in my ATV column in this month's issue of *Practical Wireless*, you'll see details of the ATV Exchange. This is a service which copies all chat about ATV to anyone's E-mail box. No charge, you just request the service. Most of the talk lately has been about ATV on the Space Shuttle. In the meantime probably the only video you'll see on the Internet is as a subject of discussion. One of the most interesting information

exchanges goes under the title of rec.video on the Usenet newsgroup area. Here's a sample of the interesting chit-chat that goes on there.

Savvas Ioannou writes: "I have read somewhere about a small converter that converts from NTSC to PAL and goes somewhere in the range \$50-80. Does anybody have this or know where I can buy one?"

Back came the reply from Jim Phillip: "As has been said in this Newsgroup before, there is **no cheap way** to convert between NTSC and PAL. (Or vice versa). It is an extremely complex process and the equipment is expensive. The cheapest way is to have it done at a video store - about \$30 per hour."

I sympathise with Jim Phillip; I regularly get the same 'phone call from people who have seen my name and address in magazines, then get my number from Directory enquiries. When I give the same answer as Jim Phillip, the caller says, "Ah, so you mean you don't know a cheap way!"

No, I don't and nor does anyone else, although it's funny that if these people are so well informed, why do they need to call me to find the supplier of a device they know definitely exists?

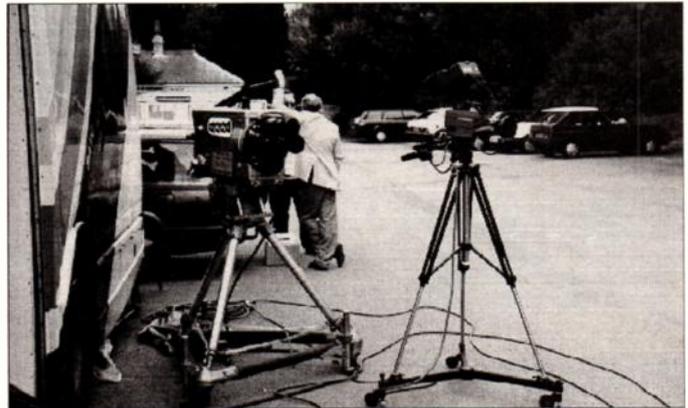
In another innocent enquiry, Thomas Edwards writes: "I have an application where I want to repeatedly run the same 30 or 60 minute programme over and over again 24 hours a day without human interaction. I know there are such things as 'endless' audio tapes for such purposes, are there 'endless' video tapes?"

Fascinating question and back came the resounding answer, "No, there aren't!"

Edwards continues: "Or do I need to buy a special VCR for such purpose? How much would these cost? Are there cheap VCRs on the market that will automatically rewind at end of program and start playing again?"

These questions provoked several replies.

"You just need an industrial VHS player that can be set to play again after rewinding," and "The Panasonic PV-4453 Hi-Fi Stereo 4-head VCR that I have has a repeat play function which will play a tape, rewind it when it



Little and large. A heavyweight Marconi Mk IV image orthicon camera and something a lot lighter, smaller and more modern side by side. Seen last summer at the British Amateur Television Club's very successful convention at Shuttleworth College. The big black and white camera had been recovered all the way from New Zealand; collectors are offering serious money for these beasts today. Contact me if you know of one for disposal as I can put you in touch with willing buyers!

hits the end, play it again, rewind again... 'ad infinitum' until the deck breaks or the tape snaps or some other mechanical failure occurs! I bought the deck for \$249, you might be able to find one that does the same thing for cheaper."

On a different tack, there has been lots of talk about people punching VHS tapes with drills or hot soldering irons to turn the tapes into S-VHS ones. Several people discussed the brands of standard VHS tape which worked well with S-VHS, how to avoid plastics swarf getting into the mechanism and so on. Finally came the neatest reply.

"Personally, I just opened my S-VHS deck, found the detector pin (which looks for the S-VHS hole), and used a chisel to punch it out. Now I control VHS/S-VHS using the front switch on my deck. And I don't have to drill, punch, or melt any holes. I hear other people find the wires running to the detector pin, and either snip them, or solder them together. (Depending on whether the switch is normal-open, or normal-closed.) By the way, I usually use Sony V tapes as S-VHS. Sort of my default; I haven't done a systematic study. For me, though, TDK HiFi works probably the best. Tapes that don't work so well for me: Fuji SHG and Maxell HiFi XL. (Both are a bit grainier than Sony V or TDK HiFi.) Later, —Anthony."

You try this trick at your own peril, by the way. Using standard tapes could well compromise the performance of S-VHS

recordings. It's rather like the Smart Alocs who drill holes in normal computer disks to turn them into high-density ones. The price premium between normal and high density is now so slight I am amazed anyone would be dumb enough to risk data loss and the same applies to video tapes. If the motivation for using S-VHS is to get better master recordings, why risk drop-outs by using cheap tape? I suppose there will always be cheapskates who think they are saving money.

ANOTHER NVCF?

Yes, it's true! If you are one of those discerning people who enjoys spending a day trawling through old radios, televisions and other entertainment technology of the golden era, you will enjoy the National Vintage Communications Fair. It's held at the National Exhibition Centre and up to now, there has been only one event per year.

This year, however, organiser Jonathan Hill is laying on a Christmas Special, with a show devoted to all the usual electrical and mechanical collectibles in December. You'll want to mark your diary now: it's on Sunday 3 December from 10.30 to 17.00 at the usual venue (the Pavillions Hall of the National Exhibition Centre, Birmingham). Priority booking forms are available now from **NVCF Christmas Special, 2-4 Brook Street, Bampton, Devon EX16 9LY Tel: (01398)-331532.**

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MFJ-956 tuner, new, boxed, £30. Tel: N. Ireland (01846) 689433.

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SEM QRM eliminator, as new, £55. ERA Synoptic decoder, new, £70. Tel: Warwicks (01926) 54556

Sony ICF-SW77, brand new, boxed and hardly used, £250. Tel: Brighton (01273) 502040.

Sony SW-55 short wave receiver, 125 pre-sets, f.m., l.w., m.w., a.m., s.s.b., supplied a.c. adapter, wire antenna, earphones, suede case, used only once, ideal everyday scanner. Any offers welcome. Joanne Bolton, Greater Manchester. Tel: (01204) 419100 after 6pm please.

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Trio R-1000 communications receiver, in very good condition with handbook, d.c. lead and original boxes, £225. Two jewel box receivers (valved) in v.g.c., £15 each (Pye). Tel: Hawick (01450) 370937.

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Yaesu FT-7 h.f. TX, 20W input, £200 o.n.o. G-Whip 20/15/10 plus mount, £15. Zetagi solid state linear B303, £55 or the lot got £250. SEM converter, v.h.f. to h.f., £25 posted. Dick, Gwent. Tel: (01291) 629905 evenings or weekends.

Yupiteru MVT8000 base mobile receiver, 8-1300MHz, 200 memories, search and scan, usual features, mint condition, just out of warranty, original packing, manual and powerpack, £215. Mail order only. Peter, Essex. Tel: (01268) 287176 answermachine, calls returned only if item unsold.

Yupiteru VT-225 airband scanner, boxed, complete with extras, excellent condition, £150. Tel: Worcester (01905) 355918 after 5.30pm.

Exchange

My Yaesu FRG-9600, which is perfect and mint, for Kenwood R-2000 h.f. receiver, also mint and includes p.s.u. H. McIntyre, Southampton. Tel: (01703) 737715.

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Circuit diagram for my treasured, but cooked Sobell 626WF or info. on where to obtain diagram, all costs refunded, desperation is setting in! David, N. Ireland. Tel: (01846) 663719 evenings or (0850) 373876 mobile.

Eddystone 960, EB37, EC10, 820, 870A. Civilian receiver Clarke & Smith. Camper and Nicholson, any receivers or information on this company please. Collection possible. Peter Lepino, Surrey. Tel: (0374) 128170 or FAX: (01372) 454381 anytime.

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Newnes Short Wave Manual by F. J. Camm, buy or copy, all expenses paid, urgently required. Jim McGowan, 20 Keats Avenue, Romford, Essex RM3 7AR. Tel: (01708) 340304.

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FLIGHT ROUTINGS 1995

Compiled by T.T. & S.J. Williams

This guide was produced with the sole aim of assisting airband listeners to quickly find details of a flight, once they have identified an aircraft's callsign. Identifies the flights of airlines, schedule, charter, cargo and mail, to and from the UK and Eire and overflights between Europe and America. 140 pages. £6.50

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Davis Barker & McKenzie

This new edition comprises ten sections. The first seven sections are an introduction of radios, antenna and radio communications, information about airways, sections covering v.h.f. and h.f. aeronautical communications, and a brief look at ACARS. The majority of the book is taken-up by section eight, which lists all known Selcalls in three different sequences (by airline/operator, by Selcall and by registration). The 9th section is devoted to Selcalls used by executive jets; these are separate, since these Selcalls are not always fixed. Mostly re-written this volume contains the all-important frequency listings for the aeronautical networks, airlines, the military and the commercial networks. 166 pages. £6.95

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Broadcast

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Datamodes

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Bill Laver

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This book gives detailed descriptions of the characteristics of telegraph transmission on short waves, with all commercial modulation types including voice frequency telegraphy and comprehensive information on all RTTY systems and c.w. alphabets. 96 pages. £14.00

Frequency Guides

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Compiled by Geoff Halligey

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General

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Michael Cannon

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Satellite

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BP290. A. Pickard

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ARRL SATELLITE ANTHOLOGY

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NEWNES GUIDE TO SATELLITE TV

Derek Stephenson

This book, the 3rd edition, is a hard bound volume, printed on high quality paper. The author is a satellite repair and installation engineer and the book covers all information needed by the installation engineer, the hobbyist and the service engineer to understand the theoretical and practical aspects of satellite reception with dish installation and how to trouble-shoot when picture quality is not up to anticipated reception. Mathematics has been kept to a minimum. 371 pages. £18.95

SATELLITE BOOK - A Complete Guide to Satellite TV Theory and Practice

John Breeds

This book deals almost exclusively with television broadcast satellites and is a

comprehensive collection of chapters on topics, each written by an expert in that field. It appears to be aimed at the professional satellite system installer, for whom it is invaluable, but it will be appreciated by a much wider audience - anyone interested in satellite technology.
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SATELLITE EXPERIMENTER'S HANDBOOK 2nd Edition

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The book is divided into four main sections - History, Getting Started, Technical Topics and Appendices. It provides information on spacecraft built by, and for, radio amateurs. In addition, it discusses weather, TV-broadcast and other satellites of interest to amateurs.
313 pages. £14.50

SATELLITE TELEVISION

A layman's guide

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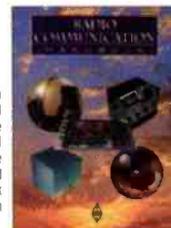
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QRP

G-QRP CLUB CIRCUIT HANDBOOK

Edited by Rev. G. Dobbs G3RJV

This paperback book has been compiled from circuits published in the G-QRP Club journal *Sprat* from the years 1974 to 1992. Essentially it's a collection of circuits and projects covering everything from receivers, transmitters, antennas and accessories together with set QRP test equipment. This book is aimed at the keen constructor and provides all the information required to build the host of projects described. 96 pages. £8.50

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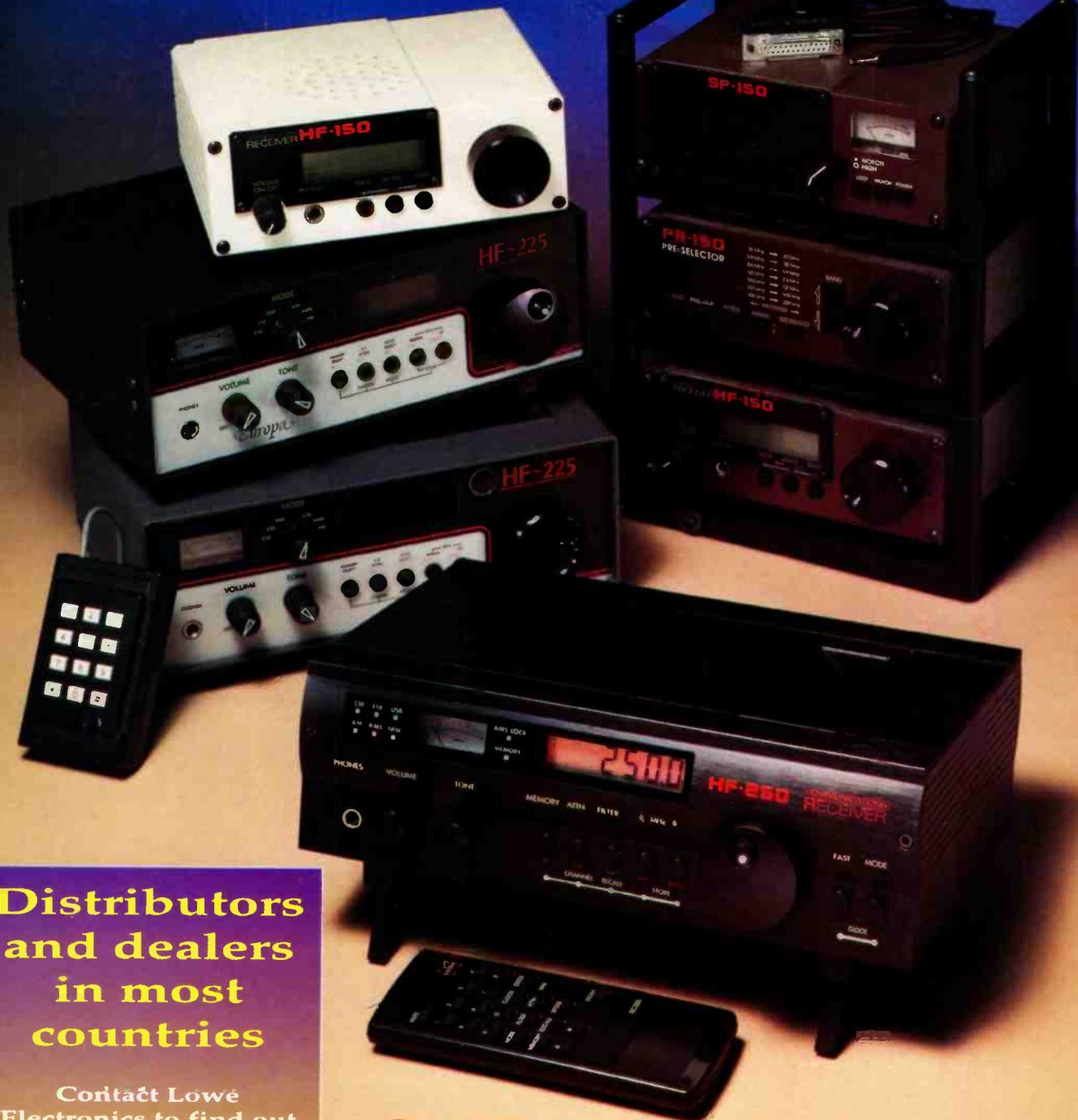
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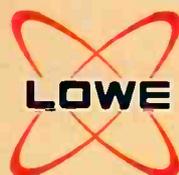
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