INSIDE THIS ISSUE...
WIN 108 Airband Receiver Reviewed
and...
3 Band SSB Receiver
Concluded
plus lots, lots more...

WIN-108
AIR 108MHz - 135.975MHz
AIR BAND RECEIVER

SPECIAL BOOK OFFER
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ICOM

IC-R7000, 25-2000 MHz, Commercial quality scanning receiver

ICOM introduces the IC-R7000, advanced technology, continuous coverage communications receiver. With 99 programmable memories the IC-R7000 covers aircraft, Marine, FM Broadcast, Amateur Radio, television and weather satellite bands. For simplified operation and quick tuning the IC-R7000 features direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency or by turning the main tuning knob. FM wide/FM narrow/AM upper and lower SSB modes with six tuning speeds: 0.1, 1.0, 5, 10, 12.5, 25KHz.

The IC-R7000 has 99 memories available to store your favourite frequencies including the operating mode. Memory channels can be called up by pressing the memory switch then rotating the memory channel knob, or by direct keyboard entry. A sophisticated scanning system provides instant access to the most used frequencies. By depressing the Auto-M switch, the IC-R7000 automatically memorises frequencies that are in use whilst it is in the scan mode, this allows you to recall frequencies that were in use. The scanning speed is adjustable and the scanning system includes the memory selected frequency ranges or priority channels. All functions including the memory channel readout are clearly shown on a dual-colour fluorescent display. Other features include dial-lock, noise blanker, attenuator, display dimmer and S-meter and optional RC-12 infra-red remote control, voice synthesizer and HP 1 headphones.

IC-R71E, General coverage receiver.

The ICOM IC-R71E 100KHz to 30MHz general coverage receiver features keyboard frequency entry and infra-red remote controller (optional) with 32 programmable memory channels, SSB, AM, RTTY, CW and optional VFO's scanning, selectable AGC, noise blanker, pass band tuning and a deep notch filter.

With a direct entry keyboard frequencies can be selected by pushing the digit keys in sequence of frequency. The frequency is altered without changing the main tuning control. Options include FM, voice synthesizer, RC-11 infra-red controller, CK70 DC adaptor for 12 volt operation, mobile mounting bracket, CW filters and a high stability crystal filter.

Helpline: Telephone us free-of-charge on 0800 521 145, Mon-Fri 09.00-13.00 and 14.00-17.30. This service is strictly for obtaining information about or ordering Icom equipment. We regret this cannot be used by dealers or for repair enquiries and parts orders, thank you.
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WIN-108 Scanning Airband Receiver

Cover: Airband columnist Godfrey Manning puts the WIN-108 handheld airband scanner through its paces and reports on his findings.

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**A WORD IN EDGEWAYS**

**Sir**

Through you, may I say "Thanks for the memories, Mr Hewlett". SWM Oct 88. Tuning in the 1930's was a memorable experience. The radio waves seemed clear and fairly crackled with stations all around the world, mainly transmitting local and national programmes far more interesting than a lot of the material we hear today.

Sadly, all my pre-war QSL cards and memorabilia were lost during WWII, so the magazine segments included in the article were scrawled with a magnifying glass. VK2ME, Sydney, I remember very well as I used to monitor their Sunday experimental broadcasts. From Guatemala I received a splendid QSL card and a kilo of coffee beans packed in a miniature sack. India, if I recall, had short wave stations in Bombay (VUV2), Calcutta (VUC2), Delhi (VUD2) and Madras (VUM2), with occasional programmes of hotel dances, comedy and a hum of conversation and the gentle rattle of crockery.

North America was a rich vein to explore, the major networks transmitting programmes made for home consumption, complete with commercials. It was my first experience of the big bands of that era and many vocalists who were to become household names in later years. The major networks were the National Broadcasting Company, Columbia Broadcasting System and the Mutual Broadcasting System, and I remember hearing part of the Onslow Wells Education of H. G. Wells' "War of the Worlds", plus the many newscasts which followed aimed at calming down the panic stricken listeners who took it for real.

Other stations in the USA remembered include Cincinnati, Philadelphia, Boston, Miami and a rare catch - Treasure Island, San Francisco, with a programme of Latin American music played by Xavier Cugat. This station was on the air during the Golden Gate Exposition in 1933. A Canadian station comes to mind, Montreal and CHNX St. Johns, Newfoundland.

Thanks again, Mr Hewlett. Great days and nights they were, and this old timer has derived a lot of pleasure from turning over the ashes of fifty years ago.

ALAN SMITH
DUSTIN
NORTHAMPTON

**Sir**

In a letter from one of your readers in June's issue, I read that you review of the Matsui MR-4099 was done in September 88's issue.

Please, please, please! In future when you are going to publish next years magazines this year, could you do a special feature on the month's football pools results?

Hoping to retire shortly very rich, well, at least a fiver better off.

Can I just add my congratulations on what is quite an excellent magazine. You seem to be striking an excellent balance for all aspects of listening, not just SWL's.

D. B. GLOVER
NEWTON-LE-WWILLS

**Sir**

Thank you for publishing my letter in the July edition of Short Wave Magazine, in which I was seeking information on some pictures that I have that were transmitted by radio in the 1928-30 period.

I was pleased to read the helpful and informative letters subsequently published from Russell Lee of Oxford and Adrian Coleman of Norfolk and would like the thank them for responding to my plea for information. I have my local library seeking the recommended book "Television Today & Tomorrow".

It was indeed pleasant to meet some of the staff of Short Wave at the National Exhibition Centre at the RSGB Rally and Conference and discuss radio topics first hand.

ALwyn SAUL
LEAMINGTON SPA
WARWICKSHIRE

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**WHAT'S NEW**

**1989 Rallies**

We’ve been sent some advance information on the 1989 Rallies:

**January 29:** The NARSA Norfolk Radio and Electronics Exhibition (formerly held at Belle Vue in Manchester) will be held in 1989 at the Norbreck Castle Exhibition Centre, Blackpool. Details can be obtained from: Peter Denton G6CGF Tel: 051-630 5790.

**February 26:** The 2nd Taw and Torridge Rally will be held in the BAAC Halls, The Pill, Bideford In North Devon. These premises are larger than last year. The doors open at 10.30am with talk-in available on S22. There will be trade stands, a bring & buy, refreshments and a bar as well as ample parking. More details are available from: GODAYM. Tel: 0805 23376.

**May 7:** The Southend & District Mobile Rally will be held at Roach Way Youth Centre, Rochford, Essex. Doors open at 10am. More details from: Ted G4TUO. Tel: 0702 200219.

If you are organising a rally and would like us to publish details, send in any information as soon as possible. We must have at least six weeks notice of events to be sure of being able to mention them.

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**Octopus Work Holder**

The Octopus fits to a work surface and has six flexible "stay-put" arms, four with crocodile clip ends, one with a magnet and one with a magnetic head. This should enable the hobbyist to work on a variety of projects without having to ask someone else to "come and hold this a minute please."

The Octopus Work Holder costs £5.95, and could be worth considering as a Christmas present. More details from: Freetrade (TEP) Ltd., Unit 15C, Avery Industrial Park, Garrison Lane, Bedworth Green, Birmingham B4 4GE.
**WHAT'S NEW**

**Snippets from Radio Sweden**

*Burundi:* The Voice of the Revolution is carrying out test transmissions from a new 100kW short wave transmitter, built with help from Ubya. This station uses short wave frequencies of 3.33 and 6.14MHz.

*Cuba:* The BBC Monitoring Service reports that Radio Havana Cuba made extensive changes in its schedule on September 28. A new broadcast in English to Europe, the Middle East and Africa can be heard 2000-2100 on 11.775MHz.

*A new 10-minute DX show for s.w. is called DXers Unplugged started in early September. It’s on the air on Sundays at 0035, 0235, 0435 and 0635 to the Americas (Saturday evening Eastern Coast North American time). It’s broadcast on the usual Radio Havana frequencies.*

*Ireland:* The joint Irish-Luxembourg station Radio Tara has received planning permission for its long wave transmit site, designed to serve rural groups and local residents. According to the head of news at Radio Luxembourg’s London office, Tara should be on the air by the middle of next year on 254kHz long wave.

*Israel:* Kol Israel has a new broadcast in Yiddish, not listed in the schedule. It’s at 0340 on 738kHz, 9.885, 11.585, 11.605, 11.655 and 12.080MHz.

*Finland:* According to announcements in the German Service of Radio Finland, the transmitter on 6.12MHz is now using 500kW instead of 250kW.

*Panama:* The radio station La Exotica in Panama City which was closed by the government on February 9 has been observed broadcasting again on 740kHz since September 25. The station identified itself as "La Exotica" but relayed programmes of Radio Alegre. Other Exotica network stations have also been observed re-broadcasting Radio Alegre: La Exotica in Colon on 850kHz and La Exotica in Provincias Centrales on 800kHz. Still remaining closed are: Radio Exeto in La Chorrera and La Exotica in David.

*Romania:* Radio Romania, which seems to be the new name of Radio Bucharest, has made two frequency changes in its English schedule. 6.25kHz replaces 18 between the 2100-2130 broadcast and between 0645 and 0715 11.740 replaces 11.790MHz.

*USA:* KVON announces an address which differs from the one listed in the WRTB 88/High Adventure Radio, The Voice of Hope, Box 93937, Los Angeles, CA 90093, USA.

*Publications:* The Italian magazine DX Fanzine is published by Gruppo d’Ascolto Dante Mari. A sample copy is available for one IRC, one US dollar or 1000 Italian Lire in cash or Italian stamps from GDAM, c/o Carlo Pepe, Via Cesare Battisti 27, 74100 Taranto, Italy. DX Fanzine is written almost entirely in English.

**New Launches from Roberts**

Roberts Radio, the British manufacturers of quality radios and holders of three Royal warrants, are adding two new three-band models to their range. In their traditional style of teak and leather cloth cabinets is the model RP26 with six pre-set stations, simplicity of operation being the outstanding feature. This 265 x 195 x 80mm set can be run off mains or batteries and has a 3.5mm socket for headphones. The distinguished styling is available in five colours: black, red, blue, tan or light grey. The recommended retail price is £72.

In contrast is the black cased mono radio cassette recorder, the RC30, measuring 315 x 135 x 99mm. It weighs 1.6kg and has auto stop on record/playback, a built-in electret microphone, is mains or battery operated and comes with headphone socket. The recommended retail price is £67.

Both radio lights can be available from your local Roberts Radio distributor. For more details, contact: Roberts Radio Co. Ltd., Moseley Avenue, West Moseley, Surrey KT8 9RL.

**Mains Protection**

Spikemodule is a throwaway device which protects against power line overloads. It plugs into an available socket in any IEC320/CEE22 power distribution system. It can absorb lightning induced surges up to 4500A. Constant excessive surges in the line are controlled by the Spikemodule. If the surges reach an unacceptable level, a small panic lamp in the component body changes colour. Indicating that the unit is inoperative and requires replacing. Operating voltage is 250V AC, frequency 50Hz and the maximum continuous power rating is 5.6W with a maximum peak current of 4500A. The response time is 25ns. For further information, contact: Rendar Ltd., Durban Road, South Bersted, Bognor Regis, West Sussex PO22 9RL. Tel: 0243 825811.

**Surface Mount Switch**

ITW Switches have developed a new miniature mounted slide switch for their "Mr Clean" range. The switch is available in d.p.d.t. and measures 0.5 x 0.3 x 0.8mm with an overall height of 0.75mm. If required, there is an optional anchoring pin for increased stability. The switches are supplied in 24mm tape or tube with termination bases for automatic insertion, and are compatible with medium size pick and place machines handling standard S0IC and PLCC components. The switches are rated at 240mA at 125V AC, dry circuit and have a life expectancy of 10,000 mechanical actuations. For more details on these switches, contact: ITW Switches, Norway Road, Portsmouth, Hampshire PO3 5HT. Tel: 0705 694971.
The OS7020 has a 21 rectangular c.r.t. and is a 20MHz dual trace model. The display features an 80 x 100mm internal graticule with scale illumination, front panel trace rotation, a photographic bezel, external intensity modulation and an accelerating potential of 2kV.

Vertical deflection sensitivity is from 1mV/cm, with continuous control between the 10 calibration steps indicated with an "on" i.e. Dual trace operating modes also include add, subtract, alternate and chop plus a convenient X-Y mode for phase measurements. Horizontal deflection gives 19 calibrated sweep speeds from 0.2s/cm to 200ms/cm with a fastest uncalibrated speed of 20ns. Automatic and normal triggering are backed by a "hold off" control, slope selection and a TV sync separator for video signals.

The unit is supplied complete with two switched input probes, mains lead, spare fuse, operation manual and two year guarantee. It costs £299.80 plus VAT. More details from: Alpha Electronics Ltd., Unit 5, Linstead Trading Estate, Wigan Road, Atherton, Manchester M29 0QA. Tel: 0942 873434.

QTI-TNA

QTI-TNA, the Talking Newspaper for blind radio amateurs has now become established at a new base in Lancaster. The service provides cassette recordings of technical items selected from current radio magazines. These are sent to more than 120 blind amateurs worldwide.

It was started eight years ago, initially for about a dozen members, by John Feeley G4TWB and his wife Diz G6DIZ and run from their home in Sheffield. Through their enthusiasm and dedication this unique service has continued to grow. Their efforts have been supported and encouraged, both materially and financially, by the electronics industry and the radio press. John, as Chairman, and Diz, as honorary Secretary, resigned at the AGM on July 17 for personal reasons.

QTI-TNA has now moved to Lancaster where it is being run by Harry Longley G0JKT with the help of students from the University of Lancaster. Support from radio amateurs in the Lancaster area will be very welcome and further help with funding will be greatly appreciated. Visually handicapped persons who wish to receive the QTI-TNA recordings every fortnight may join the service by making a subscription of 53.50.

If you would like to sponsor a member, you could send a donation or a covenanted subscription. Please contact QTI-TNA through: Harry Longley, 7 Anderson Close, Lancaster LA1 3JE.

Gold Star 'Scope

Catalogues

With over 500 new products, the pages increased to 550 and the print run increased to 210,000; the 1989 Maplin Catalogue is bigger than ever. Already available is the new Maplin "Winter Collection" brochure featuring all kinds of bargains and ideas. Also available now is the new Maplin Professional Supplies Trade Catalogue.

QTI-TNA

Sony Specialists

Sony is to nominate 100 dealers around the country as short wave specialists to lead the push into this under-developed market with a complete range of exciting products. Sony currently has a range of 10 short wave radios, priced between £299.95 and £299.95 and targeted to appeal to the business traveller and right through to the short wave enthusiast.

Special sales and technical training courses will be given to staff of the nominated dealers. Now the Sony Short Wave Centres are appointed and certificates issued you can find the names of the Centres from Sony's adverts (see SWM November pages 26/27).

Four-way Sockets

If power is applied to the socket, Freetrade (TEP) can also supply 1-way versions with the same specification at £4.95. For d.i.y. applications, the sockets are also available without cables/plugs. More details from: Freetrade (TEP) Ltd., Unit 15 C, Avery Industrial Park, Garrison Lane, Bordesley Green, Birmingham B9 4GE.

DXAGB

The DX Association of Great Britain have sent us the details of the Chairman (and acting Editor of their Newsletter). He is E.A. Rickett, Flat 13, 63 Eton Avenue, Hampstead, London NW3. That's the address you should write to for any information on the group.
available from Short Wave Magazine Book Service
147 x 210mm, 46 pages. Price £2.95 plus 75p P&P
ISBN 0 9512729 5

If you're wondering what kind of stations you can listen to on RTTY or watch on FAX, but don't know where to start then this book may provide that starting point. There are three columns: Frequency, Station, Mode, etc. The first is really self-explanatory and the frequencies are listed in numerical order. The second column gives the name of the station and the last column gives the mode the station uses. Where possible, it also gives detail of that mode e.g. 850/50 N (850/50 is the speed of the RTTY signal and N means normal shift), the callsign, where known, is also given in this column. Obviously, in a book of this size, there isn't the detail that the more expensive RTTY guides give, but it could provide a good reference book for the beginner in the world of data communications.
Southgate ARC meet 2nd & 4th Thursdays, 7.45pm in Holy Trinity Church Hall (Upper), Winchmore Hill. November 24 is a demo RTTY station by club member and December 1st is their AGM. Club Awards. Brian Shelton on Winchmore Hill 2453.

Braintree & District ARC meet 1st & 3rd Mondays, 7.30pm at Braintree Community Centre, Victoria Street (next to bus Park) December 5 is Cheese & Wine Christmas Party and the 19th is an Informal. Norma Willicombe GOFPW on Braintree 45056.

Chelmsford ARC have Fire and Rescue Communications G4MUS on December 6. Meet in the Macombe College, Arbour Lane, at 7.30pm. Roy Martly GM3PMX on Chelmsford 35321 Ext. 3815 (Office).

West Bromwich Central RC meet Sunday 1st & 3rd Mondays, 7.30pm at the Sandwell Pub, West Bromwich High Street. Further details from Bill Oakes G1YQY on Wednesday 3183.

Derby & District ARC have a Fun Sale on December 7, their Christmas Party in the Clubroom on the 14th and a Constructors Contest on the 21st Wednesdays. 7.30pm at 119 Green Lane. Kevin Jones G4FPY on Derby 669157.

Coventry ARC meet Fridays, 8pm at Redwood, 7.30pm at 121 St Nicholas Street, Radford. November 25 is an evening on the Air/Morse Tuition. John Ward G4HHT on Coventry 610408.

Cheltenham ARC have their AGM on December 2 and the 16th is at the Clock Tower, 2nd & 4th Fridays in the Stanton Room, Charlton Kings Library. Dave Abbott G4FRU on Holmbury, Thorncliffe Dr, Cheltenham.

Mansfield ARC meet 2nd & 4th Fridays, 7.30pm at the Westfield Folk House, Westfield Lane. November 25 is Contest Operating G3TBK and December 9 is Quiz. Keith Lawson G4AAN on Mansfield 642719.

Hasting Electronics & RC have their Christmas Social on December 21. Meet 1st & 3rd Wednesdays, 7.30pm. 1st is a Committee Meeting in Ashdown Farm Community Centre. 3rd a Man Meeting in West Hill Community Centre Fridays. November 25 is Natter Nights in Ashdown Farm. Tim Anderson G0GTF on Hasting 437513.

Tennis Club, Holland Avenue, Cheshunt. Natter Nights are 1st Mondays In the Downs Bar. December 4 is a 144kHz fixed/AFS Contest and the 16th is their Christmas Get-Together. John Puttick G0BWW on Sutton & Cheam 92144.

Reading & District ARC meet alternate Tuesdays, 8pm in the White Horse Pub, Emmer Green. December 19 is a Constructors Contest. the 13th is their Christmas Dinner and the 20th is an Informal in the bar. Mike Anthony G4THN on Reading 774042.

Woking & District ARC have Radio Astronomy G42OG on December 13. Meeting time and place from H. Cromack GOFGI on Thornton 411062.

Vale of Evesham ARC meet 1st & 3rd Thursdays, 1st Thursdays are Formal, 7.30pm in the M&S Worcester Road. December 1st is their 3rd Annual Dinner at Chequers Inn, Broadway and the 15th is their Christmas Get-Together. Mike G4UJCX on Evesham 831508.

Bagby ARC meet Tuesdays, 7.30pm at the Cricket Pavilion outside Rugby Radio Station. November 29 is Test Night and December 20 is their Sherry & Mince 7.30pm in the Norfolk Duplimg, Livestock Market, Hartford. November 30 is an Informal/Committee Meeting. Craig Joly GB4GRC on Norwicht 45578.

Cheam & District ARC have Natter Evenings on December 7/21 and their Christmas Cabaret by Roy Kerim on the 14th. Wednesdays 8pm in the Church Room, Church Lane. Worlsey. Peter Davies G1KGA on Levo Yard 764930.

Lorna Moat

Bath & District ARC have their Christmas Party on December 21. Alternate Wednesdays, 8pm at the Englandcombe Inn. Englandcombe Lane. Eric Otten G4GEV on Coromee Road 832156.

Mid-Warwickshire ARC have their Christmas Supper Night with an IG58 Guest on December 13. 2nd & 4th Tuesdays, 8pm in the Swan. Big Shakes on 39B807.

Midlands ARC have their Christmas Dinner on December 6. Meet Tuesdays at 7.30pm, with classes from 7pm in Unit 16. 60ft Regent Place, Birmingham. Wednesdays is Morse. Thursdays is a Night on the Air. Tom Brady G5GZA on 021-357 1924. 1st & 4th A5S meet 2nd & 4th Mondays. December 5 is Club Activities on Video 1988 and the 19th is their Merry Christmas Together Night. these two meetings are at the Fleetwood Sea Cadet Corps, T.S. Conqueror. Princes Way, Fleetwood. November 25 is Dinner and December 12 Lancaster University Challenge. Dave Westby G4JUI on Lancashire 884745.

Portsmouth & District ARC meet Thursdays, 8pm in Carisbrooke Community Centre. Carisbrooke Road. December 1 is Logic. G4DYB, the 8th is a Committee Meeting, the 15th is their Christmas Party and the 22nd is a Night on the Air. Eddie Grayson G6JUX on Kingtonley 83792.

Biggin Hill ARC have their Christmas Party on December 20. 3rd Tuesdays, 7.30pm at The Victory Social Club, Keighley Gardens, Hayes. Geraint G4GXC on Ipswich 462555.

Farnborough & District RS have their Christmas Social on December 19. Saturday 2nd & 3rd Wednesdays, 7.30pm in the Railway Enthusiast’s Club, Howley Lane. Tim Fitzgerald G4UGE on Camberley 2922.

Top ARC meet Fridays, 7.30pm at the ECC Social Club, Ringstead Road, Highweek. November 26 is Open Forum with Dave Park and December 17th RSG Liaison Officer in attendance and December 10th is the TARS Christmas Party, Bob McCreade G2FXK on Haytor 233.

Bredhurst & RS meet Thursdays, 8pm at Parkwood Community Centre, Parkwood Green. December 1/15 are Natter Nights and the 8th is Advanced Car Control Techniques GC4AG. Trevor Cannon G4LYW on Medway 32153.

Venium ARC have their annual Rally on Sunday 27 November. December 20 is their AGM in the RAF Association HQ, New Kent Road, 7.30pm. Hillary G4JLS on St. Albans 59315.

Yeovil ARC meet Thursdays, 7.30pm at the Recreation Centre, Canton. Friday December 1st is Open Wire Feeders G3MMY, the 8th is G3MMY on the New Licence Conditions, the 15th is G3MMY on the Air. David Bailey G1MMV at 7Thatchcm Close, Yeovil 35085.

Wakefield & District RS have a Practical Evening on November 29, members on the air v.h.f. contest on December 13 and their Christmas Social is on the 20th. Tuesdays, 8pm in Ossett Community Centre. Prospect Road. John Roberts G1XXT at 1 Pontefract Place, Garforth, W Yorks LS25 2NT.

Grafton RS meet 2nd & 4th Fridays in the Holy Trinity Church Hall, Stapleton Hall Road. November 25 is Enamelling G4LU. Rod G0JUZ on Grafton 8154.

East Lancashire ARC have an Informa on November 29 and their AGM on December 6. 1st & last Tuesdays, 7.30pm in the Conservable Club, Cliffe Street, Burnley. Phils D1OPV on Accrington 32036.

Loughton & District ARC meet 1st & 3rd Fridays, 7.45pm in Room 20 of Loughton Poltai. December is their Night on the Air using club callsign G4CNP and the 16th is their Christmas Dinner at The Red Lion. (provisionally) John Roy GBDZ on Loughton 3434 (after 6pm).

Poole ARC have a Construction Evening on December 14. Meet in the Commander’s House, Constitution Hill Road, Poole, 7.30pm.

Dover ARC meet 2nd & 4th Thursdays, 8pm in Watering Community Centre, 145 Orange Hill Road, Burnt Oak. November 24 is Quiz and December 8 is a Rant with Ian Cope G4UUX at Hatfield 65707.

Edgeware & District RS meet 2nd & 4th Thursdays, 8pm in Watling Community Centre, 145 Orange Hill Road, Burnt Oak. November 24 is a Quiz and December 8 is a Rant with Ian Cope G4UUX at Hatfield 65707.

The Dip Oscillator and Its Use G3ESH on November 25 and a Social on December 9. 2nd & last Fridays, 7.30pm in St. Andrews Church Hall, Herbert Road. Tom Mansfield G3ESH on 01742 14182.

Sutton & Cheam RS meet 3rd Fridays, 7.30pm at Downs Lawn

Felixstowe & District ARC meet alternate Mondays, 8pm in the Scout Hut, Borth Road, all Socials in the Stanford Hotel. November 28 is 10 Pin Bowling, RAF Bembridge and December 12 is their Christmas Social. Paul Whiting G4IQC on Ipswich 462555.

Keighley ARC meet 2nd & last Tuesdays, 8pm in the Club Room, next to Victoria Hall, Victoria Park. November 29 is Films and December13 is an Informal. Kathy G1GH on Bradford 49522.

Steventon & District ARC have a Jazz Night on December 6 and a Quiz Night on the 20th. Meet at 8pm. SITEC Ltd, Bridgem in Park, Telford. A500 United Avenue. Morse tuition and practice from 7.30pm. Peter Daly GOGG on Steventon 724991.

Norfolk ARC meet Wednesdays

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The Guide to Utility Stations, Seventh Edition, is in paper-back, comprising 484 pages 170 x 240mm. The special offer price to SWM readers is £16.95 (books are zero-rated for VAT).

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Available to readers of SWM in England, Scotland, Wales, N. Ireland, the Channel Islands and the Isle of Man. Orders are normally despatched within 28 days, but please allow time for carriage. The closing date for this offer is 31 December 1988.

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PW Publishing Ltd., Poole. Dorset (Reg. No. 1980539, England)
SHORT WAVE RECEIVERS are our speciality (and all that goes with them)

The R-2000 from Kenwood

The R-2000 fitted into the middle of the Kenwood receiver range, between the R-600 and the R-5000. Sadly the R-600 is no longer with us, “Gone, gone, and never called me Mother” but the R-2000 goes on from strength to strength because of its unique appeal to a wide ranging section of the listening fraternity.

The R-2000 is the receiver which bridges that difficult gap between the user who wants to listen to world wide broadcasts from the comfort of his armchair, and the keen listener who likes to hear aircraft on HF SSB across the Atlantic, or perhaps CW from the other side of the world. The R-2000 can truly be said to satisfy the listening needs of almost everyone.

The front panel may look daunting but Kenwood have always excelled at making complex equipment easy to use, with the result that the control layout is logical and self explanatory. If you want to tune the receiver — turn the knob. If you want to tune slowly press the button marked “slow”. If you want to get somewhere in a hurry — press the button marked “fast”. Do you want to change mode — simply select, using the soft touch buttons. Recall something from memory? — touch the appropriate memory button. Scan the memories? — press “M SCAN”.

And so it goes on, displaying all the years of design skill which Kenwood have concentrated in their products, listening to the users and giving you what you need.

The R-2000 covers the frequency range from 150 kHz to 30 MHz, and receives SSB, CW, AM, and FM. There is also an optional VHF converter which can be fitted inside the R-2000 to extend the receiver’s coverage to include 118 to 174 MHz, again with all mode reception. This makes the R-2000 an extremely comprehensive listening tool, particularly for the keen aircraft listener because you can follow the progress of an aircraft on VHF during the take-off and climb, and then continue to listen on HF SSB when the flight is handed on to Oceanic control. I still get a kick from hearing “Speedbird Concorde” telling control that they are flying at some incredible altitude, at equally impressive speed, and with an outside air temperature guaranteed to bring tears to the eyes of the proverbial brass monkey.

The size of the speaker in the R-2000 is evident from the photograph, and Kenwood’s involvement in the high quality sound equipment field certainly shows in the audible results. The audio quality from the R-2000 is very good indeed, and worthy of recording — for which purpose you have a tape recorder jack, and a built in digital timer, which not only switches on the R-2000 but will control the switching of the external tape recorder. Just the thing if you want the latest American football results but you also need to be in bed at the same time.

The hobby of short wave listening really began in this country, as indeed did broadcasting itself. As a result, the UK listener has a long tradition of being able to get the best from the “all pervading luminous ether” (to quote a 1920s publication). The R-2000 brings modern technology to those skilled listeners and enables them to get the most from the hobby.

A detailed leaflet is available on request, but of course the best thing to do is send for our “Listener’s Guide”, enclosing a modest 50p for postage, and request full details of the R-2000 (and the R-9000, and the NRD-525 and the HF-125, and all the other things that go to make the hobby what it is.)

To our friends everywhere, may we wish you a Christmas marked by peace and harmony.

FREE
Send 50p to cover the postage and we will send you, by return of post, your FREE copy of "THE LISTENER'S GUIDE" (2nd edition), a commonsense look at radio listening on the LF, MF and HF bands. Its unique style will, I am sure, result in a "good read" but underneath the humour lies a wealth of experience and expertise. You will also receive a detailed leaflet on our range of receivers and a copy of our current price list.

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CARDIFF Telephone 0222 404154, LONDON Telephone 01 429 3256, BOURNEMOUTH Telephone 0202 577760
All branches are closed all day Monday.
While attending a Safety Day at Upper Heyford recently, I was “spotted” by two private pilots who were also participating in the event. “You’re the chap who writes for that magazine!” proclaimed the one who recognised me. I’ve always delighted to meet readers and I know that there are several pilots amongst you. To them, I ask do write in! For those of us not fortunate to hold a pilot’s licence (that includes me) your experiences are especially interesting so, come on, share them out.

A Look in to the Future

Looking into the future, I wonder what you’ll think when you read back over these pages in 10 years time? Last month’s “Airband” included a description of the microwave landing system (m.i.s.) and I thought you’d like some more details. Operating at around 5GHz there will be 100 channels initially with the capability of expansion to 200. Unlike the narrow beam of the present-day instrument landing system (i.i.s.) the m.i.s. works over 80° in azimuth. The ident of the experimental system on runway 27 Right at London Heathrow is the m.i.s. identifier over the usual 122.0MHz. The same m.i.s. system has been tested at the R.A.F. station at Lakenheath and the m.i.s. system has a range of 100 miles.

Meanwhile, the i.i.s. system is under threat. It was originally agreed that the spectrum just lower in frequency (104-106MHz) would act as a guard band, no high-power broadcasters being allowed here in case they caused interference to i.i.s. transmissions. Unfortunately, broadcasters are already spreading to this new allocation.

Satellites are further off but under consideration. For example, during a north Atlantic crossing, an aircraft might relay its position to air traffic control automatically and at regular intervals by way of a satellite data link. Proposals are for uplinks in the 1545-1555MHz range and downlinks in the allocation 1646.5-1656.5MHz.

You Write

Regular Dave Lawrence G6XHR (Snodland, Kent) has had cause to visit some southern England airports recently. Dave asks if the Ibsey beacon near Bristol is still in use; I can find no reference to it, but does any other reader know better? (Alas, the Ibsey is near Ringwood, Hants! Ed.)

Transponder “squawk” codes are allocated in patterns, just as you guessed. Dave. Typically, each controller will allocate squawks with a particular pair of digits in the first two positions, the last pair varying between aircraft to make up the four digit code. Examples of grouped allocations might be the inbound and outbound traffic at Luton, aircraft working Thames Radar, etc.

Additionally, certain codes have special meaning. 2007 is set when it is not expected that the controller has secondary radar, 4321 is the “conspicuity code” used by light aircraft and others not under a radar. In emergency, 7600 indicates a radio failure (the transponder being independent of the v.h.f. transceiver), and 7700, which sounds an alarm at the control centre, means mayday. In the case of radio failure the controller can ask “Squawk 7601” and, if this is seen to be done, can deduce that the aircraft is still capable of reception.

Dave’s local airfield, West Malling, hosted a Warbirds display which included the Vulcan among others. When our photographer, Chris, reads this about her all-time favourite aeroplane she’ll want to go there next year!

Retired DC-Split Leslie Greville-Smith G4SUJ (Wolverhampton) has been researching into Richard Branson’s transatlantic balloon flight (see also “Airband,” September 1975). Leslie kindly sent me a plot of the route about which the following co-ordinates will give a rough idea if marked on a “school atlas.” Figures are time in UTC (starting at 0812Z on 2/7/78 from Sugarloaf, Maine) with latitude and longitude, degrees and decimals the start being 45.04N 70.19W, 0812Z.

125.4MHz is the standard frequency in the 108-136MHz range and most antennas intended for this band would need to cover this allocation. There is little tendency to use high-gain antennas since they would distort aircraft signals which come in from high elevation angles. Have you thought about joining a local radio club? Many are intended for amateurs and amateur band short wave listeners but the principles apply to any v.h.f. band. You could also see if your local flying club runs an awareness course, aimed at teaching you about flying and use of the radio without going all the way to getting a pilot’s licence. I hope you enjoy your new hobby, and I’ll try my best to answer any specific questions on flying and aeronautical radio that you might have in the future.

Frequency Changes

As usual I am indebted to the Civil Aviation Authority for their publication General Aviation Safety Information Leaflet 9/88. A.t.i.s. means that ever-useful automatic terminal information service. Pilots should still consult NOTAMs as I only include changes that I have heard about since the last “Airband.”


Next month you can test your knowledge of aviation history with my Xmas quiz. Till then — don’t forget to write!
There are a variety of ready made cabinets ranging from the simple aluminium boxes to the exotic professional cabinets costing the earth. You can make your own simple cabinet to house the receiver from offcuts of plywood and sheet aluminium. Alternatively you could use one of Minifordd’s cheap but neat cases.

**The Cabinet**

The drawings show the various parts of the cabinet with the position of the various holes indicated. The sides, back panel and top are cut from offcuts of 6mm thick plywood, while the bottom is of 12mm plywood. Four triangular wooden gussets are screwed and glued into the top corners to give strength and provide a fixing for the screws holding the top in place. The front panel and the intermediate screening panel are cut from 18 s.w.g. sheet aluminium. This can be bought from Whistons or try Yellow Pages for your local aluminium suppliers.

The layout of the front panel is based on the use of an Eddystone slow-motion dial as described in Part 1. If you are using a different type, such as the current Jackson dial then you will, of course, need to ensure that there is enough room on the front panel to accommodate it. If not you will have to re-arrange the position of some of the controls or enlarge the panel.

**Control Shafts**

The rotary switch, S2, used to change bands, is mounted on the intermediate screen as shown in Fig. 5.3. A length of 6mm diameter wooden dowelling is used to extend the switch shaft out to the front panel. Use the special brass collars sold for this purpose but do not use a metallic extension shaft. The main tuning capacitor, C28, has its shaft similarly extended to match the slow-motion drive, but here you can use a metal shaft and, as shown in the photograph, a flexible coupling can be used to take up an slight misalignment.

**Feed-Through Capacitors**

Two feed-through capacitors are fitted to the appropriate holes in the intermediate screen to take the supply lines from the battery to the main receiver modules and then back again to the V.F.O. The modules themselves can be fitted to the bottom using Sticky-Fixers. Of course, you could use screws if you so wish.

Please note that in Fig. 4.3 (P18 Oct. 88) D2 is shown reversed. The cathode should be connected to L1 and the anode of D1.

Now you are ready to finish the wiring. If you are well enough advanced with home-construction you will be able to do this using the complete circuit diagram. However, for the beginners, a complete wiring diagram will be published in Part 6.
THREE-BAND SSB RECEIVER

Part 5

YOU WILL NEED

Capacitors
Feed-through
1nF  2  C30, 31

Miscellaneous
Plywood offcuts (see text); 18 s.w.g.
Aluminium sheet (see text); Wood
screws, Slow-motion drive; Shaft
extension collars; Flexible coupling;
6mm dia. wooden dowelling;
Terminals (2); Battery terminals.

Addresses
K. R. Whiston Ltd., New Mills,
Stockport SK12 4PT. Tel: (0663)
42028
Minffordd Engineering, Sun Street,
Ffesiniog, Gwynedd. Tel: 076 676
2572.

Fig. 5.3

Wiring Diagram
This part was originally planned to conclude the series. However, lack of space has meant
that the complete wiring diagram has had to be held over and will now be published in Part 6.

Fig. 5.4

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>mm</td>
<td>millimetre</td>
</tr>
<tr>
<td>nF</td>
<td>nanofarad</td>
</tr>
<tr>
<td>s.w.g.</td>
<td>standard wire gauge</td>
</tr>
<tr>
<td>v.f.o.</td>
<td>variable frequency oscillator</td>
</tr>
<tr>
<td>V</td>
<td>volt</td>
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Tara Gets Back on Target

Back at the end of September, at a place called Clarkestown in County Meath, protesters were ordered off the proposed transmitter site. Radio Tara wants to build an 248m mast to support the antenna, and now the courts have rejected local residents complaints. The plans is to broadcast to Britain on 254kHz. I.w. The programme format is still a secret, though it will probably be rock music of the type similar to Laser Radio.

Tara’s choice of I.w comes at an interesting time. Across the UK, the BBC currently has many posters advertising the fact that its national pop music network, Radio One, has “found a new band” i.e. f.m. Even the term “v.h.f. Radio” has been discontinued.

Still, the people at Radio Tara don’t believe they are facing a losing battle. The backers are RTE and Radio Luxembourg. For that reason, Radio Tara is seen as a daytime only service, so as not to conflict with the “great 208” in the evening.

Religion Towards the Middle East

There are currently two stories concerning off-shore broadcasting. It seems a Greek vessel is currently being fitted out at Haifa with a 10kW m.w. transmitter and an antenna. A religious organisation called Gush Amunim plans to broadcast off the Israeli coast, after being refused airtime on land-based legal stations.

In the last couple of weeks the good-ship Sarah has finally slipped out of Boston Harbour. Alan Weiner was the man behind the Radio New York International project of last year. The radio ship was flying the Honduran flag, but after a short test transmission, the vessel was boarded by officials from the Federal Communications Commission, and the equipment was disabled. The FCC cited the ITU regulations that forbids broadcasting from a vessel, though other ITU regulations are also broken in a daily basis without such drastic measures being taken. The Radio New York International people say they’ll be on the air in around 30 days on 150kHz.

You may remember the saga of Laser Radio that broadcast from the North Sea a few years back. The station manager at one time was the American radio consultant John Catlett. He became quite a figurehead when the ship decided to come ashore when on-board generators failed. Catlett has now moved on to other land-based legal projects, and is now a consultant to the Radio Tara long wave project.

Relay of the Month

There had to be one. Look back at past Bandscans and you’ll see the growing number of stations that are swapping air- time these days. The focus is on the BBC this month, which has just started to relay their signal via a transmitter belonging to Radio Bras in Brazil. A narrow-band telephone circuit is being used as a temporary measure to get the studio signal from London to Brazil, which is why the audio quality is only fair at present. The BBC frequency used by Radio Bras is 618kHz from 1100-1110UTC in English, and 1100-1110 in Spanish. The beam is towards Chile.

New Radio Delayed

Persuading the f.m. orientated youth to discover other parts of the dial is something that’s being discussed in the United States at the moment. Recently programme makers at the National Association of Broadcasters met in Washington DC. They had spent a great deal of money advertising a new super- radio, designed to “revolutionise the market”. However, it was not until the final hours of the conference that the sample was unveiled, looking like a standard f.m. radio tuner, although the cabinet was somewhat larger.

Due to a fault, the super-radio did not work on m.w. That was a shame since the entire launch had been designed to give a.m. a boost. It is hoped to iron out the problems by November, but the concept was clear.

First, a.m. plastic loop is used for a.m. reception, along with a 10kHz bandwidth filter. Many stations in the US put out a lot more fidelity that can be tolerated in the crowded European bands. Secondly, the radio has no a.m./f.m. switch. When you reach 1700kHz, it jumps to 87.5MHz f.m.

The reverse happens when you turn the dial the other way. In other words, it is hoped that the younger generation will bump into m.w. without noticing. Incidentally, the NAB table-top super-radio does not have synchronous detection, which surprised many engineers.

AFRTS Nearly Off HF

October 1 was the last day that many of the s.w. transmitters carrying the US Armed Forces Radio and TV Service were heard. As from October 1, AFRTS transmissions from Voice of America transmitters in Bethesda Ohio and Delano California USA ceased, along with a relay via Munich, West Germany.

Transmissions from the Philippines stopped two years back. Melvyn Russell, Assistant Director of AFRTS in Washington DC, said that for a third of the cost of s.w., AFRTS will hire a channel on the INMARSAT satellite system. This will start on November 1 for the Pacific, and 1 March 1989 for the Atlantic. This will allow high quality audio to US Navy ships at sea.

Satellites are already being used to feed material to large US military bases in Europe, through AFN in Frankfurt and the Far East Network in Tokyo. In fact, because many of the AFN stations share a similar frequency in Germany, listening in the UK now is marked by different low power transmitter sites transmitting audio with a slightly different satellite delay. 1107kHz is a case in point.

AFRTS had a loyal s.w. following, especially amongst American civilians abroad. The Voice of America, after all, is not chartered to serve them.

All is not lost though. AFRTS Antarctica is currently being heard in the Pacific at the moment on 6012kHz at 0600UTC, until blocked at 0900UTC. There is a chance of propagation in Europe during the winter months, though you will need a selective receiver. The transmitters beamed eastwards to China from the Far East Network Tokyo are on the air again after a short maintenance period.

If you want to contact AFRTS to comment either way on the demise of their s.w. operation, the address is 601 North Fairfax Street, Suite 360, Alexandria Virginia 22314 USA. Personally I will miss this chance to hear news as Americans hear it.

Abbreviations

<table>
<thead>
<tr>
<th>Abbreviations</th>
<th>Description</th>
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<tbody>
<tr>
<td>AFN</td>
<td>American Forces Network</td>
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<tr>
<td>AFRTS</td>
<td>Armed Forces Radio &amp; TV Service</td>
</tr>
<tr>
<td>a.m.</td>
<td>amplitude modulation</td>
</tr>
<tr>
<td>BBC</td>
<td>British Broadcasting Corporation</td>
</tr>
<tr>
<td>FCC</td>
<td>Federal Communications Commission</td>
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<tr>
<td>f.m.</td>
<td>frequency modulation</td>
</tr>
<tr>
<td>INMARSAT</td>
<td>International Maritime Satellite Organisation</td>
</tr>
<tr>
<td>ITU</td>
<td>International Telecommunications Union</td>
</tr>
<tr>
<td>kHz</td>
<td>kilohertz</td>
</tr>
<tr>
<td>kW</td>
<td>kilowatt</td>
</tr>
<tr>
<td>l.w</td>
<td>long wave</td>
</tr>
<tr>
<td>MHz</td>
<td>Megahertz</td>
</tr>
<tr>
<td>m.w.</td>
<td>medium wave</td>
</tr>
<tr>
<td>NAB</td>
<td>National Association of Broadcasters</td>
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<tr>
<td>s.w.</td>
<td>short wave</td>
</tr>
<tr>
<td>UTC</td>
<td>Coordinated Universal Time</td>
</tr>
<tr>
<td>GMT</td>
<td>01-01-01</td>
</tr>
<tr>
<td>v.h.f.</td>
<td>very high frequency</td>
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</table>
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IT'S HERE AT LAST!

Bearcat's latest high technology scanner is now available in this country. It covers 10" mtrs, 6" mtrs, Airband, 250kHz 125kHz, UHF and 950/960 kHz. The UBC 200LXT is the hand held scanner with the latest facilities 850-9500MHz in 12kHz steps, 200 memories in 10 Banks. Super LCD Backlight for discreet listening in the dark, detachable Nicad pack. C.W. charger @ £249.00 (£5.00 P&F).

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<tr>
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<th>Scanners</th>
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<tr>
<td>Yaesu FT757GX/HS 100W</td>
<td>£165</td>
</tr>
<tr>
<td>Yaesu FT720R/HS/VC 45W</td>
<td>£190</td>
</tr>
<tr>
<td>Yaesu FT757UV/HS/FF</td>
<td>£355</td>
</tr>
<tr>
<td>Kenpro + KT2000E/HS/FF</td>
<td>£169</td>
</tr>
<tr>
<td>Kenpro + KT4000E/HS/FF</td>
<td>£169</td>
</tr>
<tr>
<td>CTE1600/HS/FF</td>
<td>£169</td>
</tr>
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</table>

All units sold on first come first served basis while stocks last. Equipment is now or where stated *Ex-demon. All units have full warranty.

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- SONY SW 1000 Shortwave Receiver £175.00
- SONY SW 1000 Shortwave Receiver £175.00

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Practical Wireless December 1988 issue

- IN THE KNOW . . . an 8 page feature to help you find components, materials & information
- Build the “PW Marlborough” LF/MF to HF converter
- HEINRICH HERTZ Father of Radio?
- Plus your favourite regular features

On Sale at your Newsagent NOW!
THE WIN-108 AIRBAND RECEIVER

Godfrey Manning G4GLM

What impression does the WIN-108 handheld airband receiver give its user? Godfrey Manning answers the question.

from having any (unintentional) effect when it is placed in its ON position. A 33mm speaker hides behind the lower left area of the panel.

Functions

Three modes of operation permit direct tuning of frequency (and entering frequencies in the memories); scanning of any or all of a group of memorised channels; and searching any continuous section within the band to see if any signals are present. The MOD key cycles from one mode to the next at each press. Direct entry of the required frequency (in DIRECT model) is easy: the first five digits are tapped out and then the EXE (execute) button is pressed. Untill pressing EXE the set continues with the old frequency and will also revert to this if there is a long delay during key-tapping (e.g. if you get muddled and don’t want to change frequency after all). There is no decimal point button and the sixth digit is deduced by the radio. As with most functions, a single beep indicates success and two bleeps signals an error. The bleeper is a separate piezo transducer and is neither heard in the earpiece nor cut out when the earpiece jack is inserted.

**“Tuning the dial”** is actually accomplished by pressing the + or – keys. Brief taps on the buttons advance one channel at a time; press, hold, then release leaves the set churning through each successive frequency until an occupied channel is found. If the band edge is encountered, the frequency flips back to the other end of the band and tuning continues. As with all signal-search functions, the DELAY/HOLD slide switch affects the outcome of locating a busy channel.

Once the signal has gone off, the set will wait a couple of seconds (so as not to miss any reply or further signal) before resuming its search assuming DELAY has been selected, but with HOLD in use instead, the search stops altogether as soon as a signal opens the squelch and the receiver remains on frequency until told to do otherwise. This arrangement has a major problem; the set will lock on to a busy channel where the gaps between transmissions are always less than the DELAY waiting time. In the meantime, other frequencies might have traffic on them but the set won’t go and look at them. This is a more serious problem with scanning (see below). What is needed is an option to neither HOLD nor DELAY but rather to continue the scan as soon as the signal goes off.

The **PRIORITy** channel can be activated by putting its switch to ON. No matter what frequency is displayed, the set listens briefly and at rapid intervals to a predetermined priority channel. When this happens at a time when the priority channel is quiet there is no obvious effect on scanning but there is a momentary interruption to any signal that’s already being received. However, if there is a signal on the priority channel then the set drops what it was doing and now receives this new transmission. The DELAY/HOLD has its usual effect once the priority channel ceases. PRIORITY works during DIRECT and SCAN modes. The **PRIORITy** frequency is actually held in memory zero.

Accessing the memories is the last function available in DIRECT mode. There are two sets of 10 memories, only one set capable of being used at any one time as determined by the MEMORY switch with its A or B settings. Remember that the **PRIORITy** channel will be indicated by the currently selected memory 0, be it from group A or group B.

With a frequency tuned in, the memory number to be loaded (0 through to 9) is
chosen by pressing the appropriate button whilst simultaneously holding down the ENT (enter) button. To recall a memory, the sequence is to press RCL (recall) and then the appropriate 0-9 number. But beware: holding RCL and simultaneously pressing the number button has a different effect; it locks out the memory for scanning even when DIRECT mode is in use! This takes a little learning and is unnecessarily fiddly.

Memories are held during battery changes provided you restore power in about four minutes (although I made it last out a quarter of an hour!). Memory keep-alive drain was about 16µA (with the set switched off) which would take three times the shelf life of an MN1500 battery to drain! Memory is also retained on external power when the set is switched off and batteries are removed.

I found all of the buttons much too close together for my ordinary-sized fingers and any simultaneous keystrokes were rather difficult. The buttons themselves are a cheap rubber type and tend to jam under the front panel because they slide a little sideways when pressed.

Having set up a group of 10 frequencies of interest, it is possible to scan through them and either DELAY or HOLD whenever a signal is found. The + and — keys again step through the memories when tapped or scan continuously if held down for a moment. Current memory is indicated by a number in the I.c.d. If any channel is unwanted in the scan it can be omitted (locked out) as mentioned above; its channel number now flashes in the I.c.d. Only the PRIORITY channel 0 is immune from locking out.

It is here that the lack of a “non-delay” option will be apparent. Suppose a tower, an approach and a ground movements frequency are being scanned in three memories. The tower is so busy that the DELAY will ensure that the scan never moves off this frequency. The infrequent ground movement calls will be missed. If there were no delay, scanning would continue in the brief gaps between tower calls and offer a good chance of catching a ground movements transmission at that moment. Of course, ground movements could be put on PRIORITY so that it will be checked but that doesn’t solve the problem of also listening to approach because there can only be one and not two priority channels in use at a time. I think that this deficiency will prove to be quite a nuisance under many conditions.

Finally comes the search mode. A lower and an upper frequency bound are chosen and all frequencies between them are checked in order. The lower frequency is tapped in followed by EXE and then entered into its special memory by holding down ENT and hitting the — button at the same time. The upper limit is entered in the same way except that the + button is used instead. Then searching begins: the + and — buttons determine the direction of search by being held a moment then released. DELAY/HOLD is operative but PRIORITY is not. On hitting one of the boundaries, the search flips over to the opposite limit and continues again.

Using the Receiver

Putting a signal into the set shows the selectivity to have a pleasing value; adjacent 25kHz channels are adequately rejected but it should be possible to receive co-channel offset stations such as most VOLMET broadcasts. Sensitivity (signal-to-noise ratio) is subjectively a little lacking, background noise being rather more than hoped for at all times. The audio quality is very scratchy through both the internal speaker and the earpiece.

It was hoped to obtain some improvement by using an external speaker and although the earpiece output will drive such a speaker the sound quality is still thinner than expected.

If the fiddly buttons are overcome, the scanning works as advertised. Testing this is easy if a signal is imitated by manually opening the squelch. When using any scanner remember that detection of an occupied frequency relies on the squelch being opened and not on a signal being present.

General Impression

The scanning facilities are comprehensive and work. It is unfortunate that the tiny “cost-reduced” keypad and the awkward distinction between activating channel lock-out and memory recall make operation more difficult than necessary. The inability to cancel the DELAY on finding a busy channel will prove to be a serious handicap under some conditions.

It’s a shame that a recently-introduced receiver does not include the 1MHz extension to the airband that seems likely next year.

Sensitivity and audio quality are disappointing. The manual hopefully suggests that the set may be used as a “professional monitor” but I don’t think that it’s Civil Aviation Authority approved for use as a standby receiver. The 6 volt power requirement needs attention if running from a vehicle battery. The small size is attractive for portable use.

Any choice of commercial equipment is a compromise and boils down to cost-effectiveness in the final analysis. Lowe Electronics Ltd., Chesterfield Road, Matlock, Derbyshire DE4 5LE. Tel: (0629) 580800. who are thanked for the loan of the review sample, have clearly positioned the receiver at the cheaper end of the scanner market since it retails at £175 including VAT.
**SHORT WAVE MAGAZINE DECEMBER 1988**

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INTRODUCTION TO DX-TV

With the TV-DX hobby fast gaining status among many radio amateur enthusiasts it is not uncommon to discover TV receiving equipment alongside the usual amateur gear in the shack. The latter place is always considered a place of cozy retreat by enthusiasts. Apart from allowing the hobby to follow a more professional approach, it also provides a means of escape from the rigours of household chores such as getting roped into yet another weekend of MFI furniture construction.

Unfortunately a garden shed isn’t the kindest of places for the operation and storage of valuable equipment, such as colour TV receivers and video recorders, especially with the soaring crime rate of today. The antenna cables entering the shed or shack only emphasise where the valuable equipment is at hand.

Long distance reception can occur at virtually any time of the year but unless you are really dedicated, there is little incentive, especially during the winter months, to clamber out of bed and shovel away the snow to clear a pathway to the shed at 6am, only to discover that the bands are completely empty!

Neither is it a good idea to use the domestic receiver in the corner of the lounge as a DX monitor. You can guarantee that as soon as an exotic test card of Arabic origin flutters into view, the head of the household will promptly announce that it’s time for her to watch Neighbours.

Ideal Home

Many homes have a utility room going begging, which when cleared of the usual collection of junk, such as unwanted prize bingo wins and Majorcan donkeys, makes an ideal retreat for the hobby. Failing this, a corner of the lounge, dining room or even the bedroom will suffice. The latter option does have lots of attractive advantages, such as DXing from the warmth and snugness of the Slumberland.

Seriously though, some thought as to where your DXing activities can comfortably take place will ensure that you can DX and be getting on with other things at the same time without disrupting family life too much. With compact DX-TV receiver set-ups now gaining popularity, the equipment need not take up much space than an average-sized desk-top word processor.

A little thought will be necessary if you intend to operate more than one TV receiver as most enthusiasts do. This will mean resorting to the use of distribution amplifiers for the various signal feeds to each receiver. The biggest headache is concealing mains and coaxial cables. The latter, especially if of the low-loss type with its springy behaviour, is not the easiest of things to hide and keep tidy.

Despite what you may think, long-distance TV reception is still possible throughout the gloomy winter months. In this part we take a look at ways of organising a comfortable shack for monitoring DX-TV reception and also examine the modes of propagation encountered during the winter.

Bench System

One of the authors operates at least five monitors and the number of cables and accessories would normally be unsightly if it wasn’t for the way in which the storage system was designed. In its basic form it consists of a floor-standing cupboard/bench system construction from Contiboard sheets – see Fig 1. The bench top is constructed of two lengths of similar Contiboard sheeting but not permanently affixed to the structure. This means that they can be slid forward a couple of inches without removing or disrupting the receivers to allow the various cables to be passed into the main cupboard where the distribution equipment and mains supply strips are housed. With this arrangement, no holes have to be drilled to feed coaxial and mains leads through to the receivers – a practice not recommended from the safety point of view. Consequently, any of the receivers can easily be removed complete with mains plug. Also, additional cables can be introduced at any time should extra receivers need to be pressed into service. The sliding cupboard doors allow easy access to the auxiliary equipment such as filters, etc., and when closed these neatly hide all the cables, etc., thus making the system look presentable to the non-technical eye but at the same time remaining functional. Small portable TV receivers can be conveniently housed inside a boxed shelf system made from a Contiboard sheet. The box is better left open at the back for access to the various receiver base controls such as the vertical hold and line hold. An open back will allow access to the various cables and help solve the problem of ventilation at the same time.

Safety Note

A word of safety regarding the condition of mains leads is perhaps called for at this stage. Always check that the insulation is not damaged in any way before fitting a mains plug. And always fit a plug. Don’t think that because you understand electronics and appreciate that a TV receiver chassis can be live you are immune from accidents, especially if you remove the rear cover to carry out internal adjustments. Even modern television receivers with a so-called half-live chassis are a source of danger. One of the authors managed to successfully annihilate a TV i.f. strip and a SECAM decoder when the earth lead of a 3-core mains cable just happened to brush the live connection when the bare ends were trapped in the mains socket by means of another plug.

If the various bits and pieces of electronic gadgetry are plugged into an extension mains socket strip there should be few problems with overloading. Masthead power supply units, antennarotators and portable receivers draw very little in the way of power but don’t expect the socket strip to cope with the demands of an electric kettle and a 2kW electric fire for the benefit of your comfort.

Keith Hamer and Garry Smith
Part 15

Fig. 1: Versatile bench and storage system for housing DX-TV equipment.
GUIDE TO FACSIMILE STATIONS

8th edition — June 1986
262 pages. ISBN 3-543-509-69-9

£14.95 or DM 40. —

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Reception Log
Keeping a log book containing your DX reception is all part of the hobby and can be invaluable when comparing reception with fellow enthusiasts. The main things to note are the date, the time of reception, the channel and what you have received. In the case of a test card, jot down the full identification rather than a shortened version. The reason for this is simple: occasionally the broadcasters change the test card identification by adding or abbreviating names. If you develop the habit of logging the identification accurately you will be able to spot any slight differences which are often looked upon as a kind of milestone by enthusiasts during test transmissions. Does anyone remember when the BBC-1 Test Card D developed a couple of white dots either side of the letter “D” way back in 1967? This actually marked the inauguration of BBC-2 colour on December 2.

It is useful to differentiate between the various types of programmes such as feature films, cookery programmes, children’s programmes, etc., although this can become tedious if you’re not careful. One TV-DXer recently remarked that he was no longer keeping a log because while he was writing things down he was missing signals!

An accurate clock is useful not only for referring to when making entries in the log but it also helps you to be aware of possible programme endings. Many programmes begin on the hour or half hour and are therefore the most likely times for identification captions to be shown by the broadcaster. Whether you keep the clock set to UK time or GMT is a matter of personal choice, but ensure that other DXers are aware of your preference when comparing logs.

The more dedicated enthusiast often has an active interest in weather trends, and the use of a barometer will indicate increasing pressure which may warn of impending tropospheric reception. On the other hand a falling reading may well indicate that the signals are about to disappear!

Essentials
Nowadays a video cassette recorder, rather than a still camera, is considered an essential tool by the enthusiast for accumulating examples of DX reception. It is best to have one solely for the hobby rather than have the domestic one commute between the lounge and the DX room: every time you feel something worth recording may appear. As we mentioned in an earlier article, some of the early Beta machines such as the Sanyo 9300 are capable of giving outstanding results with all types of DX signals thanks to the stability of the servo system employed. Some of these models can be bought second-hand for virtually nothing because no-one in their right mind would want such a heavy and ugly brute on show for domestic use!

A phone extension next to the DX equipment is a high priority where the long-distance TV enthusiast is concerned. It ensures that you aren’t miles away from the screen when someone rings to tease you about how a programme with Chinese subtitles keeps coming up out of the noise.

Another, but perhaps obvious suggestion, is to have various reference books handy such as test guides and station lists, etc. This will enable signals to be speedily identified. Other additional accessories for the DX room are an ample supply of pens, scrap paper for sketching test cards if you cannot record them, and perhaps a reliable fire extinguisher should the equipment start getting a little overheated with all the excitement!

Joking apart, a smoke detector represents a sound investment and many models are available at a cost of under £10. Most of us are guilty at leaving equipment switched on unattended for lengthy periods so it seems a sensible precaution to take.

Winter-time Viewing
The sporadic-E season is all too short — a familiar complaint voiced by most long-distance TV enthusiasts. Most newcomers to the hobby are delighted by the results obtained from sporadic-E DX reception between May and September, but despite the season reigning for some four months, the days fly by so quickly and the end is nigh before one realises it. To the DXer the onset of autumn not only means the threat of leaves falling from trees — it also means a dwindling supply of DX signals. Unfortunately, there’s very little we can do to extend the life of this natural phenomenon and once the sporadic-E season has well and truly finished the feeling can be likened to returning from your annual holiday abroad and realising that the sun is over for another year! While winter-time DXing can be very boring to some DXers, to others it presents a greater challenge!

The 1988 sporadic-E season seemed noticeably short and reception gently declined from about mid-August. In other years, intense sporadic-E openings have continued well into September. Within recent years good conditions have returned during October and in 1987 it was exceptional with examples of intense and long duration openings on many days.

Now What?
So once we’ve witnessed the last of the sporadic-E reception what do we do then? Once accustomed to signals being present almost every time the set is switched on during the summer the newcomer may be tempted to give up the hobby once the season is over. It can be extremely disheartening to painstakingly examine every channel while desperately rotating the antennas all to no avail.

The reception of foreign signals in Band I is possible on a daily basis. Indeed, the authors carried out an experiment between 1973 and 1983 and found that signals were present every day of the year although it must be stressed that there were one or two occasions where it was touch and go. Admittedly, many signals were of very short duration (mere
seconds) and sometimes the signal levels were so low that the received images were only just detectable on the screen. Never-\textemdash\textdagger\textdaggerdash, daily reception was possible and a log was kept to show this achievement.

\textbf{Constant Monitoring}

Dedicated enthusiasts leave at least one receiver running all day tuned to one of the lower Band I channels such as R1 or E2 in their search for winter-time signals. It isn't necessary to stare at the screen, or screens, the whole time although some DXers do! If a small-screen set is used for signal monitoring there is no reason why this could not be left running next to the domestic set so one can keep on eye open for DX while watching the Sunday afternoon horror movie.

If you happen to own a scanner, or the "de-luxe" version of the D-100 DX Converter System with sound take-off, it is possible to tune it so that any vision carriers are audible, rather than leave the TV receiver flickering away for long periods. Some enthusiasts have even devised DX alarms. In its crudest form an arrangement based on a signal-strength meter is used, consisting of a tuning system, i.f. and detector, to monitor specific DX channels, usually in Band I. The idea is that once a signal appears it will activate external circuitry when a pre-determined signal level is attained. Of course, this type of system does have its drawbacks. With widespread computer interference, bugging devices posing as baby alarms, illegal cordless telephone systems and other r.f. itinerants in Band I, such a system would invariably alert the DX enthusiast to this unwanted garbage! The more sophisticated designs rely on detecting the line sync pulses of an incoming television signal to activate some form of alarm circuitry.

\textbf{Out-Of-Season Sporadic-E}

There are various forms of propagation which are capable of rejuvenating the interest of the hobby throughout the harsh winter months. All of these have their own brand of behaviour, which can be unpredictable at times. Although sporadic-E is mainly regarded as a summer-time phenomenon, signals do occur occasionally throughout the winter period but the duration and intensity of the openings are not generally as impressive as those normally associated with the main season. Very often, a flurry of sporadic-E activity occurs around Christmas with signals from all over Europe. Of course, patience is required in order to witness many of these openings which could appear without warning when you least expect them! Should it be impractical to monitor the band continuously, then regular checking is the answer.

\textbf{Tropospheric Enhancement}

This is another well-known form of propagation which can occur at any time of the year. During the depths of winter it can provide very strong and stable signals for the TV DXer, very often of entertainment quality.

Although we have covered tropospheric reception in some depth in a previous article it may be best to briefly recap on its various characteristics. Tropospheric propagation is influenced by anticyclonic weather conditions associated with areas of high pressure. The presence of foggy weather, which is associated with such conditions, can also provide enhanced reception conditions. Sometimes, reception can last for several days with signals maximising during the evening but rapidly deteriorating towards mid-morning. However, this is not always the case — at the time of writing this article a tropospheric opening was present without too much deterioration during the course of the day.

\textbf{Pay Attention}

An increase in signal level from a normally weak semi-local transmission source is a good indication that such conditions are improving. Enthusiasts with sensitive antenna systems, even in central areas of the United Kingdom, can usually detect weak continental transmissions in Band III and sometimes at u.h.f. on a daily basis. Any increase in signal level from transmitters at these distances should certainly be taken note of.

From a typical site in the central area of the UK, tropospheric DX reception can be expected from France, Belgium, the Netherlands and West Germany. The better openings will provide additional signals from East Germany, Denmark, Switzerland and Scandinavia. A rare super-duper opening could mean the appearance of Polish, Austrian and Czechoslovakian transmitters in Band III or at u.h.f. Band III and u.h.f. frequencies are affected more than Band I.

Tropospheric signals are usually stable with slow fading — a vastly different behaviour to sporadic-E reception. At u.h.f. co-channel interference can mar the local transmission as well as the DX signal at times, but occasionally pictures are clear and as good as you would obtain from the local transmitter. Whether you simply log the stations or view them for amusement will largely depend on your attraction to the hobby.

\textbf{Meteor-Shower (MS) Reception}

Meteor showers can also assist DX signals. In fact, reception is possible every day of the year via ionised meteor trails. Much of the reception will be of short duration, sometimes lasting only a second or two. It is possible that many DXers have experienced this form of reception without appreciating that it is a mode of propagation which is completely different from sporadic-E. On the other hand they may feel that the results obtained are so short-lived and so insignificant that this type of propagation is not worth bothering with.

These bursts or "pings" are due to signal refraction from an ionised trail generated when meteor particles burn up on entering the earth's upper atmosphere. Pictures may appear briefly or in quick succession, but often their origin can be quickly deduced, especially if a recognisable test card or caption is received. It goes without saying that the receiver timebases must respond and synchronise instantly and you must know

---

\textbf{Fig. 3:} A lounge set-up this time. A storage system similar to the one described is used to house and conceal the various pieces of equipment.

\textbf{Fig. 4:} Mid-winter reception via tropospheric enhancement in Band III from the West German transmitter at Dillberg.

\textbf{Fig. 5:} Sporadic-E reception is still possible even in the depths of winter as this photo shows, taken in January 1988. Russian TV Channel R1.
INTRODUCTION TO DX-TV

exactly where to locate the various channels. FM radio signals can also be propagated by the same means. Unfortunately, their short duration means that identification will be virtually impossible unless you are an active f.m. listener and can recognise snippets of the various programmes. A radio with a digital frequency readout is a must for accurate logging and identification of f.m. signals.

Peak Dates

On certain dates of the year, meteor-shower activity can reach a peak. These dates are reasonably predictable and reference can be found in many books dealing with the subject of astronomy. Note that the dates are not always the same every year although usually very close. Sometimes, peak activity is limited to a couple of hours on the appropriate day when the frequency or number of “pings” will reach a maximum. Some enthusiasts have commented that the activity of certain meteor showers varies every year. There are two explanations for this. Firstly, peak activity might occur during the early hours when the DXer is not monitoring. Secondly, the shower will not necessarily peak over Europe — it could peak somewhere else in the northern hemisphere, over Canada for example.

Some meteor showers are insignificant and are not worth getting excited about in advance. On the other hand, some peaks are more active than others and deserve a mention in your diary. Two excellent peaks occur during the winter. The Quadrantids peak in early January, normally on the 3rd or 4th. The Perseids is another excellent one which peaks between August 9 and 13. All of these showers can generate sustained activity throughout Bands I and II producing a deluge of simultaneous signals, not unlike patchy sporadic-E reception rather than short solitary bursts. In fact, it is all too easy to confuse the two types of propagation during active showers!

Band III Affected

Reception is also possible at Band III frequencies, particularly on the lower channels E5, E6 and R7. Reception distances will be roughly the same as for sporadic-E propagation, i.e. approximately 700 – 1200 miles. Several years ago, at the beginning of January, one of the authors saw the Finnish test card flutter up on channel E9 for a few seconds. This year, another enthusiast noted this particular station on E9 and also the Swedish test pattern on channel E8.

Some of the more significant meteor showers and approximate peaking dates are listed below:

<table>
<thead>
<tr>
<th>Meteor Shower</th>
<th>Approx Peaking Dates</th>
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<tbody>
<tr>
<td>Quadrantids</td>
<td>January 3 – 4</td>
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<tr>
<td>Lyrids</td>
<td>April 22</td>
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<tr>
<td>Eta Aquarids</td>
<td>May 3 – 5</td>
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<tr>
<td>Omicron Cetiids</td>
<td>May 14</td>
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<tr>
<td>Perseids</td>
<td>August 12 – 14</td>
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<tr>
<td>Orionids</td>
<td>November 13</td>
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<tr>
<td>Taurids</td>
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<td>Geminids</td>
<td>December 12 – 14</td>
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<tr>
<td>Ursids</td>
<td>December 21</td>
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RADIOACTIVE IN DUBLIN

Dublin amateurs came out of the woodwork and not just in E1 but also in Dublin Australia, New Zealand, Virginia, Pennsylvania, Texas, New Hampshire, Georgia and even Dublin village on Banana Island off Sierra Leone.

Dubliners were united and the reason being is that Dublin is celebrating 1000 years since its foundation as a city.

A special millennium group from the Irish Radio Transmitters Society re-activated the callsign E1000, it was last used to bring in the millennium year on January 1 and began its 24 hour operation at 12 midnight. The entire event took months to plan and considerable research and correspondence as well as detailed propagation forecasts were needed to facilitate the operation.

The station which consisted of a Yaesu FT-707 and 757GX and two linear amplifiers were located on the top floor of an office block which has since been built on the ancient Viking City. A Mosley 3-element Yagi towered over the surrounding landscape.

Another station which was open to the public was operational from the General Post Office in O’Connell Street where a live v.h.f. to h.f. patch system to the main station worked well.

Finally a third station was operational to the IRTS and congratulate the group on a fine effort.

A unique pre-stamped QSL card from the Irish Postal Service is available direct at PO Box 2223 Dublin 1.

The next event planned for the millennium will take place on July 10 and it is hoped to run a portable special event station in the Phoenix Park in the centre of Dublin to coincide with an Amateur Radio Emergency Network exercise.

Shane Halpin E14GE

Activity the like of which is seldom seen or heard in E1 abounded in the capital city of Dublin last St. Patrick’s Day March 17.

from Fingal Radio Club on v.h.f./u.h.f.

The Lord Mayor Carmencita Hederman arrived at the GPO to pass on best wishes to the operators and log keepers of E1000 hard at work for the millennium station.
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As far as we are aware, there is nothing else like this unit available. It is definitely not to be confused with other preselectors, active ATU's, active antennas or the knob on your receiver marked 'Preselector'.

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170 GOLDHAWK ROAD

LONDON W12
The RF – B10 is a neat little receiver, ideal for carrying around as it is small enough to fit into a pocket or even the wife’s handbag. The case is moulded in the now almost de rigueur matt black plastics with half of the front face being taken up by the tuning scales.

Controls
The controls are very simple — there are three push-bars under the dial, two select between FM and MW – SW and also act as the on switch, whilst the third turns the set off. On the left-hand edge are the VOLUME control and TONE switch as well as the 3.5mm headphone jack socket. The other end carries a HOLD switch — used to lock the set either on or off for travelling purposes — a LOCAL/ATTEN switch, and the tuning knob. A slider on the top of the case, directly over the dial functions as a wave-change switch for selecting the six s.w. bands and the m.w. band. The band selected is indicated in a small window at the top of the dial.

The set is powered by two UM – 3 (AA) size dry cells carried in a compartment in the back. There is no provision for using any form of external power supply.

The Dial
The dial is split into eight vertical columns, one for each of the bands covered by the set. Tuning the tuning knob moves a horizontal metal bar up or down the scales, all of which, except for the m.w. scale, are “calibrated” in MHz. Calibrated is probably too generous a term as the “scale” consists of a few irregularly spaced frequencies without the benefit of any form of markers. About two and a half turns are needed to move the pointer from one end of the scale to the other. Although this may sound to be rather coarse I found no real difficulty in tuning in to a broadcast station on any of the bands. A small red i.e.d. at the bottom left of the dial gave an indication when a station was correctly tuned.

Short wave receivers seem to be getting smaller and smaller while still retaining a creditable performance. The Panasonic RF-B10 is small enough to be taken on holiday and has a performance belying its size.

Antennas
For use on the m.w. band an internal ferrite rod antenna provides the signal whilst for the other bands covered a telescopic antenna, 530mm long, is provided mounted on a swivel on the top of the set. The antenna fold down flush with the top of the set, clipping into place so that it can be fitted into the neat, suede, carrying case. This case has a Velcro fastener for the “lid” and should protect the set really well. The wrist strap, which is permanently attached to the set, is fed through a hole in the side of the case. Unfortunately, the design of the case means that the set has to be removed completely before it can be operated and this is a rather fiddly task. Putting the set back into the case is even more awkward! There is also no provision in the case for the earpiece supplied with the RF – B10.

The tone control is a two position slide switch and for listening to v.h.f. stations I found that I preferred the low setting, the high position reducing the bass a little too much. For listening on short waves the switch can be set to either position depending on the brightness of the sound, the low setting reducing the rather tiring “hash” considerably. The other control of note is marked SENS and is another two-position slide switch operating the attenuator. The two positions are ox and LOCAL and the latter setting is useful for preventing powerful stations overloading the input.

The instruction manual suggests using the ox position for normal listening changing to LOCAL if reception is impaired or interfered with by powerful stations.

The handbook provided with the RF-B10 is a small, 48 page booklet written in several different languages. There is only the barest of operating instructions with no real information on how to get the best from the set. I think that a fair proportion of potential buyers of the RF-B10 will not have any idea of how to listen on s.w. and that any instruction book should offer some sort of help in this direction. I appreciate that it helps to reduce the printing costs of instruction books if they are multi-language but is it worth it if the result is of little use?

Performance
I was very impressed with the performance of the set, managing to tune the same broadcast stations as my Eddystone 940 on a long wire. Obviously it will only cope with a m. broadcast stations so that it has limited appeal to the serious short wave listener. However, for someone who wants to keep up with the news whilst on holiday or abroad on business the RF-B10 is ideal and at about £60 will not break the bank either. My thanks to Panasonic (UK) Ltd, 300-318 Bath Road, Slough, Berks SL1 6JB. Tel: (0753) 34522 who supplied the review sample.

Abbreviations

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<tr>
<th>a.m.</th>
<th>d.c.</th>
<th>f.m.</th>
<th>g</th>
<th>i.e.d.</th>
<th>m.M</th>
<th>m.w.</th>
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<td>amplitude modulation</td>
<td>direct current</td>
<td>frequency modulation</td>
<td>gram</td>
<td>light-emitting diode</td>
<td>megahertz</td>
<td>millimetre</td>
<td>medium wave</td>
<td>short wave</td>
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Specification

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<th>Frequency coverage</th>
<th>Sensitivity</th>
<th>Audio output</th>
<th>Power source</th>
<th>Dimensions</th>
<th>Weight</th>
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<tr>
<td>MW 520-1610kHz</td>
<td>m.w. 100µV; s.w. 4µV; f.m. 3µV</td>
<td>200mW into 4 ohms</td>
<td>3V d.c. 2 x UM-3</td>
<td>110 x 70 x 23mm</td>
<td>145g (without batteries)</td>
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- PANASONIC RF - B10
- Dick Ganderton

Short Wave Magazine December 1988
Don't worry, Sony haven't stooped to making bogus claims.

The companies opposite are all those who stock our shortwave radios. As you can see, the widest range of shortwaves is only available in a narrow range of shops.

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Speaking of which, at the other extreme is the ICF 2001D.

It does everything an enthusiast could want. And quite a few things he didn't know he wanted but will soon swear he couldn't do without. Like a synchronised detection system for instance, something you'd only expect in professional equipment.

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Whether it's a simple case of homesickness you want to cure, or an advanced case of 'enthusiast's fever', Sony shortwaves are the answer.

For a free trip around the World (well, its radio stations anyway), ask your nearest Sony Shortwave Centre for a free demonstration.
All our products are designed and made in Britain. Orders can be despatched within 48 hours subject to availability.
**Another New Hand-held**

News reaches me of another hand-held scanner shortly to become available from AOR. The final specification of the European version has not yet been finalised but it is expected to have all the features of the current model - the AR803E - plus one or two extras. These include five banks of 20 memory channels and five sets of programmable search limits, priority channel monitoring and an improved blue/green display backlight for night-time operation.

Rumour has it that it may include coverage of 225-400MHz in place of the more usual v.h.f. low-band range. If this is true, it should appeal to the many v.h.f. aircraft band listeners who may be looking for a hand-held receiver. The price? - I would think just under £300 - keep your eyes peeled for the first sightings!

**Antenna Improvements**

On the subject of hand-held scanners, reader Dave Hicks, has been experimenting with his new Bearcat BC200XL and finds that the performance can be improved by replacing the supplied helical antenna with a more suitable one. One solution is to use a telescopic antenna as suggested by Ian Smith in the September column. Dave however found that the antenna from his dual-band 144/430MHz hand-held amateur transceiver gave good performance on both the v.h.f. and u.h.f. bands as well as 934MHz.

In the interests of science I have tried a few different antennas on my hand-held scanner and have found much the same as Dave, the best type depends on the frequencies you most wish to listen to. If you just tend to monitor one band, for example the v.h.f. aircraft band then a ¼ wave whip or helical antenna tuned to the centre of the band may still be your best choice. However, I have found that the Yaesu YHA-27 dual-band antenna is about the same size as the supplied antenna and gives almost the same performance on 70,128 and 144MHz. However, on 430MHz it gives almost 6dB improvement and on 934MHz more than 10dB.

If you can tolerate a slightly longer antenna at 300mm the Comet CH-72S gives better performance on the lower v.h.f. bands, but less of an improvement on 934MHz. Beware of some types of dual-band antennas which have narrow band matching networks built-in, as these tend to only work over their specified frequency ranges.

A quick way of checking is to measure the d.c. resistance with a multimeter between the centre pin and the outer of the connector on the base of the antenna. If this produces a reading on the meter the chances are the antenna contains some form of matching network and is not suitable.

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**SCANNING**

**Alan Gardner**

A mixed bag this month in which Alan takes a look at hand-held scanners and turns his thoughts towards Christmas.

As a final point Dave wonders if anyone has discovered a modification which will provide manual a.m./f.m. switching on the BC200XL - I will pass on any information that is sent to me.

**Hand-held Performance**

A couple of readers have asked about the level of performance to be expected from hand-held scanners and what common problems they should look out for.

The first item to check is the frequency range of the scanner - will it cover the bands you are interested in? As far as I am aware, no hand-held scanner offers continuous coverage from 25-950MHz. However, many offer coverage of the more interesting parts of the spectrum.

Will the scanner tune in different frequency step sizes and can you manually switch between a.m. and f.m.? These are two of the most frequent points to trap the unwary. Generally sensitivity is not a problem with most current designs, the limiting factor as I mentioned before tends to be the supplied antenna.

A few scanners will operate outside the frequency bands specified by the manufacturer, however, the sensitivity outside these limits is usually poor. The reason for this is that the manufacturer must build some degree of tolerance into the design in order to allow for the spread in component values and alignment which normally occurs during production. For example, a receiver may be required to give a certain level of performance over a particular frequency range. In order to achieve this the designer actually provides tuning over a much larger range than is actually required in order to ensure that the specification can be met.

In most designs, tuning outside the specified ranges is prevented by the control circuits. However, with some designs the user may find a larger than expected frequency range but with reduced performance outside the specified limits. This should be looked upon as a bonus, providing the user is aware of the limitations.

The other problem which may occur with any scanner is one of spurious responses or “birdies”. This tends to be worse in hand-held designs as a lot of circuitry has to be squeezed into a small space. The main problems occur on the v.h.f. bands where harmonics of the switching signals, produced by the microprocessor/controller, tend to cause interference to received signals.

One other source is harmonics produced by the various crystal oscillators present in the receiver. These only occur on spot frequencies and as such are annoying but generally unavoidable in such wide frequency range designs.

A good test with any scanner is to disconnect the antenna and set the search limits to cover the entire range of each band. Make a note of the frequency each time the search stops and repeat this process until you have logged all the internally produced signals. Take a quick look down the list - you may be surprised at the number you have written down, it is quite common to log 30-40 with some receivers. Look at the difference between frequencies and - you may get a pattern emerging of around 10 or 20MHz between signals. These are probably harmonics of the i.f. conversion oscillators. If however they occur in small blocks of consecutive frequencies it is more likely that they are produced by the control or display circuits.

Reducing the level of these spurious signals is both difficult and expensive, in most cases, the manufacturers do the best they can for the price.

The same is true of another common design problem, how to reduce unwanted image responses. These are generally worse on the u.h.f. bands where the tuning of the i.f. circuits is much broader than at the lower frequencies. A more detailed description of how image responses occur was given in the June 1988 column but to summarise - it is possible to receive signals at twice the first i.f. away from the frequency to which the receiver is tuned, which can cause interference to the wanted signal.

Most modern designs offer a reasonable degree of image rejection usually by choosing 21.4MHz as the first i.f. instead of the 10.7MHz used in many earlier designs. This also helps to ease the r.f. stage design requirements.

**Christmas Time**

Turning our thoughts towards Christmas I thought that it may be a good time to take a quick look at a few items which would make good presents. One idea which came to mind is to leave the magazine lying around the house after high-lighting the relevant item with the brightest Day-Glo marker you can find, while hoping that Father Christmas’s scanner may just detect it!
Starting off with the inexpensive items first, how about some headphones — not only useful in reducing the annoyance caused to the rest of the family each time the squelch opens, but they also help to improve the intelligibility of noisy signals. Don’t bother with really expensive types as they tend to reproduce low frequencies too well, masking some of the more important mid-range frequencies. Try some of the cheap lightweight types intended for use with personal hi-fis.

I have seen some of these selling for as little as £1.50, so try a pair and hear the difference. They also come in useful if you have a hand-held scanner, as most people assume you are listening to a strange looking personal hi-fi.

Along the same lines, how about an external speaker for the scanner? Most receivers have very small internal speakers fitted, a vast improvement in quality can usually be made by connecting a reasonable size forward facing external speaker. Again this need not cost a lot, some of the “pod” speakers intended for parcel shelf mounting in cars are good for this purpose.

Slightly more upmarket are the models with built-in tone controls which allow you to “tailor” the sound to your own requirements. Car hi-fi “booster” amplifiers with built-in “graphic equalisers” can also be used for this purpose producing improved intelligibility.

Of course, books are always a favourite gift — great for settling down to after the Christmas pud! The SWM book service can help out here with a wide range of radio related titles. The two books by Peter Rouse, Scanners and Scanners 2 occupy prime position on my bookshelf as I find they are not only a good introduction to the hobby for the newcomer, but they also provide a handy reference for the more experienced listener.

Failing that — how about a years subscription to SWM? Just think of all that hassle you will save — going to the newsagent. I find that the last copy has just been sold!


... or even a handheld scanner?

Next on the list might be a cassette recorder. I find this invaluable for logging activity on a new-found frequency. If you have a squelch driven relay output on your scanner, or alternatively a cassette recorder with a built-in voice operated switch, you can leave the combination to automatically record signals. On returning you can play the tape back at your leisure, compressing several hours activity into just a few minutes. Try and get a model with a fast search facility if you can as this speeds the process up still further. I have also found that having some form of digital tape counter is an advantage.

Looking at slightly more expensive items — why not give those weak signals a boost by replacing that cheap coaxial cable you have been using? I know it’s not the sort of thing you tend to change without good reason, but why not give your scanner a treat. It’s quite surprising the difference good quality cable makes, particularly at u.h.f. where the losses tend to be more noticeable.

Antennas also make a big difference, so why not replace that temporary system you have been using since you first got the scanner with something a bit more professional (nearly every antenna system I have seen can be improved in some way). If your antenna is mounted inside the house, how about mounting it outside. Not only will this improve the strength of signals being received, it will also help to reduce pick-up of electrical interference generated by household appliances, particularly on the lower frequency v.h.f. bands.

Finally, if you are wondering what to do with the spare cash you have left over from trading in the “Rolls”, how about the most important item — a scanning receiver? Prices range from less than a hundred pounds for a hand-held model to — well, the sky’s the limit for some of the more upmarket professional models.

Information Exchange

Several readers have written to me asking if it is possible to contact other readers in order to exchange information and experiences related to scanning in general. I am at present trying to devise a means of achieving this. If you are interested in such a scheme and don’t mind such information being passed to other readers, perhaps you could drop me a line, giving me an idea of the sort of equipment you use and your particular interests. These will be included in the list. Enclose an s.a.e. and after I get a reasonable number of replies I will return a list to you.

I am not too happy about including full postal addresses in such information so perhaps one way around this would be to initially just include the area in which you live and a telephone number. If you have any alternative ideas let me know.

On the subject of letters, I believe that some letters sent to me around the time of the postal dispute may have become “misplaced” — if you have not received some form of confirmation to a letter sent around that time please write again.

As usual all letters to PO Box 1000, Eastleigh, Hants S05 5HB. Until next month — good listening and Happy Christmas!
Natural Sources of RFI

The atmospheric noises which Marconi encountered in those early days still trouble the modern listener. Thunderstorms occur in all large areas of the world and result in a natural form of r.f.i. known as atmospherics or static. When lightning discharges take place from earth to cloud, or from cloud to cloud, electromagnetic radiations are set up which cover a wide band of radio frequencies. The power in a single flash is enormous — often enough to light a whole city for a year, so a brief but intense burst of radiation is produced, which may well travel for hundreds of kilometres.

Because the resulting bursts of radiation cover such a wide band, it is not possible to tune them out at a receiving point, however the distribution of energy in each burst is greatest at low frequencies, so the effect becomes less noticeable as the frequency of reception is raised. Not all of the random electrical discharges which occur during a thunderstorm are of sufficient intensity to cause a visible lightning flash, nevertheless numerous low intensity discharges do also take place. When they occur close to a receiving site they contribute a cracking effect to the received background noise which serves as an accompaniment to the main static crashes.

The intensity of the atmospheres received from distant thunderstorms is affected by the propagation characteristics at different frequencies. Below 300kHz, they may be audible at all times of the day or night and a pronounced increase in their intensity will be observed as the frequency of reception is reduced. Between 500kHz and 2MHz they are of very low intensity during the daytime, because the skywave component is absorbed by the highly ionised D layer of the ionosphere see “Starting Out” SWM May 87. At night, however, the skywave component will be propagated efficiently and the effect of distant static will be appreciable. In the h.f. region (3 to 30MHz) the static from distant thunderstorms may be propagated to other areas of the world via the ionosphere.

In all areas of the world the static levels are higher during the summer than in the winter. A particularly high level of lightning activity exists near the equator.

One of the biggest problems encountered by a listener these days is r.f. interference (r.f.i.) — a simple name for a multitude of effects, all of which are likely to spoil the pleasures of DXing.

consequently the average static level in the tropical areas is some 15dB higher than in the cooler temperate zones, while in the much colder Arctic regions the level may be 25dB lower.

Each droplet of rain or hailstone that falls from an electrified cloud will carry a charge and any that strike an outside antenna will place a charge on it. In doing so, it will set up another form of natural r.f.i. known as precipitation static, whereby reception will be marred by a rapid ticking noise or even a hiss during heavy rain. If no easy path to earth exists, a very high potential can build up on the antenna and a distinct cracking noise and sparks may be produced at the point where it discharges to earth. In such circumstances it could be dangerous to touch the antenna, so always remember to earth an outdoor antenna before a storm or when not in use.

Although atmospheric noise predominates on frequencies up to about 20MHz, another form of natural r.f.i., called galactic noise extends from about 15MHz upwards. This stems mainly from our nearest star, which we call the sun, but some of the other stars also produce noise. Some areas of outer space which have few visible stars have also been found to produce noise. Sunlight agitates the molecules of our atmosphere and results in yet another form of natural r.f.i. known as sky noise — this becomes evident at frequencies above about 500MHz.

Man-Made RFI

Although normal forms of r.f.i. play a part in preventing reception, a far more serious problem arises from man-made r.f.i. Almost anything which man has designed to run by electricity can create r.f.i. in one form or another. In order to ensure that one item of electronic equipment can operate without disturbing another item of electronic equipment it is necessary to take specific measures to suppress unwanted radiations.

The r.f.i. from man-made sources can reach the receiver and other items of equipment by either radiation, conduction or induction. One of the most common forms of interference stems from the action of breaking an electrical circuit — this causes a spark discharge to occur, which produces both visible light and a short burst of radiated r.f. energy. When this burst of r.f.i. is detected in a nearby receiver a sharp click is heard from the loudspeaker if the contact break was quick and clean, but a device with contacts which open slowly, such as a thermostat, usually produces characteristic “bzzt, bzzt”. In fact many of the r.f.i. sounds from a receiver can give a clue to their origin.

Some of the common sources of radiated r.f.i. include light switches, electric fences used by some farmers, electric motors and d.c. generators which utilise commutation, buzzers and electric shavers which employ vibrating contact points, leakage across the insulators of high voltage power lines, neon advertising signs, trolley buses, electric trains and the spark ignition systems used with petrol engines in cars, motorcycles and lawn mowers. In fact any item of electrical equipment in which a spark is produced, however minute, will result in radiated r.f.i. unless steps are taken to suppress it at the source.

Fortunately for all of us, some legislation was introduced a few decades ago which requires the manufacturers of certain types of electrical equipment to take steps to ensure that adequate r.f.i. suppression is incorporated into their designs. Not many years ago, ignition interference used to plague the DXer and the TV viewer, but adequate suppression is now compulsory and this form of interference has been greatly reduced.

Although some forms of r.f.i. have been alleviated as a direct result of legislation, many others still remain. Unfortunately very few manufacturers of electronic equipment such as TV and radio receivers, hi-fi equipment, electronic organs, video recorders and microcomputers are willing to incorporate sufficient protection devices into their designs to prevent them from either causing, or being affected by, r.f.i. The truth is that the cost of doing so is likely to place them at a disadvantage with their competitors.

One of the most common problems which listeners and DXers have to contend with these days is the interference caused by direct radiation from the “line timebase” oscillator and amplifier circuits used in television receivers. The line oscillator generates a sawtooth waveform on 15.625kHz which is rich in harmonics and multiples of that frequency are radiated as r.f.i. The harmonics from the line timebase of a nearby television set may well be audible on the long, medium and short wave bands of a portable receiver which uses built-in antennas.

In built-up areas, where large numbers of TV sets are in use during the evening, this form of r.f.i. can pose a serious problem for the DXer — in some cases this may prove to be insurmountable. Some improvement in s.w. reception may be obtained by erecting an outdoor dipole antenna as high up as and as far away as possible from the nearest TV set. A convenient length of 75ohm balanced twin feeder may be used between the
antenna and a 1:1 balanced to unbalanced transformer (balun) mounted at ground level. Any length of 75ohm coaxial cable may then be used to link the balun to the coaxial antenna socket on a well screened receiver.

Some types of interference may travel along the mains wiring in a building or via supply cables from another area by means of conduction. The most effective way of dealing with this type of r.f.i. is to prevent it from leaving the source by installing a simple filter consisting of r.f. chokes and disc ceramic capacitors close to the point of origin — see Fig. 1a. Some improvement may also be obtained by installing a mains filter in the supply lead to the receiver — see Fig. 1b. Note that a mains filter will be ineffective if the r.f.i. is also being radiated by the power wiring.

Listeners who have high voltage power lines running close to their property can experience r.f.i. problems caused by electrostatic induction. Very strong electric fields surround these lines and they can induce a charge on nearby metal objects. The induced voltage will be proportional to the capacitances between the line and the metal object and also between the object and earth. Although these capacitances may be very small, the induced potential may be quite high due to the high impedances involved. When any of these charged metal objects make intermittent contact an electrostatic discharge may take place and r.f.i. results.

Typical causes are loose joints in metal gutters and drain pipes, or loose corrugated iron sheets used on some garage roofs and outbuildings. A cure may be effected by bonding the joints so that potential differences cannot arise.

### Abbreviations

| a.c. | alternating current       |
| d.c. | direct current            |
| dB  | decibel                   |
| h.f. | high frequency            |
| i.f. | intermediate frequency    |
| i/p | input                     |
| kHz | kilohertz                 |
| MHz | megahertz                 |
| V   | volt                      |
| s.w. | short wave                |
| s.w.g. | standard wire gauge |
| R  | receiver                  |
| TV  | television                |

### Noise Reduction

The level of man made r.f.i. in remote rural areas is often quite low or even non-existent, but a very high level exists in most major towns and cities which can easily mask the weaker radio signals. In theory the best place to eliminate it is at the source, but that may not always be practical and in many cases the origin of the interference may be unknown to the listener. An alternative approach is to incorporate additional circuits in the receiver which are capable of limiting or rejecting the noise resulting from certain types of r.f.i.

In the more congested areas some types of r.f.i. result in impulse noise. One type produces a "hiss" from the receiver which may prevent all but the most potent signals from being heard. It stems from the overlap r.f.i. pulses generated by an unsuppressed commutator in an electric motor. Another type takes the form of an annoying "pistol shot" effect. It originates from a single spark discharge which produces a high intensity r.f.i. pulse. A series of spark discharges results in a "machine gun" effect which may seriously disrupt reception.

The effects of impulse noise may be reduced by employing a noise limiter after the detector in a receiver. One of two basic configurations may be used, namely series or shunt. The circuit of a series limiter is shown in Fig. 2a. A forward biased diode (D1) acts as a gate and only permits signals below a certain amplitude to pass to the audio amplifier stages. When a high amplitude noise pulse comes along it will reverse bias the diode, causing it to cut off momentarily, thus the interfering pulse will be effectively replaced by a small hole in the wanted signal. The human ear is much less disturbed by brief holes in a signal than by peaks of noise, so the subjective effect is a noticeable improvement in reception!

Two diodes (D1/D2) are used in the shunt limiter shown in Fig. 2b. The variable resistor (R3) enables the reverse bias applied to the diodes to be set so that they do not conduct when normal audio signal levels are present. When a high amplitude noise pulse arrives, its positive and negative excursions will cause the diodes to be driven hard into conduction, thereby momentarily shorting the audio to earth. Some improvement in the performance of a shunt limiter can be obtained by installing it across the primary winding of the last i.f. transformer rather than in the a.f. stages of the receiver.

There are a number of more advanced techniques which can be employed in a receiver to limit the effects of impulse noise — these will be outlined in this series next month.
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Please note that the AMTOR section only receives ARQ mode (mode A) but is the most common mode and covers a lot of commercial TQR stations, also.

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The question of which band to use when hunting DX is always of interest.

Those we know and have been "tuned up" on the why and how of antennas will be aware that, say, a 145MHz and a 14MHz, which is a wide spread, have an identical pattern at their resonant frequency given only that each is the same number of wavelengths above an ideal ground. However, that same spread, on the one hand the 145MHz dipole would be at about 0.965m above ground, while the 14MHz one must be some 10 meters up.

Most of us are "stuck with" our amateur resident area constraints. Considering the last paragraph, it becomes pretty clear that if we replace the 14MHz dipole with a 28MHz one, we have increased the effective height from a half-wave length to one a whole wavelength, or bringing in the usual little bit of height you can gain is useful on the lower frequencies in particular, and it is still worth the trouble to elevate the antenna even for 28MHz. It is worth noting that the extra height also helps to get one out of the noise field, and a 28MHz one is so noticeable within the average home.

A second point to come out of the study of these drawings of antenna patterns is that a low antenna with a low dipole antenna—a quarter wave or less high—spits most of its pattern straight up in the air and very little out sideways. A beam at the same height will give NO improvement in the angle of the lowest singlelobe (the one we want for DX) which is of largely superseded the straight-up-in-the-air lobe and hence give the practical impact of much more gain than is theoretically possible.

However, a low-mounted beam can be turned efficiently. First of all, there is no possibility of just cutting it up and hanging it: long odds it'll "fall up to a foot of each end off before it comes to resonance. Secondly while some low beams work well after properly tuning-up, others, for various local reasons just totally refuse to pity. In this case, you are better off by far to forget the beam idea in favour of a dipole, alone, or even a Best Wind Tire.

Letters

Let's make a start with Phil Mead G6KJF (Amberley, Sussex) reading the Rules, and having difficulty making head or tail of 'em. Oh, dear! Finely, DXCC practices means "prefixes emanating from any country which appears in the DXCC Countries List." In effect this means that you can use any prefix that is listed as your standard, since any such prefix will be noted there. If the prefix is a brand new one, they'll tell you to get your hands in to Good Watts list by the time the claim is made. It is assumed you have verified your hearing cards, and so we may—normally you'd ask to see a selection of the QSLs as part of our processing of the Award. As to the question of how much to log for any given contact, the essentials are time UTC, band, frequency as near as you can manage with slow motion effects (if any),

you have the tuning capacitor giving a reasonably "flat" peak (meaning that if it is not exactly flat, it is not too sharp at, with very roughly about 1.5pF for every metre of wavelength as judged by just. Then compare the signal with the antenna directly coupled, and through the a.t.u., you should expect to find a couple of 5-points or even more. After you have the single-band a.t.u. up and running, you can try a multi-band version. If it all else fails, you can easily switch back on to a single one before you buy that you do in fact need an a.t.u.—there are one or two cases to 14MHz minus the intermediate change of topic. Tony wonders just how well he has done to; to which I have to answer "Pretty Well!"

The Bronze and Silver Awards should be relatively easy to claim, especially over both contest weekend, but hopefully the Gold should prove no challenge. Mind you, don't rush to send in your claims too quickly—don't want to have to sign anything or be asked for his own reciprocal licence. Graham's logs were for August and September. In Minnesota, Galesburg, wonders what the letters RABIC mean, Radio Amateur Ivalid and Blind Club. On a different tack, to receive s.s.b. on a a.m. receiver (Edmound) wants a "Call" anyone needs another receiver. Put the second receiver alongside the Vega, switch up on 14MHz. For an i.f., of 465kHz, then, this second receiver is tuned around 13.5-13.6MHz. Tune the second receiver back around until it is "in step with the computer," which is pretty much the" by eye."

Tony Dobson started in February with a Realistic 2004, then bought a converter for it and now has gone the whole way by persuading "she who must-be-obeyed" that a Kenwood R2000 is the right thing. It is coupled to some 2m of wire stretched out along the eaves and spaced off by "outriggers": the receiver was bought on August 26, and by 2100 clock the work was finished. Tony fairly "tuned up" the a.t.u. at 2230, alas, the unaccustomed exercise was too much and Tony almost fell over when the a.t.u. called it a day. For a question, Tony wonders whether an a.t.u. is worth while, would it think it very much worth the effort; brew one up for a single band first; a few turns shuffled by a tuning capacitor, with the feed to the receiver and the antenna both relying on the "cold". Fiddle until you get a "peak" of signal and continue adjusting turns until the next three deadlines are: December 19, January 16 and February 13.

and a suffix such as this could mean something if I knew the last symbol was a "check". However, if the latter then U85WE was heard in the far eastern end of USSR. As for Y4ASCE, I sincerely hope David will enrol in a local RAE class. That should bump up the local amateur sound for a while. Tony was able to come into contact with the local club if he hasn't done so already; on the other hand, thePacket will put it a in the QSL number of the old DM call. Y8 plus two digits plus suffix is invariably East Germany.

On we go to D. Pear (Mansfield) where the station was heard in a large RAE class. That should bump up the local amateur sound for a while. Tony was able to come into contact with the local club if he hasn't done so already; on the other hand, the Packet will put it a in the QSL number of the old DM call. Y8 plus two digits plus suffix is invariably East Germany.

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Well, the big news for this month has been the birth of our daughter, Ruth, on September 28 – just too late for last month’s issue. Needless to say this happy event has somewhat curtailed my monitoring this month, though fortunately I have received a bumper postbag.

My frequency list seems to be very popular and received even more exuberant postman! For those of you who haven’t heard of my list, it is a listing of utility stations heard by readers over the past three months or so and is continually updated. The only cost involved is an s.a.e. from anyone wanting a copy. Obviously the list is only as good as the contributions I receive and I hope those who have received their lists and find them useful will also send in some of their loggings so I can maintain the standard. If you would like a copy of the list just send a large s.a.e. to the address at the head of this column. Please don’t write to the SWM offices as they won’t know what you’re talking about. Sending a s.a.e. will ensure that I receive a reply from anyone who had to wait rather a long time for their frequency list, this was quite simply due to the fact that I started sending them off a couple of weeks ago. One of the main features of this decoder is that, with the exception of a suitable receiver and p.s.u., it is completely stand alone. The decoder is limited in the range of signals it can decode, but it can handle RTTY at 45 or 90 baud, FAX at 120 or 240 baud, and 450Hz in addition to c.w. Once the shift has been manually set, the speed and re/normal shift are automatically selected which is a good point, especially for newcomers. Although the internal display only shows 16 characters it scrolls from left to right and, according to Geoff, is very easy to read.

Incidentally the receivers used by Geoff are the popular Icom R-71 and a Trio R-2000. In addition to his station details Geoff has also included some of his loggings and corrections to the frequency list which have now been included.

If you are interested in more information on the ERA Microreader, look out for adverts in Short Wave Magazine.

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New Weathersats

It has been an exciting month for satellite enthusiasts. Since the good news last month on OKEAN J, we have three more weather satellites to study. The first of these is the new Chinese satellite, mentioned in last month's column (then with some degree of speculation). This earlier tentative information can now be confirmed and we are able to give the full data.

Feng-Yun-1

The Chinese have come into the commercial space launch business only relatively recently, but their progress and degree of success has been quite spectacular. Your columnist well remembers hearing the first Chinese "SINCOM-1" satellite, with its high frequency playing of the tune "The East is Red" announcing its dramatic presence. Many of us in those days, including government experts, spent many hours attempting to decipher the telemetry that followed the song. The change expected between eclipse and sunlight that would suggest battery and temperature changes could not be found, and it was only by pure accident did we discover that the tape was being recorded slowly during repeated attempts at analysis it was discovered the "telemetry" was in fact the audio tape of the song being wound.

The success of the Chinese over the past two years with their "Long March" rockets have now led to a superb weather satellite erected from a new launch site south of Beijing on 6 September. Feng-Yun-1, was picked up by NOAA's, transmitting two visible adjacent pictures — presumably the electronics were bought from the Americans. I expect that a second picture — perhaps infra-red — will be added soon!

NOAA-11

Yes — at last is In Orbit is finally lifted off after a really long wait on 24 September 1986, to become object number 8806A and NASA catalogue number 19531 in space. The latest Keplerian element set for this satellite is as follows:

Epoch Year: 88
Drag Factor/Decay: 2.036 Q
Inclination: 0.0012511
Right Ascension of Ascending Node: 210.5138
Eccentricity: 255.5823
Mean Anomaly: 104.4086
Mean Motion: 14.10025041
Orbit No. or Rev.: 32
Epoch: 29

A set of passes for East Anglia are given in Fig. 2 for the same week-end as your Short Wave Magazine arrives, i.e. 26 to 29 November inclusive. It will be seen that each successive day brings a satellite pass some ten minutes earlier than the previous, and the slight change of increment resulting gives a marginal daily shift, as with the other
NOAA weather satellite series. It is therefore simple to plot these on a day-by-day graph with the time on the horizontal axis and the day on the vertical to predict future passes. Lawrence Harris writes, "My first contact with NOAA-11 came on September 25 at 1428UTC on a westery pass. I knew that it had not been on for the previous passes since I had been tracking METEOR-3 on August 1. Lawrence says that it transmits visible pictures in daylight including grey scale and black and white, some 15-20 or so in number. When in eclipse it has sometimes sent out an Infra-red image with fewer phasing bars and without grey scale. He writes, "It is the first time, as far as I am aware, that the Russians have successfully operated a satellite of this type. On 21 August the satellites start transmitting infra-red, but only for one or two or two orbits, after which they normally revert to 'visible' frequencies." Lawrence continues, "METEOR-3/2 transmits a wide format picture, so I have been able to see Cyprus, Syria, Iraq and the whole of Turkey for the first time, thanks to this new satellite. My previous views of these regions were from METEOSAT only!"

Space available does not permit us to give you the Keplerian elements and pass details for NOAA-9, but we hope to accomplish this next month, possibly with some good pictures from the new METEOR-3/2 and others.

Lawrence, shown at just part of his well-equipped station on Fig. 3, sends us a listing of the current active APT satellites, i.e. those that he finds to be in regular operation.

<table>
<thead>
<tr>
<th>Satellite</th>
<th>Frequency</th>
</tr>
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<tbody>
<tr>
<td>NOAA-9</td>
<td>137.620MHz</td>
</tr>
<tr>
<td>NOAA-10</td>
<td>137.500MHz</td>
</tr>
<tr>
<td>NOAA-11</td>
<td>137.620MHz</td>
</tr>
<tr>
<td>Feng-Yun-1</td>
<td>137.040MHz (but see column)</td>
</tr>
</tbody>
</table>

MET 2/16 137.400MHz  
MET 2/17 137.300MHz  
MET 3/2 137.850MHz

Occasional transmitting satellites include COSMOS-1760 on 137.400MHz and OKEA-1 on 137.400MHz also.

COSMOS-1900 - The Espionage

Our last few months column content dealing with the potential hazard from this RORSAT and its nuclear fuel power supply payload approaching re-entry, was taken up by the media and many readers as the day of reckoning neared. Tracking and estimation of the time and likely points of fall-out was closely followed by numerous sources and the police and County Emergency Planning Officers were ready with contingency plans to deal with the possible emergency situation that could result.

As required, just past the most likely projected re-entry time (the last two days in September) first given in our earlier news, the Soviet news agency issued a re-assignment on the safety aspect, by pointing out that additional safeguards had been incorporated into the internal command unit of the satellite.

Nico Jansen PAOLO, was one of those fully studying the COSMOS-1900 behaviour as it descended. He found that the Keplerian Elements on Day 88 247 496, e.g. 30 September 1988 at 1151A4 were given a Mean Motion of 16.382161 orbits per day. At 88 247 496, e.g. the same day at 174536 the mean motion had changed to 16.3667141 orbits per day. The drag factor in the same period of 5 hours, 51 minutes and 22 seconds had increased by a factor of more than ten, from 6.9E-3 to 7.3E-2, giving a clear indication that the attitude was indeed reducing at a rapid rate, and that re-entry is imminent.

It appears that the spacecraft was in fact under complete internal sensor computer control, which enabled initial stabilisation followed by a fully automatic attitude in which no one manning the geostationary station on the Australian continent was left in any doubt that the satellite was turned over 90 degrees! This placed COSMOS-1900 into the position giving maximum decay rate, and undoubtedly at the orientation required for the motor firing. At 2048UTC the satellite split up into two sections, one being the RADAR and electronics module, the other being the section with the main platforms plus the power systems, including its fuel. The automatic on-board rocket firing then took place, which left the actual platform in lower orbit but took the reactor nuclear contents to a 7200m high circular orbit, where it should stay for at least the next 300 years before re-entry.

The platform, left in low rapidly descending orbit, decayed quickly, and burned out completely over the North Atlantic. The electronic and RADAR unit, already earlier left in low orbit following separation, finally decayed at 2215UTC the following day on the descending node over the South Atlantic. This took place several hundred kilometres out West and South West Africa, when only some 3 per cent of the structure failed to vapourise and came down as solid material into the sea.

Thus, we can conclude the story of COSMOS-1900 for a few generations at least.

Shuttle

Leslie Sargent of Runcorn writes in to tell us how much he enjoyed the live broadcast of the STS-26 Space Shuttle Discovery on 28 September 1988 and October 1. "I managed to hear the communications while Discovery was over South West Africa on the afternoon of Friday September 30 at 615UTC. One of the astronauts called 'Pink' was giving out the on-the-air message, talking about the status, the payload bay, the transponder and the module sequence. The broadcast from WJNAN on 14,259MHz was strong, already had live coverage of both the astronauts and the ground control at Houston in Texas".

WJNAN is the amateur radio club station of the Goddard Space Flight Centre at Greenbelt, Maryland, the original site of WWV before they moved to Colorado. Your author has operated this station when at AMSAT meetings, and indeed that it is indeed an excellent radio site, with low noise and superb coverage. When any special space mission is in progress, particularly when AMSAT and amateur radio are involved, the club has the resources and are able to re-transmit the communications of the ground launch, the tracking, telemetry and the live audio from manned missions, and give an exciting running commentary of the sequences of a mission to the world amateur radio community.

The frequencies normally used are 3.860MHz i.a.b., 7.185MHz i.s.b., 14.259MHz u.s.b., 21.395MHz u.h.f. in the 14 and 21MHz frequencies are normally those best heard in the UK. The next Atlantis Shuttle mission on October 17 will not be broadcast, but many future missions such as those given in our last months column may well be, and can be enjoyed by all who wish. Those with suitable receivers may care to listen on the Shuttle v.h.f. frequency of 270.000MHz for direct communications. The TDRS destroyed on the previous launch tragedy was taken up by STS-26, so even less use of the v.h.f. frequency supplied is now likely.

Following the success of the long awaited Discovery mission (slightly further delayed by the lack of high altitude winds for a further day) the USA now plans to attempt to launch 14 Shuttle missions per year, perhaps accomplishing 12 in actual practice.

MIR

On November 21, two Russians and one Frenchman go for a space walk over the Soviet permanent orbiting space station. It is expected that the cosmonauts and the French visitor will return after a week or so, leaving the current pair Titov and Manarov plus the medical doctor to stay aboard until the end of the year. The new module is now being prepared to launch to MIR via the PROTON rocket, for the permanent docking of Tracking and Data Relay Satellites which for which PROGRESS-39 will be undocked soon now.

The MIR "Ham in Space" mission is expected to be extended for mid-November. Already the crew have been outside the space station to erect a 145MHz ground plane antenna on the spacecraft exterior body, and the 2 watt 145MHz f.m. transmitter has been sent up by the on-orbit PROGRESS supply vehicle. Cosmonaut Musa Manarov is currently taking his RA3 equivalent instruction by radio from five US amateurs as he flies over their horizons, and should pass by the time you read this column. The call sign will be U1MIR, probably working spilt frequency, and later UOMIR with a powerful transmitter available when the new crew takes over with a new operator next year. A full listing of frequencies will appear in the next column.

BAND II DX

For the benefit of computer buffs, Figs. 1 and 2 were made using the

For the few months we must rely on the troposphere to provide the bulk of the DX in Band II, because it is unlikely that any intense sporadic-E displays except over a few locations of high interest in v.h.f. DXing by keeping an eye on the prevailing weather patterns.

Apart from our own local observations, such as recording the atmospheric pressure, rain fall and temperature, more detailed information covering a wide area can be seen on television or on maps featured in some national newspapers. Readers with a standard barometer can plot some interesting graphs by looking at pressure readings at midday and/or midnight and compare these with the reception of DX signals that only operate under certain tropospheric conditions are good.

After seeing the dates of DX in your letter this time and from my own checking of Band II, I decided to plot the noon pressure for the periods September 5 to 22 (Fig. 1) and October 14 to 18 (Fig. 2), which covers several lifts in September and the opening on October 16.

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graphics section of the Mini-Office Professional program on my Amstrad PCW.

Obviously the trace would be smoother if more daily plots were used, however the trend can still be seen, so give it a try and let me know how you get on.

Reports
Kevin Phillips (Bexhill-on-Sea) uses a Kenwood KT660L digital tuner and a 5 element rotatable antenna for Band I. Kevin reports that he receives signals from BBC Radios 1 from Crystal Palace, Holme Moss and Sutton Coldfield, Essex, London, Norfolk, Oxford and Solent and ILRs Capital, Chiltern, County Sound and Ocean Sound. He frequently hears the BBC in Bedfordshire and Bristol and sometimes Ireland’s RTE on 92.7MHz when Radio 3 transmitters close down.

In Basingstoke, John Woodcock has a Technics tuner with a soft dipole and has one channel preset for BBC Radio Bristol on 95.5MHz. “This can just be heard normally,” said John, “but during the improved conditions for a few days around September 7, the channel was swamped by a French station (possibly Brest on 95.4MHz) which even locked in the stereo”. He also heard a few other European stations on a Grundig portable.

Referring to September, Ken Lancaster (Rotherham) wrote, “I reckon it was the best f.m. DX month of the year. I logged that many continental and UK locals that it was nearly impossible to log them all and, apart from that, they were nearly consistent for the best part of three weeks.” Ken found the peak around the 8th when his barometer reached 1040mb (30.75in) and his best catch was Severn Sound which serves Gloucester on 102.4MHz. Ken is pleased with the performance of his home-brew 5/8 ground-plane antenna, which stands some 26m a.g.l.

“A wide range of f.m. stations were noted from Eire on September 16, Norway, Sweden and Denmark on the 18th; while the 19th and 20th produced France, Benelux countries, West Germany (WDRs, NDRs, BBS and AFN) and East Germany. Many of them were in stereo,” said Simon Hamer from New Radnor. At 0830 on October 16, I logged a variety of strong continental signals, predominantly French, between 87 and 102MHz.

Post early to avoid the Christmas rush
Your deadlines are: December 19, January 16 & February 13.

TELEVISION
Ron Ham
Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

Readers often report receiving pictures from the French network Canal+ and Ian Smith (Paisley) kindly sent one of their “sticker” logos, Fig. 1. The circle behind the name is in a variety of colours.

In Bexhill-on-Sea, Kevin Phillips uses a D-100 converter for DXTV and he recently added an Extra Gain, 14 nay, wideband antenna to his existing rotatable arrays for Bands I and III. Kevin has been DXing since the age of 10 and he remembers tuning to TVS before going to school one morning when he lived in Shropshire. Kevin’s DX score includes pictures from Iceland, Norway and the USSR in Band I, Belgium and France in Band III as well as Belgium, S4C from Presely and HTV from Mendip in the u.h.f. band.

I had the pleasure of showing George Garden from Edinburgh around the radio exhibition at The Chalk Pit Museum, Amberley, Sussex (Fig. 2) on September 25. George is a keen DXer with a special interest in operating portable from the top of Cairn O’ Mounth, near Lawrencet Kirk and his results frequently appear in the tropospheric section of this column.

Band I
During the last few weeks of the 1988 Sporadic-E season, from August 12 to September 29, Edwina and Tony Mancini (Belper) identified pictures from Austria (ORF FS1); Czechoslovakia (CST, RS-KH); Denmark (DR); Finland (YLE-TV1); West Germany (ARD1-logo, Gunsten, SWFBDN and ZDF); Holland (PTT-NED1); Hungary (MTV1); Iceland (RUV-Island); Italy (RAI); the Norwegian Regionals (Bagn, Bremanger, Gamlem, Gulen, Hermnes and Kongsberg); Poland (TVP1); Portugal (RTPI); Spain (TVE 1/2); Sweden (SVT Kanal1); Switzerland (+PTT SRG1); the USSR (TSS) and Yugoslavia (URT). In addition they saw clock-captions from Holland, Hungary and the USSR, a programme about cats from Portugal, cartoons, folk dancing and a quiz show from Spain as well as HD/COCTV (news) from the USSR. They also found periods of Sporadic-E on October 3, 4 and 5 when test cards from Europe, Scandinavia and the USSR were seen. During more brief events on days 9, 10 and 12, signals from Denmark, Czechoslovakia and Poland came up.

Edwina and Tony have added a Citizen TC53, v.h.f./u.h.f. pocket colour receiver, to their collection of sets. They report, “It’s OK for u.h.f. and the telescopic antenna really pulls some in”. However, they are eagerly awaiting a good tropo of Sporadic-E to see how it performs under DX conditions.

September 4 proved a good day for Bob Brooks (Great Sutton) who logged test cards from Italy and Yugoslavia (JRT-Briglade and Zargreb and MTV-Ljubljana), news and logos from Italy and programmes on cookery and religion from unidentified stations between 0845 and 1530. He also received test cards from Austria, Czechoslovakia, West Germany and Spain on the 1st and the USSR on the 2nd.

Bob sent a couple of photographs from his DXTV archives of the caption and logo he received in 1986 from Spain (TVE) Fig. 3 and West Germany (Westdeutscher Rundfunk) Fig. 4. Most Band I tuners are scribed.

Fig. 1
E2—E3—E4, which represents an approximate frequency range of 48 to 68MHz. During a Sporadic-E opening on September 28, Simon Hamer (New Radnor) tuned through the band and logged pictures from Sweden (SVT) on Ch. E2 (48.25MHz); Czechoslovakia (CST), Poland (TVP) and the USSR (TSS) on Ch. R1 (49.75MHz); Italy (RAI) on Ch. IA (53.75MHz); Iceland (RUV) on Ch. E3 (55.25MHz) and Finland (YLE) on Ch. E4 (64.25MHz).
NEW RECEIVERS AND MINI ANTENNA KITS!

Building and using your own equipment is interesting and offers a challenge and satisfaction missing with "black boxes". Our kits are designed to help you enjoy this aspect of the hobby. There are several new kits introduced in our latest catalogue, and hopefully there is one to tempt you.

Have you chosen your winter project yet?

MBRX MARINE BAND COMMUNICATIONS RECEIVER

The new HOWES MBRX kit is designed to enable you to build a receiver covering the whole Marine Band from 1.6 to 3.950MHz, including ship to shore, coastal stations, the 2.1BZ distress frequency, and the whole of the 160 and 10 meter amateur bands. Modes covered are SSB and CW, although you can also use it for RTTY, FAX, etc, if you have a suitable terminal.

Features include:-

- Switched input attenuator + RF stage + Balanced, Direct Conversion mixer + 2 stage active SSB filter + Stable FET oscillator + Fine tune control + Fast and Slow mod + X 1W audio output + Optional filters, signal meter, etc, are available. Requires two 365F or 500F tuning capacitors. A kit to build a real communications receiver with good facilities and performance at a sensible price.

MBRX kit: £29.90

Assembled PCB: £44.90

DcRx54 HF AIR BAND COMMUNICATIONS RECEIVER

So many customers have asked us how to modify our popular DcRx amateur band receivers to cover the 5.450 to 5.750MHz band, that we decided we would introduce a version of the kit for this application. The DcRx features a stable FET oscillator and a balanced, direct conversion mixer. Up to 1W of output is available for driving headphones or loudspeaker. This receiver is simple and easy to build, but you will be amazed at the performance! Suitable tuning capacitors are available at £1.50 each (you need two per receiver). Single band DcRx kits are also available for 160, 80, 40, 20, 10 meter amateur bands.

DcRx Kirt (full version): £15.60 each

Assembled PCB: £21.50

AA2 ACTIVE ANTENNA AMPLIFIER

The new HOWES AA2 kit enables you to build your own a really compact HF receive antenna that can be accommodated in even the smallest OTH. Even if you have room for large antennas, you will still find this kit useful for building a rotary antenna for the lower frequency bands. Have you got a rotateable Top Band antenna? The advantage in being able to "null" QRM with a miniature rotary dipole should not be discounted. The AA2 has facilities for both short wave and VHF inputs. The antenna length can be varied to suit your requirements, but about 60 feet is a good maximum length. The PCB is designed to fit inside standard 1.5” waste water pipe, so making for easy weather proof construction if required. Direct or coaxial powering can be used, so the unit can be located next to the receiver, or remotely on a mast, chimney, etc. It is also ideal for building a telescopic antenna facility into new owner/tenant. Features permitting use of popular antenna feeds.

AA2 kit: £7.50

Assembled PCB: £11.50

Just three of our new kits are outlined above, we also have receiver kits from £14.90, and amateur transmitters from £12.90, plus a whole range of accessories (ATU, side-tone, calibrator, converters, transmitters, filters, etc), so there should be a project to interest you in our new catalogue.

All HOWES kits come with full, clear instructions, good quality glass fibre PCB (drilled and tinned with screen printed parts location) and all board mounted components. Delivery is normally within seven days, and we hope to have all the new kits in stock by the time this appears in print. Help, advice and sales are only a phone call away (office hours please) but please send an SAE if you would just like a catalogue, or specific product information sheets.

P.p. is £1.00 per order.

73 from Dave G4KQH, Technical Manager.
Although DX in Band I is rare between now and the start of the 1989 Sporadic-E season next April or May, it is worth tuning around position E2 on your dial during the early mornings and at midday for short lived events.

Tropospheric
During the period of high atmospheric pressure the Marchin's received pictures from Belgium (BRT-T1 and RTBF1) on September 10, 20, 21, 23 and October 10; France (Canal+) on days 3, 4, 6, 7, 8, 9, 10, 18, 19, 20, 21, 23, 26 to 30, October 4, 5, 8, 9 and 10, East Germany (DF) on the 19th and Ireland (RT4 1/2) on days 6, 8, 9, 17, 18, 19 and 30. They watched cartoons, a quiz show and Meteor weather from France and cartoons, films, football, horse-racing, news and the Olympics from Ireland. They said, "the tropo didn't come to much except for September 19 when the French really came in, especially on u.h.f."

Bob Brooks received Canal+ from 0711 to 1230 and RTE all day on the 7th and Canal+ again at 0733 on the 16th. Simon Hamer logged Band III pictures from Denmark (DR Denmark), Norway (NRK) and Sweden (SVT Kanal1 Sverige) on the 18th, France (TDF), West Germany (ARD1) and Luxembourg (RTL+) on the 19th and Belgium (BRT1), East and West Germany (DF1 and ARD1), Luxembourg (RTL+) and Switzerland (+ PTI-SRG1) on the 20th. Simon's big haul of DX was in the u.h.f. band when he received pictures, often on many channels, from Ireland (RT4 1/2) on the 16th; the new Danish second network with the "TV2-KBHVEST" test pattern ("KBH VEST" means "West Copenhagen"), explains Simon and Sweden's TV2 Sverige on the 18th, France (TDF), West Germany (ARD1, ARD/R1, NDR) or NDRII/MBG6 and WDR3 displaying "WEST 3" and ZDF and Switzerland (+ PTI-TS1) on the 19th and Belgium (BRT1/2), East and West Germany (DF2 and ARD1, BR3, HR3 and ZDF) and Holland (NED1/2/3) on the 20th. Also on the 20th he identified the 525-line transmission for the American Forces in Holland (AFRTS) on Ch. A80.

In Godalming on October 16, Les Jenkins noted that his barometer was high at 1442mb (30.75in) and a check on Band III revealed pictures from Canal+ and Luxembourg (RTL), in colour, for about nine hours. Les uses a Salora receiver with a Maxview, wideband, pre-amplifier. At 0830 on the 16th, I received strong negative pictures from France on Ch. 5. During similar short-life openings I watched programmes from Belgium Fig. 5, Holland Fig. 6 and West Germany Fig. 7 were seen by David Glenday in Arbroath and Peter Lincoln in Aldershot.

News from India
From his home in Meerut, Lt. Col. Rana Roy observed Sporadic-E disturbances in Band I on 12 occasions between July 13 and September 9. He logged pictures from China during the early afternoon of August 16 and 28, and between 1600 and 1730 on days 5 and 12 and on September 9 Duba TV, with Teletext in Arabic, appeared for a couple of hours at 1715 on July 27. Cartoons, films and orchestral music were among the programmes received from the USSR on July 13, 15, 24, 27, 30 and August 28. While checking Chs. R1/12 at 1725 on July 25, Rina saw multiple pictures with flashes of a football game on R2 and at 1740 a list of players appeared, Fig. 8, followed by an interview on the football field.

In addition, he received pictures, in Band III, from Agra, Bhatinda TV (caption, Fig. 9), Bhawanpur TV (announcer, Fig. 10), Delhi's low power transmitter, Jalandhar (bews, caption, Fig. 11), Kasauli, Lahore TV (announcer and caption, Figs. 12 and 13), Masacine TV and Pakistan TV during tropospheric openings on 15 days between July 23 and September 12. Among the items seen were test cards and Breakfast TV from Agra, Bhatinda, Jalandhar, Kasauli and Lahore and commercials and news in Punjabi and Jalandhar. On August 4, Breakfast TV from Lahore started with prayers and included exercises, news, cartoons, a short play and dental advice.

STTV
Between 1415 and 1556 on October 10, Fred Pearce (Harlow) received very good slow scan television pictures on 14MHz, from stations in Denmark, Hungary and Switzerland bringing his countries score up to 10.

Long Medium & Short

Brian Oddy G3FEX

Three Corners, Merryfield Way, Stonington,
West Sussex RH20 4NS

Long Wave DX

Note: I.W. & M.W. frequencies in kHz; s.w. in MHz; time in UTC (GMT).

Several of the i.w. reporters have been checking the band in new places.

A holiday in Gran Canaria provided Neil Wheatley (Newcastle-Upon-Tyne) with a good opportunity to explore the i.w. scene with his Sangean ATS-603 portable. He stayed at Puerto Rico on the south side of the island and found reception conditions quite unlike those at home. The i.w. signals were much weaker than expected and even Medi-Nador, Morocco 171 (1200kHz) was faint. The BBC Radio 4 broadcasts via Drotwich 198 (400kHz) were audible after dark, but the signal was very weak.

Using his Sony ICF 2001-D portable, Ian Bond (Wirral) checked the band in S. France near Grenoble and Orange. He was disappointed at being unable to hear the BBC via Drotwich 198 and found this rather bewildering, because a year ago he heard their signals in the western Pyrenees, albeit faintly, when using an old car radio. Philip Rambaut (Macclesfield) compiled his log while in Agde, Herault, S. France. He noted BBC Radio 4 via Drotwich 198 at 101220 and noticed a broadcast in Arabic under their signal which must have stemmed from Quargla, Algeria 198 (2000/1000kHz).

A holiday in Hamilton, Scotland enabled George Millmore to check the i.w. band from the northern end of the UK for a change. He was amazed to find that the signals from Alnouc, France 162 (2000kHz) and Junglinster, Luxembourg 234 (2000kHz) were much stronger than those from the BBC Drotwich transmitter 198. No doubt the shorter sea paths accounted for the signals from Montana, Sweden 189 (3000kHz); Oslo, Norway 216 (2000kHz), Kalundborg, Denmark 245 (3000kHz) being far better than in Cowes, but the broadcasts from Saarlouis, W. Germany 183 (2000kHz) and Moscow, USSR 263 (2000kHz) could also be heard. The interesting factor was that the former was not unexpected. It is interesting to note that during these checks George found reception indoors on a Veja Selena portable inferior to that obtained with a Sharp four-band car radio in his car.

While in Leatherhead, Steward Russell (Forfar) has been checking the i.w. band. During daylight he could hear eight stations, but five more became audible after dark. Using a Trio R2000 receiver with a random wire antenna strung around the attic, Fred Palfant made similar comparisons in...
Storrington. He heard thirteen stations during daytime, but four of them 1 Nador, Morocco 171 (1000kW); DLF Munich 207 (200kW); Tapiza, Algeria 254 (150kW); also Moscow, USSR 263 (200kW). Four additional stations were heard after dark.

In Shawforth, John Evans says he ventured onto the L. w. band for the first time. Normally the daytime stations were received with a Sharp ST1122 tuner, using a home made G2VF type L. w. w.m. that he built in to ferrite rod antenna, but he also tried his Vega 206 portable which proved to be inferior.

MW Transatlantic DX
Reception conditions are gradually improving as the hours of darkness increase. The earliest signals to cross the Atlantic on a fairly regular basis stem from CJYQ in St Johns, NF 930 and WINS in New York 1010. In addition, WM 1120 from Buffalo picked up the broadcasts from CJYQ at 0300 rated as S10 333. He used his RCA AR77 receiving the signal during several nights and logged eighteen stations. His list included two stations which have not been mentioned before in this series. CBG in Gander, NF 1400, rated at S10 022 at 0230 and WWTG in Portland, ME 1440, rated as S10 222 at 0220, both subject to confirmation by GSL.

In Bristol, Tim Shirley has been checking the DX band instead of going to the night-time and he had heard WINS New York 1010 as early as 0230, but he says his signal is usually audible by 0200. On hearing WMC in London 1200 around 2300, but noted that the majority of the stations became audible later. Tim also has been checking the band around dawn and logged CKAC Montreal, PQ 730; Canalone, PQ 1610 besides the usual CJYQ in St Johns 930, so it may be worth checking the band then if you prefer to make an early start to the day.

We are informed by Brian Badge of Solihull that he was there, too. Brian has been busy building a large loop antenna and he is hoping to log some transatlantic DX with it all hours of the day and night. On the_box's measurements 1020mm square and seven turns of wire form the main winding. A simple turn placed centrally over the main winding provides the coupling to the receiver. He was unable to obtain a 500pF air spaced variable capacitor, but he did buy a very small 650pF variable capacity capacitor. Supposing it tunes the loop from 540kHz to 1600kHz. Mike has a Codar general coverage superhet and an RCA AR86B communications receiver.

Other MW DX
Using a “Swinger Loop” ahead of his receiver, Stewart Russell picked up three broadcasts from N. Africa at night: Bechar, Algeria 576 (400kW); Alger, Algeria 891 (600kW); also Sfax, Tunisia 1566 (1200kW). Various of the relatively low power broadcasts from Spain were noted including RCE-2 in Madrid 657 (20kW); SER in Madrid 810 (20kW); Radio Intercontinental, Madrid 918 (20kW); RCE via Madrid 984 (20kW); and SER San Sebastian 1260 (20kW). Three stations in Portugal at night were heard: Radio Porto, Miramar 783 (10kW); RRE Seixal 963 (110kW); also BBC Lisbon 1033 (150kW). The RNE1 broadcasts from Madrid 585 (200kW) have been reaching Leo Bar in Sunderland — he rated them as 44434 at 2040.

Some broadcasts from N. Africa reach Jurgen Thier in Moravia, Spain via ground or wire paths during the night. Around noon he logged Les Trembles, Algeria 549 (600kW); Ouagadougou, Morocco 94 (100kW); Tunis- Djededa, Tunisia 630 (600kW); Ain El Hamam, Algeria 693 (5kW); Ouagadougou, Morocco 128 (100kW); and Algiers 891. Alger, Algeria 891 (600/300kW); also Alger-3, Algeria 1422 (150kW). All rated 4555 or better at 0100.

Listening at night, Jurgen heard several broadcasts from the UK including BBC World Service 484 via Calais on 648 (500kW), rated as 44443 at 2100, BBC Radio 2 on 693, logged as 43213 at 0330 — this frequency is shared by Burghed (50kW); Drotwich (150kW); Statham (50kW); Start Point (150kW) and lower power relays. Also BBC Radio 2 on 892, noted as 44444 at 0350 — shared by Brookmans Park (150kW); Clevedon (50kW); Moorside Edge (200kW); Westbury (400kW) and lower power relays. BBC Radio 1 on 1053, rated as 34433 at 0143 shared by Burghed (120kW); Drotwich (150kW); Statham (50kW); Start Point (100kW) and lower power relays. Also BBC Radio 1 on 1089, logged as 43444 at 0440 — shared by Brookmans Park (150kW); Morayfield (150kW); Westbury (400kW); Westerglen (50kW) and lower power relays. He also heard BBC Radio London 458 (50kW) at 04349, noted as 54434 at 0500 and IRC Capital Radio, London 1548 (57.5kW), noted as 44443 at 2040.

While in Palma, Majorca, CyrilKellam (Sheffield) heard BBC Radio London 1458 at 1930, BBC Radio 1 on 1089 at 2010 (shared frequency) and IRC Capital Radio, 1548 at 1930. Nell Woolley, who is reporting regularly in these parts, was not heard at 2010. She was noting the whole of UK m.w. broadcasts in his report. The local broadcasts were ignored due to the busy night-time schedule from 2200, Tenerife on 621 (100kW), 720 (20kW) and 1341 (20kW); La Lucana, Tenerife 882 (20kW); Las Palmas, Gran Canaria on 747 (50kW), 837 (10kW) and 1269 (20kW); Santa Cruz, Palma 1098 (5kW).

While checking the band in Gran Canaria at night, Neil logged a number of interesting stations including Les Trembles 549 (600kW) and Alger 891 (300kW) in Algeria; Conakry, Guinea 410 (100kW); Porto Santo 513 (10kW) and Anciro 603 (10kW) in the Madeira Islands; Sidri Bennour 540 (600kW), Laayoune 657 (50kW), Rabat 819 (25kW), Agadir 936 (300kW); Sebas Ain Dar 1044 (300kW). Tahart 1053 (600kW), Tinguer 1233 (200kW) — all in Morocco; Norte, Portugal 1062 (100kW), Dakar, Senegal 765 (400kW); Sevilla on 684 (250kW) and 792 (200kW) and Madrid, Spain 2107 (50kW).

Using a Philips D1835 portable in Molepolole, Botswana P. R. G. Andrews listened to VOA in Soweto; Phikwe, Botswana 621 rated 55555. He also hears Radio Metro 576 rated 55454 at 1905; Capital Radio 604 at 33444; BBC 1230; Radio Lotus 648 at 55354 at 1618; Radio Torondi on 1035 as 55434 at 2105; Swazi Radio 1430 as 54454 at 1815.

In Bugnay, Ron Pearce has been trying out an old receiver using a bright

Dxers:  
A: Colin O'Driscoll, Durham.  
B: John Evans, Shawforth.  
C: Ciaran Fitzsimons, Chertsey.  
D: Geert Struyf, Switzerland.  
E: Fred Patlett, Storrington.  
F: Philip Franklin, Aire, France.  
G: Stewart Russell, Lehesthead.  
H: Tim Shirley, Bristol.  
I: Jurgen Thier, Moravia, Spain.  
J: Phil Townsend, London.  
L: Jim Willett, Grimsby.  
M: Martyn Williams, SUNNINGDALE.  

emitter valve, see Fig. 1. He says the set functions quite well on medium wave, in fact it will drive the vintage coned speaker when it is tuned into one of the more powerful stations. Using this receiver, Ron listened to a programme of country and western style music broadcast by AFN via Frankfurt, W. Germany, on 1269 (50kW) at 2120.

The broadcasts from AFN have also been heard by Ciaran Fitzsimons in Chertsey. Using a SW2000 receiver he rated the following stations: 873 at 54444 at 2101 and via Munich 1107 (24Wk) as 2142. Two of the more distant stations were noted in his report: Lvov, Ukraine 140 (30kW) rated as 54555 at 2049 and Vatican Radio, Rome 1530 (150/450kW), noted as 54454 at 2024.

Several broadcasts from Germany were logged by Martyn Williams in SUNNINGDALE. They stemmed from Muhlecker 576 (300kW); AFN via Frankfurt 873; Welsehorn 1017 (600kW); AFN via Munich* 1107; AFN via Stuttgart* 1143 (100kW); Neumünster 1269 (600kW); Heusweiler 1422 (600kW); Langenberg* 1593 (400kW). Those marked * were heard at night. Using a Lowr SRX300 receiver, John Evans has been testing a new home built L. w. w.m. loop based on the G2VF design. Instead of building the recommended oblong or triangular

Fig. 1
SEEN & HEARD

frame, he used a short length of half
matrix diameter seawage pipe. The
residual in many areas marginally better
than when using his “Sooper Loop”,
but adding a Sooper loop type pre-
amplifier to the G2VF loop produced a
remarkable improvement. Broadcasts
noted in his log stemmed from
Solovetsky, Sweden 1719 (600kW),
51°11'N, 12°13'E; Newhaven, Norway,
1314 – 444 at 1515; Kaunas, USSR
1386 (100kW) – 444 at 2130;
Lisnagarvey, N. Ireland 1030 (500kW)
– 322 at 2130; Monte Carlo, Monaco
1467 (1000/400kW) – 444 at 2230;
Wolvertem, Belgium 1512 (600kW);
Munich, W. Germany 1539 (700kW) –
444.

A first report from Simon Holland in
Douglas, IOM, included Stargard,
Poland 1503 (500kW), their signals
reach him via sky wave paths at 2010.

During the day two of the official
broadcasts from S, Ireland can be
received via ground wave paths: RTE-1
via Tullamore 557 (600kW) and RTE-2
via Athlone 612 (1000kW). Phil
Tomlinson received them on the ground
via wave paths. He rated them as SIO
222 during the morning. Between 1145 and
1645 he traced up the ground wave signals
from several continental stations
including BRT-2 via Aveiro, Belgium 540
(400kW), rated as SIO 344; DLF-1 via
Breyuren, W. Germany 549 (200kW) –
222; FIF Paris 565 (8kW) – 244; Hessischer
RF via Frankfurt, W. Germany 563
– 233; RTBF-1 via Aveiro, Belgium 621 (300kW) –
344; Hilversum 3via Llopt 657 (12kW) –
233; Radio 2 via Flevoland 747 (400kW) –
344; Hilversum 5 via Flevoland 1006 (400kW) –
344.

While in Hamilton in the Clyde valley,
Gil Malone checked the m.
wave band with his Vega Selena portable
during daylight. Although he could hear
Hamilton 1152 (100kW) and BRT-
and WT via Wolvertem, Belgium 1512
(600kW) as clearly as at home and
Solovetsky, Sweden 1719 (600kW)
strongly enough to turn the volume up
for the French stations. By looking at
a map it will be seen that the path from
Vladivostok is very similar to the
Clyde valley is almost entirely over land,
whereas clear sea paths helped the
signals he heard to reach him.

MW Local Radio DX

The BBC are anxious to obtain a
listening audience both in and outside
London, so their local radio broadcasts
from Radio London on 1458 have been
repeated on 1530 as the so-called
Greater London Radio (GLR). Their
transmissions on 1458 are being well
received in many areas and they will
welcome reports from listeners. The
broadcasts from the new BBC Radio
Gloucestershire on 603 can also be well received in many areas. They
welcome reports from listeners and
confirm with them an attractive QSL
card.

The delay in receiving QSL cards from
local radio stations was mentioned by
two listeners, Martin Williams says,“Two
months have passed since reports
were sent to LRL Southern Sound and LRL Chiltern Radio. I was
hoping to hear QSLs, but none have arrived yet. How about a
QSL table for local stations on m.w.
They could be ranked in average
response time and whether postage is
required.” Writing from Cork, Patrick
Kelly says ‘‘he has just received a QSL
from BBC Radio Stoke-on-Trent after
waiting 1327 days! He also had to wait
365 days for a QSL from IRL RMS Radio
Brive.’’

It might be possible to add a QSL
column to the local radio chart, but I am
not sure that I would want to see the
picture, as much depends on the quality
of the report. Broadcasters are under no
obligation to send a QSL letter or card
response to any request, but a well
presented report will usually bring a reply. Ideally your report
should be real value to both programme
production department and the
engineering department and it should
cover more than one listening period if
possible. It must be clearly explained that
most local radio stations operate on a
very small budget, so sending an
slightly modified “Start Out” series
sent out on October 8. Back issues are
available from Short Wave Magazine in
Poole at £1.45.

In Hamilton, George Millmore logged
BBC 1, BC6 895, IRL 930, Radio
Oxbridge 1035; LR Claye二手 1152; LR R.Forth
1548. On his way home he stopped
3km west of the Cat and Fiddle Inn
and demodulates at Macclesfield and
Buxton and heard BBC R.Lessex 774;
IRL Raire 828; BBC R. Lancaster 857;
York 915; BBC R. Leicester 1152; BBC
Signal R. 1170; BBC Ripple 1278; BBC
Stoke-on-Trent 1603; BBC R. Nottingham 1521.

All other entries were logged during daylight.

George says, “If one could spend
several hours in this area a quite a
sizeable list could be compiled.”

Writing from Leeds, Chris Nykier
says, “I use the logs which are published in SWM to predict what
stations I ought to be able to hear”.

Leeds gives excellent reception
conditions. I deliberately try to find
those stations that other DXers
would not hear. I heard DXers in
the north and Midlands have logged,
but which I have not recorded.” Using
this method he added IRL Chiltern Radio
792, BBC to any French stations.

Without doubt the type of antenna
used by the local radio DXers is a key
factor in obtaining good results. Leo
Barr says, “Once again the “Sooper Loop”
proved to be of great value. I was
able to separate three stations on
1530kHz with your strong signal from
Vatican Radio and weaker signals from
IRL Pennine Radio in Huddersfield
and Halifax and Radio Wyvern from
Worcester. Without the loop the radio
didn’t just give out noise”. Using a “Long
Arm Loop” in Grantham, Leslie Hollis
is able to receive any one of three
stations on 60kHz: IRL Incitev Radio (0.1kHz);
BBC Radio Gloucestershire and BBC
Radio 4 via Newfoundland-up-Tyne
(2kW).

At an interesting rotary m.w. ferrode
antenna has been built by Geoffrey
Powell, BBC R. Stockport, installed on
Tamworth. The ferrite rod was
removed from an old transistor radio
and then mounted in a small radial type

DXers

A: Leo Barr, Sunderland.
B: Edward Broadsmith, Worcester.
C: Alan Curly, Stockton-on-Tees.
D: Colin Oldfield, Corsham.
E: Carl Richardson, Chesterley.
F: Colin Godwin white in N. Devon.
G: Simon Hartley, Shaldon.
H: Francis Heame, Ilford.
I: Leslie Hollis, Grantham.
J: Sheila Hughes, Maidenhead.
K: Cyril Kellam while in Magpura.
L: George Milkert of Brighton (IDW).
M: John Nash, Brighton.
N: Chris Nykier, Leeds.
O: Civilian Party, Cambridge.
P: Stewart Russell, Letchworth.
Q: Mark Seaby, Aldershot.
R: Tim Shirley, Bristol.
S: Philip Townsend, London.
T: Martyn Williams, Survingdige.
U: David Wragg, Cambridge.
V: enclosure to protect it from the
weather, see Fig. 2. The ends of the
original m.w. winding around the rod
are connected to the ferrite rings in an
indoor a.t. so that the antenna may be
tuned to resonance. A small 12 volt motor
with built-in gearbox is mounted below the
enclosure, so that the antenna can be
turned through 360 degrees. A

Fig. 2
S O N Y  I C F  7 6 0 0 0  0 S £ 1 5 9

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Short Wave DX

There are now five broadcasters active in the 20 metre band: Radio Free Europe/Liberty 25.690 (Russ 8000 – 1500, often jammed by the USSR); RNI Oslo, Norway 25.730 (Russ 1000 – 1500); BBC International, Denmark 25.850 (Dan to Asia, 1200 – 1255). At yet there is no 11m activity from Radio Moscow, but it's worth monitoring 25.620, which is the frequency they used during the peak years of the last war.

All of these broadcasts have been reaching Alan Roberts in Quebec, Canada. His receiver was built by me that is being used by the "Epicom" design published in PW Sept '74, he logged RFI/EL as SNIP 14311, only audible between 2000 and 1500, and RNI as 15311, audible 1125 – 1247; 8C as 35333, audible 1114 – 1515; RFI as 23511, audible 1125 – 1245; and R. Denmark as 25322, audible 1225 – 1250. So far, no reports have reached me from other countries, but John Nash has been written to say that he will monitor those frequencies with a home built reflex receiver in Quebec.

In many areas of the UK these signals may be relatively poor or even non-existent, because of their moderate power to other areas: Listening in Brighton, John Nash logged RNI 25.730 as 34322 at 1200 and RFI 25.820 as 44333 at 1200 and Richard Rees at Reeds-Redford-rated RBC 25.750 as 35444 at 1352, Phil Townsend (London) as 425433 at 1100 and 1500 and in Northampton Alan Smith rated them as 55555. Philip Rambaut (Macclesfield) noted RNI as 222 and RFI as 222 and R. Denmark as 222 and 222. Colin Sheilds (Sheffield) logged RFI as 333, RNI as 433 and R. Denmark as 433. G. H. French (Shropshire) heard 324 and Walsend, David Edwardson rated RFI as 24432 at 1040 and R. Denmark as 24432. Dr. Kenneth Buck (Edinburgh) logged RFI/RLL 25.690 as 42222 at 1318; RNI as 35433 at 1216, 8C as 35444 at 1200; RFI as 25433 at 1130 and Radio Denmark as 25423 around noon. Although there have been periods when bursts of solar activity (flares) have disturbed the reception conditions prevailing on the 21 MHz (13m) band, in general the reception from many areas has been very good indeed.

A number of broadcasts are beamed to Europe during the day in a variety of languages from Radio Japan via Moyoib, Gabon 21.700 (Eng, Jap 0700 – 0830) 45444 at 0700 by John Nash (London) and RNI Oslo 21.510 (Ar, Eng 0615 – 1400) logged by Bill Griffith in London as 55555 at 1000; Voice of Israel, Jerusalem 21.675 (Eng 0600 – 0700) 42222 at 0600 by John Nash; Radio Slovakia 21.685 (Eng 0600 – 1500) 55555 at 1000. John Nash's noted R. Moskva listens to this band.

The broadcasts to Europe from Radio Japan via Moyoib, Gabon 21.700 (Eng, Jap 0700 – 1500) 33333 at 1500 by John Evans; WHRI in South Bend, USA 21.685 (Eng 1500 – 1700) 33444 at 1545 by David Wrenn in Cambridge. At 1845 Fred Pallatt heard Radio RSA 25.325 (Eng 1800 – 1900) SIO 455. Listening in Nunavut at 1933, Graham Johnson (London) noted RFI as 21.665 (Eng, Fr 1900 – 1945) as 44344. Some broadcasts to other areas were heard. During the morning John Nash logged Radio Bucharest, Romania 21.665 (Eng to Australia 1933) as 33444 at 1800 and Mark Selby heard RFI Berlin via Nauen, GDR 21.540 (Eng, Ger to Asia 0745 – 0945) 54554 at 0822; Sheila Wade at Ipswich heard RFI Czechoslovakia 21.705 (Eng, Cze to SE Asia 0730 – 0930) 44444 at 0830; RFI Bratislava, Slovakia 21.775 (Eng, Cze to Julich, W. Germany 21.650 (Eng to Asia 0900 – 0950) 35343 at 0910; Radio Eireann, Ireland 21.800 (Eng, Irish to G. 1900 – 2200) 55555 at 1900; Fred Pallatt heard Radio Nehri, Afghanistan 21.940 (Eng, Pers to Africa 2100 – 2200) 34444 at 2145; Philip Rambaut logged RFI Libya 21.480 (Eng to Asia 1130 – 1225) SIO 344 at 1145; Philip Rambaut logged RFI Libya 21.520 (Ar to Africa, Middle East 1100 – 1200) 33333 at 1155.

During the afternoon, in George, S. Africa Fred Dickman listened to the BBC World Service via Daventry, UK 21.470 (Eng to Africa 1400 – 1445) 43333 at 1200. 1255 Philip Rambaut logged VOA via Greenville, USA on 21.580/21.610 55555 at 1900. Radio America 1100 – 1700 logged VOA from 2122.111 an s.s.b. l.s.b. broadcast from radio Sweden via Varberg 21.585 (Sw to Africa 1100 – 1600) 54555 at 1500. Noted by Christian Pitchard (Cambridge) as 44444 at 1030; Radio RSA Johannesburg 21.500 (Eng, Afrikaans to Africa 1400 – 1600) 55444 at 1416 by Mark Selby in Aldershot; Radio Japan via Moyoib, Gabon 21.700 (Eng, Jap 1500 – 1700) SIO 333 at 1500 by John Evans; WHRI in South Bend, USA 21.685 (Eng 1500 – 1700) 33444 at 1545 by David Wrenn in Cambridge. At 1845 Fred Pallatt heard Radio RSA 25.325 (Eng 1800 – 1900) SIO 455. Listening in Nunavut at 1933, Graham Johnson (London) noted RFI as 21.665 (Eng, Fr to Asia 1945 – 2000) 33444 at 1950. Listening in Chichester at 2000, Mark Selby heard Radio Schweiz, Switzerland 21.630 (Eng, Fr to Ger to Middle East 1500 – 1700) SIO 3323. In Tunbridge Wells, Daran Taplin logged VCN via Scotts Comer, Maine 21.640 (Eng, Fr to Ger to Africa 1600 – 1700) as 54444 at 1700. Later, Philip Rambaut logged RFI Italy, Rome 21.610 (It to Africa 1745) as SIO 333 333 at 1728, Fred Pallatt heard Radio Zweeds Presidency, Sweden 21.610 (Sw to Africa 1715 – 1800) 55555 at 1715. John Nash logged WCNN via Morocco, Libya 21.500 (Eng to Africa 1800 – 2200) 54444 at 1815. Many potent signals from other continents have been evident in the 17MHz (16m) band. Solar flares have disturbed reception from time to time, but their effects have been relatively short-lived.

Some broadcasts from Radio New Zealand, Wellington 17.705 (Eng to Pacific areas 2345 – 0145 and to Australia 1100 – 1300) have been noted by Ron Port, W7US (USA 2200 – 0630) SIO 333 at 0400, but rapidly improves to 343 and then 434. A jammer is audible at 0500, but it caused no problems. John Nash has been listening to their 17.715 transmission at 0900 and noted it at 343.450.

The broadcasts to SE Asia. From Radio Japan via Yamata, Japan 17.810 (Eng to SE Asia 1000 – 1100) have also been reaching the UK. Using a Tri R500 receiver, Kenneth Reece rated their signal as 4.0/5.0 QSL.
Several frequencies are used by Radio Australia to reach 165 stations in Pacific areas via Shepparton, but the good conditions have enabled most of these frequencies to be heard in Europe too. Some of these have been reaching the UK before midnight.

Listening at 2100, Ian Curry Stockton-Byrne, Radio 46, Uni, Eng, 2100 - 0700 as 3222. At 2200, David Watten noted 15.240 (Eng, Fr, Sp, El, 1800 - 0600) at 2200.

The report from George Hewlett indicates that 15.160 is generally SIO 433 at 0400, but falls to 322 by 0700. 15.240 peaks at 0400, but co-channel interference from Radio Berlin Int. arises at 0600. 15.315 (Fr, Eng, Sp, El, 1800 - 0200) does not appear to be affected by co-channel interference from Radio Moscow, but improves to 433 at 0350. 15.320 (Eng, Fr, Sp, El, 1800 - 0200) is SIO 433 at 0350 by David Hewitt.

Many broadcasts are beamed towards Europe at some time during the day. They include Radio Japan via Microwave, W Germany 15.165 (Eng, Fr, Jap, Ger, Fr, 0500 - 1000) as 3433 at 0500 by Christian Prechtach; Arabic Radio Damascus, Syria 15.095 (Fr, Ger, Fr, 1835 - 2100) as 3243 at 2100 by David Watten; BBC World Service, England 15.090 (Eng, Fr, Sp, El, 1800 - 0500) as 3243 at 1545 as heard by Colin Duff.

The early morning broadcasts in the 7MHz (4.1m) band include the BBC via Shepparton (Eng, Fr, Sp, El, 0400 - 0700) 533 at 0601 by Alan Smith; RTV Sl, Slovenia 7.475 (Eng, Fr, Sp, El, 0400 - 0700) as heard by Richard Bealey; VOA via Caracas, Venezuela 7.205 (Sp, El, 1500 - 1600) as heard by Colin Godwin (Malvern) while using a Sangean 700 portable plus 15m wire antenna in Vatican Radio, Rome 9.645 L, Fr, Sp, El, 0600 - 2100 as 4443 at 2000 by Philip Rambaut.

Many broadcasts to Europe are noted. They included the Voice of the Mediterranean, Malta 9.765 (Eng, Fr, Sp, El, 0600 - 0900) as 3033 at 0603 by Philip Rambaut; and Richard Bealey in Exeter; Radio Canada, Canada 9.020 (Fr, Eng, Sp, El, 0600 - 1000) as 4444 at 0600 by Colin Godwin.

The 13Mhz (22m) band is now quite crowded. Some broadcasts which may be heard during the day from Radio Australia last weekend were:

13.730 (Eng, Ger 0800) 4444 at 0850 by Luo Bai; WSCN Scotts, Alaska 15.000 (Eng, Fr, 0800 - 1000) as 5544 at 0800 by John Nash; SRF Berne, Switzerland 16.685 (Fr, Eng, 0800 - 1100) at 1630 by Philip Rambaut.

During the evening several more may be heard, including Radio DW via Microwave, W Germany 15.225 (Eng, Fr, 1800 - 2000) as 434 at 1800 by Philip Rambaut; Voice of Arabia, Saudi Arabia 15.040 (Eng, Fr, 1800 - 2000) as 4444 at 1920 by Colin Godwin. A portable + 15m wire antenna in Vatican Radio, Rome 9.645 L, Fr, Sp, El, 0600 - 2100 as 4443 at 2000 by Philip Rambaut.

The broadcasts from several DX spots are noted. Listening at 0100, John Nash heard FEB, Manila, Philippines 11.850 (Eng to SE Asia, 0300 - 0322). At 1100, Jim Willott logged KYOS from the Marshall Islands 11.900 (Eng to E Africa 0800 - 1600) SIO 222. Later, John Evans picked up FBEA Radio Malta, Seychelles 11.865 (Eng to S Africa 1510 - 1600) 3243 at 1545 as heard by Colin Duff.

The voice of the Mediterranean, Malta 11.750 (Eng to S Africa 1030 - 1615) attracted the attention of Philip Rambaut at 1615 noted as 322. At 1700, John Nash heard their broadcast, and S. Africa on 11.955 (Eng to 2200 - 2245) noted as 322. Later he picked up weak stations from VOA via Caracas, Venezuela 11.925 (Ch in C Africa 2100 - 0100) rated as 111 at 2118.

Many new stations from the Far East were mentioned in the reports: The Voice of the Mediterranean, Malta 11.925 (Eng, Ar 1400 - 1600). Using a Hammarlund HQ1005 portable, Robert Cowell noted their broadcast as 4444 at 1400.

A new 7m (21m) band was selected by Radio Australia as being the most suitable for early morning directions to Europe for many months their broadcast via Shepparton 9.655 (Eng 0700 - 1000) have been well received. Recently received note was sent by the co-channel interference from Radio HCJB in Quito, Ecuador. Instead of closing down on 0700 as hitherto, HCJB continued their transmissions to Europe until 0830. George Hewlett has noted that the intensity of the signal from HCJB improves on average the signal from Australia is SIO 322 at 0700. When HCJB closes it at 0730, the programmes are also beamed via Shepparton to SE Asia 9.770 (Eng 1000 - 1100) and to the C. Pacific and USA on 9.580 (Eng 0800 - 2100). David Watten logged 9.770 as 3433 at 1000 and Philip Rambaut noted 9.850 as 111 at 0821.

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You have more operating modes to listen in on: upper or lower sideband, CW, AM wide or narrow, and FM wide or narrow.

You can even watch television programmes by plugging in a video monitor into the optional video output. (NTSC System). Scan in steps of 5, 10, 12½, 25 and 100kHz. Store any frequency and related operating mode into any of the 99 memories. Scan the memories. Or in between them. Or simply “dial up” any frequency with the frequency entry pad.

Plus there’s more, including a 24-hour clock, multiplexed output, fluorescent readout, signal strength graph, and an optional PA4C, AC power adaptor.

Extend the coverage further with the optional FC965DX 0.15-30MHz and FC1300 800-1300MHz external converters.

The FRG-8800 HF communications receiver. A better way to listen to the world. If you want a complete communications package, the FRG-8800 is just right for you.

You get continuous worldwide coverage from 150kHz to 30MHz. And local coverage from 118 to 174MHz with an optional VHF converter.

Listen in on any mode: upper and lower sideband, CW, AM wide or narrow, and FM.

Store frequencies and operating modes into any of the twelve channels for instant recall.

Scan the airwaves with a number of programmable scanning functions.

Plus you get keyboard frequency entry. An LCD display for easy readout. A SINPO signal graph.

Computer interface capability for advanced listening functions. Two 24-hour clocks. Recording functions. And much more to make your listening station complete.

Listen in. When you want more from your VHF/UHF or HF receivers, just look to Yaesu. We take your listening seriously.

Yaesu

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Prices and specifications subject to change without notice.
FRG-9600 SSB coverage: 60 to 460 MHz.