

ICOM

Communications

IC-R7000, 25-2000MHz.

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 controller, voice synthesizer and HPI 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 FM. Twin 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.

Telephone us free-of-charge on:
HELPLINE 0800-521145.

— Mon-Fri 09.00-13.00 and 14.00-17.30 —

This is strictly a helpline for obtaining information about or ordering ICOM equipment. We regret this service cannot be used by dealers or for repair enquiries and parts orders. Thank you.

You can get what you want just by picking up the telephone. Our mail order department offers you free same day despatch whenever possible, instant credit, interest free H.P., Barclaycard and Access facility, 24 hour answerphone service.



Datapost



ICOM

ICOM (UK) Limited

Dept SW, Sea Street, Herne Bay, Kent CT6 8LD

Tel: (0227) 363859 Telex: 965179 ICOM G

[13] SWM Review



Cover The Realistic PRO-32A is a compact portable scanning receiver with 210 memory channels and a host of sophisticated scanning modes. John Waite takes the covers off this neat set.

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FIRST WORD

At last! What Receiver has finally managed to get off the ground.

It has taken far longer than I would ever have imagined to collect and collate the necessary technical information needed to make the feature worth while, but I trust that it will prove to be a useful and popular one both with you the readers and the set makers.

The companion feature — What Scanner — is undergoing the same careful preparation and will be appearing in the very near future to alternate with What Receiver. Make sure that you get your copy of *SWM* regularly by ordering it from your local newsagent.

In the centre of this issue you will have found a 16-page pull-out booklet, produced in conjunction with the European DX Council. This booklet contains the Exhibition



Guide to the Broadcasting Pavilion at the Telecomm 87 exhibition being held in Geneva at the end of October. Even if you are not lucky enough to be able to get along to the show then you will still find the rest of the booklet interesting.

Now some good news for all the scanner enthusiasts. Starting in the December issue you will be able to read your own regular column. Exactly how this develops will depend upon your input and your requirements — but I do not doubt that you will ensure that it is both lively and informative!

The December issue of *Short Wave Magazine* will be the last in Volume 45. This will enable us to bring the volume start and finish in line with the calendar and our sister magazine, *Practical Wireless*. Volume 46 will, therefore, commence with the January 1988 issue and finish with the December 1988 issue. Our smart new binders (see page 49) will accommodate twelve issues of *SWM*, or any other A4 size magazine — just stick a label over the *SWM* logo!

DICK GANDERTON

A WORD IN EDGEWAYS

Sir

Regarding the letters about pirate stations, I hope you would print any information on all radio stations.

Short Wave Magazine is about Radio for Radio Enthusiasts, it is not for your magazine to be concerned about the legality of the stations mentioned.

Censorship of the kind advocated reminds me much of what is happening over the Peter Wright book Spy Catcher.

The freedom to inform must outweigh other considerations.

IAN ABEL G3ZHI
ROTHERHAM

Sir

*I have recently re-discovered a "lost" hobby of mine, namely short wave listening. I would like to take this opportunity to congratulate you on the new format of your magazine and, although I have never written to a national magazine before, I find myself writing three letters to the various sections of *SWM* this month! One submission offers a list of stations heard on and around the 60m band, the second is a short offering for the "Airband" section and this, the third, concerns an actual event that took place recently.*

After reading the short

IF YOU HAVE ANY POINTS OF VIEW THAT YOU WANT TO AIR PLEASE WRITE TO THE EDITOR. IF YOUR LETTER IS USED YOU WILL RECEIVE A £5 VOUCHER TO SPEND ON ANY OF *SWM* SERVICES.

The Editor reserves the right to shorten any letters for publication but will try not to alter their sense. Letters must be original and not have been submitted to other magazines.

article about the new Sony ICF PRO80 hand-held receiver in the August issue of Short Wave Magazine I decided to find out more about it. The following Saturday I went into the Sony Centre in Nottingham where the receiver was on display behind a glass panel along with other Sony receivers. I own a Sony 2001D receiver, with which I have been very pleased, and wanted to know how the new offering compared with it for performance. When approached by a Sales Assistant the first question I asked was "How does the sensitivity of the PRO80 compare to that of the 2001D on short wave?". Pointing at the new receiver, the assistant confidently replied that "the new receiver will be better because the 2001D also has to cater for airband"!

I immediately decided that technical enquiries were out of the question and changed tack. From your article I knew that the frequency range of the PRO80 was continuous from 115kHz to 108MHz, but baffled by the above response asked "What

frequency does it go up to?". Which met with the response, "30MHz I think but just let me check". At this point the assistant went off to look for, and eventually find, the manual, when he revised the answer up to 108MHz.

There is an issue here that when someone is willing to pay £349 for a new receiver they deserve service from someone who is knowledgeable about the subject and the device, rather than be given glib answers in the hope of a quick sale. Furthermore, the shop in question is ground floor of a building in the centre of a busy city next to a multi-storey car park and across the road from a large shopping centre and block of flats. Needless to say when receivers are tested on short wave, only one or two of the more powerful stations are heard. The same shop does have roof mounted antennas for TV reception so why not an AN1 active antenna for the receivers.

Despite this gripe the purpose of this letter is not to campaign for fairer treatment

of potential purchasers, although this would be a worthy cause, but to address the outstanding issue of how well the PRO 80 compares with the 2001D.

There must be a number of people who see two familiar priced offerings from the same manufacturer who, for some inexplicable reason, does not even print the technical specifications of his products in the user's manual. Certainly there were no details of intermediate frequencies used, i.f. bandwidths or receiver sensitivity in the 2001D manual or sales literature, and a browse through that of the PRO80 found it similarly devoid.

*I would like to see a comparative test in *SWM* between the two sets.*

R. WILSON
NOTTINGHAM

R. Wilson will be pleased to learn that we have started on a review of the Sony PRO80 receiver and that this will feature in *SWM* in the very near future. Comparative reviews are not so easy to carry out and are probably not really as helpful as some would imagine. I, too would like to see better technical information available from the manufacturers, both in their publicity blurb as well as in the handbook.

ED

WHAT'S NEW

Micro Screwdrivers

Small screwdrivers are vital if you are into delving into the innards of your receivers. To avoid damaging the screwheads you should only use correctly fitting, good quality tools and, unfortunately, too many of the cheaper varieties are not of good enough quality.

CeKa have introduced a wide range of good quality micro screwdrivers ideal for the most delicate tasks. These have self-centring "button" heads and ribbed turning grooves moulded into the handles and measure 85mm from button to tip.

They are available in versions to suit slotted, recessed or "Torx" heads and so that you can easily identify which type of tip you have picked up the buttons are colour-coded. Yellow for slotted, red for recessed and blue for Torx. The tip size is also clearly printed on the handles, and range from a minute 0.8 to 1.8mm for the straight blade, sizes 000, 00 and 0 for recessed and 06 to 09 in four steps for Torx tips.

CeKa Works Ltd
Pwllheli
Gwynedd
North Wales LL53 5LH
Tel: (0758) 612254

DxAGB News

The latest copy of *DxAGB News*, the newsletter of the DX Association of Great Britain, contains some interesting articles.

There is Part 1 of a series on Marine Radiobeacon DXing, which is described as, "...unusual form of DXing makes a change from the more conventional broadcast stations also makes for excellent Morse code practice."

If you enjoy broadcast listening then you can compare your log with those in Members Loggings. It is quite amazing what station have been heard, obviously by those with most patience.

Details of the DxAGB can be had by writing to:

Alf Brimming
43 Atwood Drive
Bristol
BS11 0SR

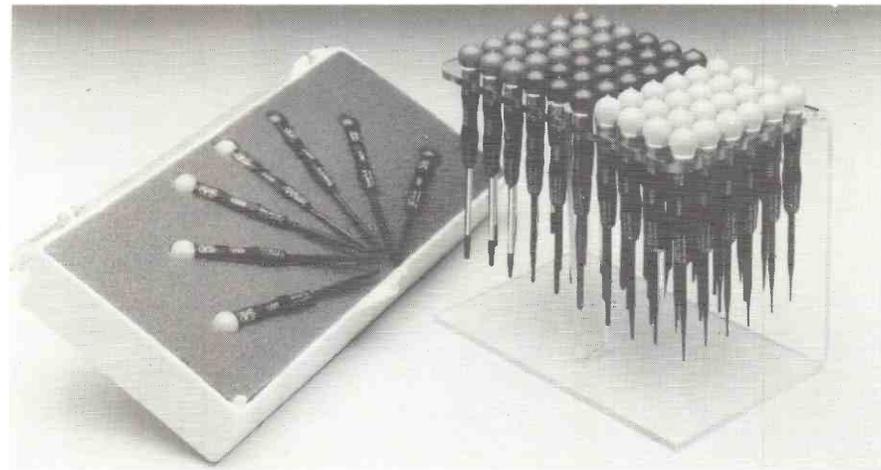
WOSP

If you are into following the UoSAT-1 and 2 amateur satellites operated by the University of Surrey and you have a Sinclair Spectrum computer then you will be interested in this new program by G4HLX.

WOSP - Whole Orbit Survey Plotter - is a program which decodes the Whole Orbit Data transmitted by the UoSATs, as explained in "Info in Orbit" last month.

Whole Orbit Data is the telemetry signals from the spacecraft's on-board sensors, accumulated over a period of one or more complete 90 minute orbits and transmitted to the ground stations at 1200 baud. Different types of data may be included depending upon the satellite's schedule and can cover external measurements such as magnetic field, radiation, etc. as well as internal values such as solar array currents, battery voltage, etc.

WOSP analyses the decoded data, performs checksum validation tests, counts and identifies the telemetry channels present



Packet Working Group

The first international PWG Symposium on packet radio is taking place in Antwerp on November 7.

The programme for the day is:

- 0945: Welcome address.
- 1000: Networking via TCP/IP by PAOGRI.
- 1100: Break.
- 1130: Rhein-Main Network Controller by DH1FAB.
- 1230: Lunch.
- 1400: Packet radio experiment on board of Phase IIIc by DK1YQ.
- 1500: Break.
- 1530: Packet message forwarding on the UK. Packet Network Protocols by G0/K8KA.
- 1630: Break.
- 1700: Debate.
- 1800: Conclusion.

The venue is Antwerp University Clinic Auditorium. If you write quickly more details can be obtained from:

W. Wittesaele ON1AWU.
PGW Tennisstraat 30
B. 9920 Lovendegem.
Belgium

Restore Your Tips

Multicore have just introduced TTC1, their new tip tinner and cleaner, to provide a fast and effective method of restoring de-wetted soldering iron tips to a virtually good-as-new condition.

Contained in a small metal container with lid and self-adhesive pad for fixing to working surfaces, this soldering aid is a compact block of chemically activated, electronics grade, solder powder which cleans, wets and re-tins soldering iron tips with a single wipe.

TTC-1 is claimed to remove even the stubborn tin/iron intermetallic layer that forms on iron-plated tips. The chemicals employed are stated to be non-corrosive and have a low evaporation temperature so that nothing but solder remains on the tip after tinning.

Cirkit Holdings PLC
Park Lane
Broxbourne
Herts EN10 7NQ
Tel: (0992) 444111

FAX-1 Prices

The price of the FAX-1, reviewed last month, is £329.95 with RTTY option and double screened printer cable. Post & Packing is £3.50 extra.

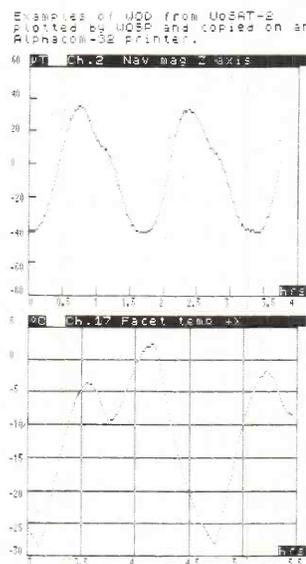
in the survey and produces, quickly, a graph of the data against time, with the axes annotated in the appropriate units. The plots can be copied to a suitable printer and the decoded data saved on tape or microdrive.

An EXPAND option allows the user, having seen the complete plot, to specify any part of it to be re-plotted on a larger scale. Again, the choice of axis scales and suitable annotations are automatic.

The program will run on any Spectrum 48K, Spectrum Plus, Spectrum 128 or 128K Plus 2 in 48 or 128 mode and is supplied on cassette. It can be simply transferred to microdrive or Opus disc if desired and detailed instructions are included.

The program cost £4.50 including postage in the UK. (Postage is 50p for Europe, £1.00 elsewhere in sterling only).

N. P. Taylor (G4HLX)
87 Hunters Field
Stanford in the Vale
Faringdon Oxon SN7 8ND



WHAT'S NEW



VHF Field Day

Everyone knows most amateurs are mad, and those participating in Field Days on hill tops are worse.

Here you can see members of the South Dublin Radio Club on a site near the RTE Irish Television mast on Kippure Mountain (IO63UD) for VHF Field Day. The group used the club callsign E1 2SDR/P and were on both 144 and 430MHz. They enjoyed many contacts into the UK as well as the continent.

While the site is at nearly 610m a.s.l., the weather was perfect and it was possible to see the coast of GW land without too much difficulty . . . see what I mean about mad!

Information Sheets

The DTI have now published Information Sheet No. 6: Radio Amateur's Examination. It has been produced in consultation and co-operation with the City & Guilds of London Institute.

The Institute are going to distribute some 40 000 copies of this information sheet via their mailshots to educational centres and libraries around the UK and certain places abroad.

In addition they will be distributing them throughout the year when they attend conventions and other public events related to leisure, education, science and technology.

By producing the sheet in more general terms the DTI and C&G hope that it will encourage people who would not normally come across amateur radio as a potential hobby to "have a go".

If you would like to see a copy of Information Sheet No 6, then write to:

Department of Trade & Industry
Room 613
Waterloo Bridge House
Waterloo Road
London
SE1 8UA

Sweden Calling DXers

Radio Sweden International sends out a weekly bulletin called Sweden Calling DXers every four weeks. Listeners who send in media news go on the mailing list for one year.

It is a very interesting bulletin, full of snippets of information like the latest broadcast information in different countries.

So if you want to see these bulletins for yourself, you should send your media reports in to:

Radio Sweden International
S-10510 Stockholm
Sweden

Programme Schedules

Radio Sweden International:

September 27 - November 1

English

Primary Target	Time (UTC)	Frequency (kHz)	Metre Band	Beam Direction
Europe	1600	1179	254	non directional
	2100	1179	254	non directional
	2300	1179	254	non directional
Europe/Africa	0930	9630	31	210°
	1100 ¹	6065	49	210°
	1100 ¹	9630	31	210°
	1600	6065	49	210°
	2100	6065	49	210°
Africa	1830	15240	19	165°
	2100	11845	25	180°
Middle East	0330	11705	25	130°
	1100	21690	13	145°
	1830	11845	25	145°
South Asia	1230	15430	19	85°
	1600	11705	25	85°
East Asia	1230	11960	25	55°
Aust/New Zeal	0930	15390	19	70°
North America	1400	11785	25	320°
	1400	15345	19	305°
	2300	9695	31	290°
	2300	11705	25	290°
	0230	9695	31	320°

(1) On Saturdays and Sundays, German will be broadcast on 6065kHz at 1030-1130UTC, instead of French and English.

Trans World Radio
September 6 - November 1

Frequency kHz	Metre Band	Time (UTC)	Day	Pwr kW	Deg Zone	ITU	Target	Language
6145	49	0655-0930	Mon	50	170	12-15	Brazil	Port.
6145	49	0725-0930	Tue-Sat	50	170	12-15	Brazil	Port.
6180	49	0100-0200	Daily	250	327	11	Carib	Spanish
9535	31	0300-0530	Sun, Mon	50	327	6-8	N. Amer.	English
9535	31	0300-0430	Tue-Sat	50	327	6-8	N. Amer.	English
9535	31	0430-0530	Sun, Mon	50	285	10, 11	C. Amer.	Spanish
9535	31	0955-1030	Daily	250	160	14, 15	S. Amer.	German
9535	31	1030-1105	Daily	250	148	12,13,15	Brazil	Port.
9665	31	0942-1100	Daily	50	176	12, 14	S. Amer.	Spanish
11815	25	1110-1257	Mon-Fri	50	336	6-8	N. Amer.	English
11815	25	1110-1332	Sun	50	336	6-8	N. Amer.	English
11815	25	1110-1405	Sat	50	336	6-8	N. Amer.	English
15355	19	2325-2400	Daily	250	160	12-16	S. Amer.	German
15355	19	0000-0030	Daily	250	160	12-16	Brazil	Port.
15355	19	0030-0045	Sun	250	160	12-16	S. Amer.	Spanish
15385	19	2155-0030	Daily	50	176	12-16	Brazil	Port.
15385	19	0030-0218	Daily	50	176	12-16	S. Amer.	Spanish

Trans World Radio
Tentative 1 November '87 to 6 March '88

Frequency kHz	Metre Band	Time (UTC)	Day	Pwr kW	Deg Zone	ITU	Target	Language
6145	49	0655-0930	Mon	50	170	12-16	Brazil	Port.
6145	49	0725-0930	Tue-Sun	50	170	12-16	Brazil	Port.
6180	49	0100-0200	Daily	250	327	11	Carib	Spanish
9535	31	0300-0530	Sun, Mon	50	327	6-8	N. Amer.	English
9535	31	0300-0430	Tue-Sat	50	327	6-8	N. Amer.	English
9535	31	0430-0530	Tue-Sat	50	285	10,11	C. Amer.	Spanish
9535	31	0920-1000	Daily	250	148	12-15	Brazil	Port.
9535	31	1000-1030	Daily	250	160	14, 15	S. Amer.	German
9665	31	0942-1100	Daily	50	176	12,14,16	S. Amer.	Spanish
11815	25	0710-0857	Mon-Fri	50	336	6-8	N. Amer.	English
11815	25	1110-1332	Sun	50	336	6-8	N. Amer.	English
11815	25	1110-1405	Sat	50	336	6-8	N. Amer.	English
15355	19	2325-2400	Daily	250	160	12-16	S. Amer.	German
15355	19	0000-0030	Daily	250	160	12-16	Brazil	Port.
15355	19	0300-0045	Sun	250	160	12-16	S. Amer.	Spanish
15385	19	2155-0030	Daily	50	176	12-16	Brazil	Port.
15385	19	0030-0218	Daily	50	176	12-16	S. Amer.	Spanish

BOOKCASE

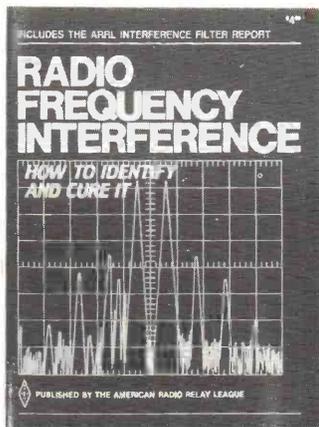
RADIO FREQUENCY INTERFERENCE How to identify and cure it

Published by the American Radio Relay League
Available from Short Wave Magazine Book Service
207 x 275mm, 253 pages. Price £4.30 plus 75p P&P

This book is for radio amateurs, CBers, TV and stereo owners! Most of us are faced with a world that is filled with electrical and electronic equipment. At one time or another, many of these devices are capable of being a source or victim of radio frequency interference.

The book has a logical approach to r.f.i. problems to enable you to understand why r.f.i. occurs and to learn how to eliminate it. There is a solution to every r.f.i. problem — the problem lies in finding and implementing it.

The Appendix contains a lot of useful information about various types of filters, there are 57 graphs plotting frequency response curves to help you



choose which will suit your purpose best.

UK LISTENERS CONFIDENTIAL FREQUENCY LIST 4th Edition

by Bill Laver
Published by Waters & Stanton
Available from Short Wave Magazine Book Service
209 x 296mm, 124 pages. Price £5.95 plus 75p P&P

This is the fourth and largest edition of this book so far. Each band of frequencies has been given a general heading so you know the kind of services that use the various parts of the radio spectrum.

If your eyesight is less than perfect (like mine) then you'll appreciate the larger than normal format of this book. The lists of frequencies are really easy to read even late at night in poor light.

Whenever possible they have cross checked the reports and in some cases have managed to indicate potential times of reception too.

There are basically three columns in the book, Frequency, Station/Location and Mode/Call-sign/Times. As you can see this gives the listeners a head start when trying to either locate a particular station or trying to identify a mysterious one.

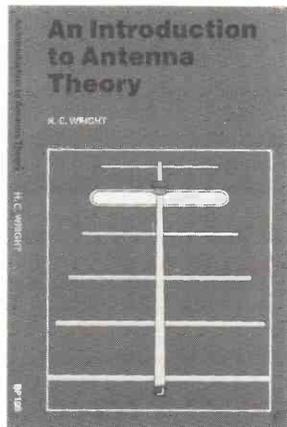
AN INTRODUCTION TO ANTENNA THEORY

by H.C. Wright
Published by Bernard Babani (publishing) Ltd
Available from Short Wave Magazine Book Service
100 x 178mm, 86 pages. Price £2.95 plus 75p P&P
ISBN 0-85934-173-9

There are always plenty of books on the market about antenna construction, you've only got to look at the *SWM* Book Service to see that. The subject of antenna theory is all too often avoided because readers think it's too complex for them to understand.

Obviously a book on antenna theory has to use mathematical formulae to explain things, but this book only uses what is needed. It uses diagrams wherever possible instead of the formulae to illustrate points. The book deals with the basic concepts relevant to receiving and transmitting antennas in a manner which emphasises the mechanics involved.

Such topics as Frame Antennas, Half-wave Dipoles, Helical Antennas as well as the



Effect of the Human Body on Personal Radio Antennas are all well covered. This provides a comprehensive book for the experimenter.

SECRETS OF SUCCESSFUL QSL'ING

by Gerry L. Dexter
Published by Tiare Publications, PO Box 493, Lake Geneva, WI 53147, USA.

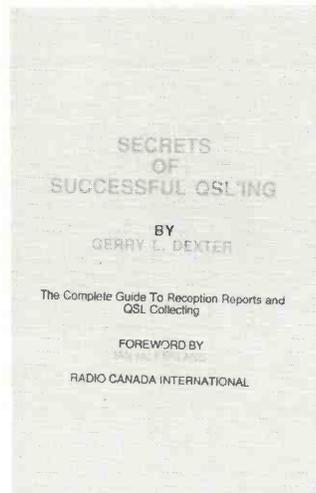
134 x 206mm, 113 pages. Price \$9.95 plus \$2 shipping and handling (US funds only).
ISBN 0-936653-00-0

The Press Release that comes with this book says, "The book that belongs in every QSL collector's library". After reading the book I'm quite sure that's true.

QSL hunting is always a good subject to start an argument. There are those stations who never QSL and object quite strongly to the idea, then on the other hand there are those who QSL almost every contact — that's not to mention the s.w.l. who QSLs broadcast stations.

Although this book has been written for the American market, it should prove no less useful to QSL hunters world wide. It's been written in a manner that leaves you with no doubt that the author has had plenty of practice at the art of QSLing.

The book really starts with report writing and what information you require from the broadcast station. One of the most important sides of reporting is how the information is presented. This side of the hobby is explained fully, even to the extent of addressing the report and whether or not you should use



IRCs or stamps for the country concerned.

language can be a problem with some of the smaller stations, but there are ways and means around that too. You can always write your report in one of the four main languages used by broadcasters.

Finally there is advice on other types of QSLing, like amateur stations, medium wave, f.m. and TV.

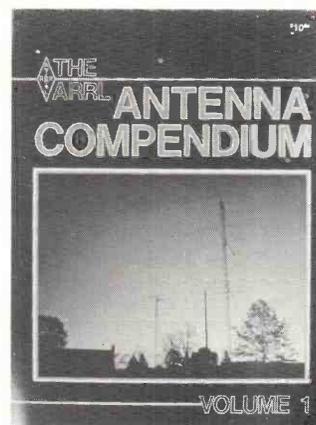
THE ARRL ANTENNA COMPENDIUM Volume 1

Published by the American Radio Relay League
Available from Short Wave Magazine Book Service
210 x 275mm, 175 pages. Price £9.25 plus 75p P&P

First off you may think, what's antenna theory got to do with s.w.l.s. Quite a lot really. Many listeners find that specialised antennas for their sphere of interest works much better than multi-use antennas.

The topic of antennas is one of the most popular in radio literature, I'm sure there are more books on antennas than any other subject. This book contains articles that the ARRL felt were more than good enough to publish, but didn't have the room for in their monthly magazine *QST*.

Instead of returning the material to the authors unpublished, they have collected it together and Volume 1 was the result. The types of antennas; Log Periodic Arrays; Other Beam Antennas; Multiband Antennas; Vertical Antennas; Antennas of Reduced Size; Miscellaneous Antennas; Antenna Construction and Installation; General Antenna and



Transmission-Line Information.

It can be very interesting and informative to learn different antenna construction techniques. It also enables the brave to experiment with their own system.

Jason Project - Special Event Stations....

Two special event stations are due to be on air March 5, calls are GBOJAS and GB6JAS. The GB0 station will operate mostly on the h.f. bands, schedules are being arranged with British research vessels in the North and South Atlantic. GB6JAS will concentrate on the 433 and 50MHz bands in an attempt to give Novices a good opportunity to work a Special Event Station, 144MHz (s.s.b. and f.m.) and other v.h.f./u.h.f. will be used as appropriate. Other planned events are - live NOAA/METEOSAT demonstrations - satellite tracking and communication using OSCAR satellites - and more to be announced.

Amateur radio links to other Jason sites are also being planned and a similar Special Event Station at the National Museum and Galleries On Merseyside is being investigated. local radio clubs will be involved, and the RSGB will be represented. Several importers and retailers have kindly offered to lend equipment.

For more details contact: **Alan Clayton G7HZZ (QTHR)** or via **Jason Amateur Radio Special Events, British Geographical Survey, Keyworth, Nottingham NG12 5GG. Tel: (0115) 9212857, Fax: (0115) 9363385** or by E-Mail: **K_ARC@UK.AC.NERC-KEYWORTH.VAXA**

DTI Invite Applications for PAMR Licences

Applications are invited for a new licence for the provision of trunked public access mobile radio services in Band III of the radio spectrum are being invited for the Birmingham area

Applications had been invited for two licences in May last year. Following a competition in the summer only one licence was awarded. The DTI has received further interest in the other new licence and therefore has decided to invite applications from interested parties.

SWM Book Service Prize Winner

The winner of the December £50 prize has been won by Mr P B Martin of Merseyside. Mr Martin was one of our readers entered in our monthly draw for those of you who bought books from the *SWM Book Service* in November. You, too, could be a winner, so if you're looking for a radio book you can do no better than use the UK's largest supplier of radio publications.

SPECTRE at ITC

We have just received news of a project concerning the development of digital terrestrial television, being run by the ITC.

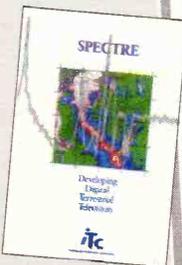
The development of digital television in the existing u.h.f. terrestrial and is likely to prove the most significant advance in broadcasting technology in the 1990s.

The project which dates back to 1988, it s being carried out under contract to the ITC by National Transcommunications Ltd (NTL).

The SPECTRE work is co-ordinated with other

technological research activities in Europe through a collaborative project called dTTb (digital terrestrial television broadcasting) which comprises Europe's key broadcasting organisations and consumer electronics companies.

Further information can be obtained by contacting the **ITC at Kings Worthy Court, Kings Worthy, Winchester, Hants SO23 7QA.**



Qatari VIP Visits RSGB HQ

The Minister for Energy and Industry of the State of Qatar, His Excellency Mr Abdullah bin Hamad Al-Attiyah, visited the RSGB headquarters at Potters Bar as a conclusion to his recent visit to the UK.

Following a tour of the building given by RSGB officials, the Minister took the opportunity to operate the station GB3RS, and contacted G4ARZ located in Kent.



President-Elect Clive Trotman GW4YKL accepts a gift on behalf of the Society from His Excellency Mr Abdullah bin Hamad Al-Attiyah, A71AU, the President of the Qatar Amateur Radio Society.

National Transmitter News

New BBC FM Transmitters

January 4 Hemdean, Reading. This new station brings good stereo f.m. radio reception to about 74000 people throughout the Reading area. The transmitter is located at Tredegar Road, Hemdean in the Caversham area of Reading and is broadcasting the following BBC Radio- Radio 1 99.4MHz, Radio 2 89.8MHz, Radio 3 92.0MHz and Radio 4 94.2MHz. This station uses a **vertically** polarised antenna.

Reception advice is available from either:

BBC Engineering Information White City 201 Wood Lane London W12 7TS Telephone: 0181-752 5040

ITC Engineering Information Kings Worthy Court Kings Worthy Winchester Hampshire SO23 7QA Telephone: (01962) 848647

Television Relay Stations

December 14 Portnahaven, Islay a new relay station opened provided jointly by the BBC and the ITC. The station is

located on a 17m mast on Cnoc Mor a hilltop about 1km west of Portnahaven. It is designed to bring good television and teletext reception to approximately 340 people throughout Portnahaven and Port Wemyss.

Station Details

Channels:
BBC 1 (Scotland) 33
BBC 2 (Scotland) 26
ITV (Scottish TV) 23
Channel 4 29
Antenna Group: A
Polarisation: Vertical
Effective Radiated Power: 10W

December 20 Wooler, Northumberland a new relay station opened provided jointly by the BBC and the ITC. The station is situated about 25km south of Berwick-upon-Tweed, it has been jointly built by the BBC and NTL. Located about 1km to the south of the town, it is designed to bring good television and teletext reception to approximately 450 people in Wooler, the valley to the south of the town, and the village of Doddington.

Station Details

Channels:
BBC 1 (North East) 22
BBC 2 (North East) 28
ITV (Tyne Tees) 25
Channel 4 32
Antenna Group: A
Polarisation: Vertical
Effective Radiated Power: 10W

The new BBC TV channel for Europe opens January 26th from Eutelsat II F1 @ 13°E. Programming will be over the 24 hours and offer news and general information biased towards the European audience. It's a joint venture between the BBC and Pearson PLC, the programmes will be in the clear. And another UK based channel - TV Asia - will be transmitting via Astra 1D over the 24 hours in the new low-band segment at 10.788GHz vertical. TV Asia has a help line for viewers having difficulty in retuning from the existing FSS channels to the new 1D transponder. TV Asia will be beamed up to Astra 1D from the NTL Earth station near Winchester.

With several Arabic states seeking to progress local TV distribution by MMDS (terrestrial microwave transmission @ 2.5GHz-ish) and thus gain control over actual programme offerings, trouble occurred recently in Iran when the authorities arrived to remove viewers' satellite dishes. In the Ekbatan district of Tehran the locals turned away government officials intent on confiscating the receiving dishes. The police were then summoned, fighting broke out, including small arms fire with several folk being arrested. The authorities are concerned over the satellite programming culture that could blight the youth of Iran.

Viewers to Intelsat K cannot have failed to notice the new programme *TeleNoticias* that is now being transmitted into Europe from the studio base in Miami, Florida. The Spanish language news service opened 1 December 94 and reckons on a potential audience of 370 million across the Americas and Europe. Reuters carries a 42% interest in the programme company.

Happy news for Italians with their government signing up 11 transponders on the soon to launch Eutelsat II F6 - Hot Bird 1 and later Hot Bird 2. Included in the channel offering will be RAls 1,2 and 3; TV group Telepiu have four with the others available for leasing and it's expected that Fininvest and Warner Brothers may go on board.

Into Asia and India intends to up her satellite transmissions to 60 channels within the next few years utilising digital compression. With the extra capacity available Doordarshan reckons to offer more regional languages together with two Hindi film channels. During the next few months TNT, MTV, HBO and sports channel ESPN will arrive across India. Early December saw Murdochs Star TV with Zee TV launch a new Hindi language service - 'EL TV' which will offer a basic entertainment and film menu broadcasting in Tamil, Bengali and Hindi. As programming expands the early evening slot will be dedicated into Tamil. Doordarshan's 'Elite' channel that should have opened last month has been delayed until March/April '95, the authorities being none too happy with the programme formula that would have included open discussion and criticism about the local government. Arianspace will launch India's INSAT 2C in August next which will carry eight transponders, brother INSAT 2D will launch the following Summer.

'Teleport London International' has launches 'UK/US Connections', a transatlantic video service for both part time, occasional and full time customers. Their London facility can access five US cities directly via the TDRSS satellite at 41°W in C Band.

Thailand's Shinawatra group with bookings arriving for their

Thaicom 2 bird are now planning a third satellite - Thaicom-3 - at a cost of 5000 million Bahts. Transponder loading will be 24 @ C Band with only eight in Ku-FSS band with the footprint extending from Central Asia down to New Zealand. Both industrial and direct to home users (DTH) will make use of this future satellite.

With increasing rivalry for transponder use, Intelsat is planning a new Ku Band only satellite dubbed Intelsat KX. KX-A is thought likely to slot mid Atlantic to obtain trans-Atlantic traffic - and to shadow the PAS-1, Orion 1 and future PAS-3 birds. KX-B will slot further to the East and cover the European land mass offering DTH facilities as well, again offering a commercial threat to both Eutelsat and SES Astra.

New German channels upcoming may be Kabel 2 (entertainment); SAT-2 (entertainment); Reise TV (travel), Viva-2 and COM-TV (both music channels). All in theory could be on-air by June 1995 using Eutelsat capacity. It could soon be the end of the road for TV SAT at 19°W with rumours that the DBP may close down all services and flog the bird to Scandinavian interests for slotting at either 1°W or 5°E. The DBP may also withdraw all TV services from DFS Kopernikus 3 @ 28°E and use the craft for general telecomms use only. Also likely to uplink from Germany onto Telecom 1C @ 3°E during 1995 is a Korean language channel. Using KBS programming (ex Seoul) the service will be scrambled probably in Nagravision, based around a subscription package and offering news, sports and general entertainment.

news

Happy First Birthday

The CQ Centre computer bulletin board, which is dedicated to all facets of amateur radio and short wave listening is one year old. Access is totally free, the system is available 24 hours a day at all popular modem speeds 300 and 14400bps. The BBS provides news (RSGB, WIA, AMSAT and ARRL), E-Mail and conferencing (Fidonet and Chatnet), plus all the very latest amateur radio software for PC compatible and Amiga computers.

Currently the system has approximately 100Mb (compressed) of radio-related files, plus a further 500Mb (compressed) of general interest software. Files are available for downloading even to first-time callers. The Board has two nodes, one on (01753) 595468 and two on (01753) 593524. The CQ Centre is a local call from the following area codes: (0171), (0181), (01895), (01923), (01753), (01628), (01784), (01494), (01334), (01372), (01276) and (01932).

Errata

One Chip Panoramic Adapter. January 1995.

Some incorrect component values crept into the circuit diagram (Fig. 5). Resistors R2 & 3 should be 22Ω, R9 47kΩ, capacitor C17 should be 1µF. The Parts List gave the correct values. Our apologies for any confusion that might have been caused.

SKYCOM

Skyview Systems, well known for their software decoding, weather and environmental monitoring packages are to launch a new division, Skyview Communications (SKYCOM). Skyview Systems have sold over 20000 copies of their Weather FAX software in various formats, as well as a large number of weather stations.

The new division will provide a retail outlet specialising in amateur radio and short wave data products in addition to continuing to supply a large range of amateur weather monitoring equipment. SKYCOM will be based at the Skyview HQ in Colchester, Essex and will be headed up by Steve Jelly G6URJ who was responsible for customer and dealer support of data products during his time with Lowe Electronics. Roger Barker G4IDE will also be providing his support in both the packet radio and software areas.

The new division is planning to launch a number of other own brand products, and will be having a special promotion on their SYNOP Synoptic weather charting software package. **Skyview Communications (SKYCOM), Skyview House, Alresford, Nr. Colchester, Essex CO7 8BZ. Tel. (01206) 82315 Fax. (01206) 825328.**

Listen With Grandad

by Leon Balen & David Leverett



"Young man - my first wireless was a Wootaphone 4-valve, cabinet model with . . ."

HEADPHONES

		Price	Carriage
HS7	KENWOOD miniature head phones	£15.80	£1.00
HS6	KENWOOD lightweight headphones	£24.38	£2.00
HS5	KENWOOD de luxe headphones	£37.54	£2.00

WORLD CLOCK

CWTC	CASIO world time clock	£15.95	£1.00
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VHF/UHF MONITORING RECEIVER



AR2002	Scanning receiver from AOR covering 25-550 MHz and 800-1300 MHz	£487.30	£7.00
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Options

RCPack	RS232 Interface for computer control	£255.63	£2.00
RCAD	RC Pack adapter for use with AR2001	£25.45	£1.50
MB2001	Mobile mount	£11.34	£1.00

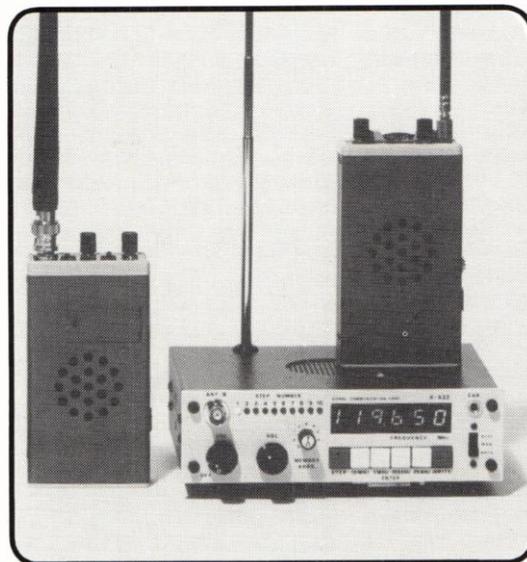
FREE

For more information write to us here at Matlock. Send 50p to cover postage and we will send you, by return of post a full airband information pack, together with a free copy of our "AIRBAND GUIDE".

AERIALS, CABLE AND CONNECTORS FOR VHF/UHF RECEIVERS

REVCONE	Discone aerial, 30-500 MHz	£31.50	£7.00
D130	Diamond wide coverage aerial, 25-1300 MHz	£79.34	£7.00
UR43	50 ohm coaxial cable	£0.30	
UR67	50 ohm coaxial cable	£0.85	
BNCPLUG	50 ohm connector for UR43 cable	£1.50	£0.50
PL259	Standard coax plug for UR67	£0.66	£0.50
REDUCER	Reducing sleeve for PL259 for use with UR43	£0.15	£0.50

AIRBAND RECEIVERS



R537S	Airband receiver, tunable 118-136 MHz plus 2 crystal controlled channels crystals extra	£69.51	£2.00
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Options

RB537	Rubber helical aerial	£4.60	£0.50
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R528	Scanning airband receiver, 6 channels crystal controlled, crystals extra	£125.36	£2.00
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Options for both R537S and R528.

PS9	Mains adaptor	£8.50	£2.00
R537L	Soft case	£3.68	£0.50
RX22	Rechargeable nicad battery	£6.98	£1.00
CH122	Charger for RX22 Nicad	£8.50	£2.00
CRYSTAL	Plug-in crystal (state frequency required)	£4.60	£0.50

**RING FOR DETAILS OF
THE NEW R535 VHF/UHF
AIRBAND RECEIVER**

AIRBAND AERIALS

LAB	Airband ground plane	£18.42	£2.50				
MG125	Car aerial, magnetic base	£16.42	£2.50				
HG3FA	5/8 REVCO mobile whip	£7.50	£7.00				
SCC	Base for HG3FA	£6.50	£1.00				
SCCB	As SCC but with quick release	£7.80	£1.00				
2065	5/8 ground plane adjustable 118-180 MHz	£31.50	£7.00				
				UR43	50 ohm coaxial cable	£0.30	
				UR67	50 ohm coaxial cable	£0.85	
				BNCPLUG	50 ohm connector for UR43 cable	£1.50	£0.50
				PL259	Standard coax plug for UR67	£0.66	£0.50
				REDUCER	Reducing sleeve for PL259 for use with UR43	£0.15	£0.50

Prices and specifications subject to change without notice.

For full range of HF receiving equipment see last months advertisement in this magazine.

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60 YEARS ON – EMPIRE BROADCASTING DIAMOND JUBILEE

Joan Ham

"Transmission received from British 2NM on morning of 12.9.27 Time 1am 33metres approx. a carrier on the air, off and on until:

1.45am: Instrumental record

1.50am: ditto and vocal

Announcement: "2NM 2NM British 2NM testing, that record was from the opera. . . The next will be song..."

1.55am: Song (lady)

2am: "Hello Hello 2NM 2NM British 2NM calling Hello Australia, Hello 2FC Sydney, Hello Amateurs. We regret the breakdown this morning... we were using D.C. now using Rectified...and we will be pleased to receive reports..."

2.08am: The next record will be an Overture played by His Majesty's Coldstream Guards, His Masters Voice record No...

2.12am: "Hello Hello 2NM 2NM British 2NM calling, testing that was an Overture played by His Majesty's Coldstream Guards Record No...11335

2.15am: 2NM 2NM next item is a solo

2.25am: Speech not clear, some announcement made and signals ceased just after 2.25am.

REMARKS 2NM should have started about an hour earlier as, judging by the strength of the carrier that was on the air before he commenced playing records. It was very strong Faded badly from just after 2.15 am to 2.25 am Average strength from 1.45-2.12 R6 on Det. and Audio. An all round very fine performance phone was excellent. C.H. Vernon"

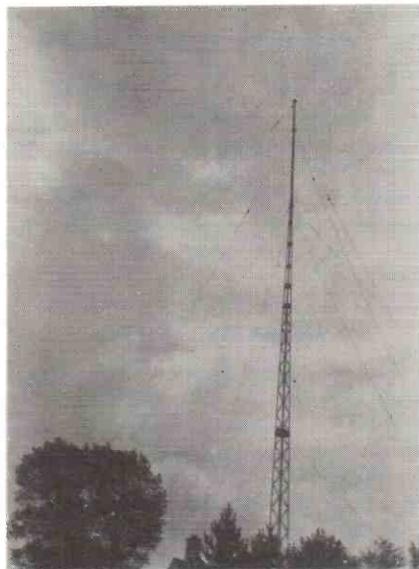
That listener's report from Albany, W. Australia, in 1927 was one exciting result of years of planning, building and negotiating with the GPO to start a broadcasting service to the British Empire. The historic breakthrough was made by

The story of Empire Broadcasting continues.

We take a look at the Diamond Jubilee of the famous occasion.

Gerald Marcuse G2NM, in a private capacity and at a personal cost of £6000. A mere 30 years after the invention of wireless, Gerald earned the admiration and gratitude of British subjects all over the world: reports and congratulations came from Buenos Aires, South Africa, and the Australian Newspaper Cable Service and many others. That historic first broadcast to the British Empire included contributions from Capt. Ian Fraser MP G5SU, the High Commissioner of Australia, Sir Granville Rylie and several well-known artists of the day.

The famous callsign G2NM was heard again over the air, not from the 100ft mast and Zepp antenna at Coombe Dingle,



The mast used by G2NM for his broadcasts.

The commemoration plaque at Gerald's 1927 home in Caterham.



Caterham, Surrey, but from the Chalk Pits Museum, Amberley, Sussex, better known as the home of GB2CPM. The museum station closed down for the occasion to make way for the Chichester and District Radio Club to operate a special event station, GB2NM, to commemorate the Diamond Jubilee of this first Empire broadcast. Six operators manned the mic in shifts round the clock from 1116 BST. On September 11 to 1645 BST on the 13th, with stations on the 144MHz and 3.5MHz bands.

Although it was not possible to re-establish those famous "Empire" contacts, the station did cross the Atlantic on 21MHz to talk to CE5BTS and CE3CWQ in Chile and another in Brazil. The 3.5MHz station logged 11 European countries. The operators were delighted that about one in ten had some personal contact or memory of G2NM.

GM3WFJ in Kirkmichael, Perth, who called on the 12th was able to claim that Gerald Marcuse had proposed him for membership of the RSGB when he was at school. The mix was of very new calls and very old, 2-letter, ones, many of whom had started in the 1920s as schoolboys. 28 licences were issued before 1939, 17 of them G2s, originally granted as artificial aerial licences. In addition 7 GB stations called in from various fairs and shows, including the Cardiff Show!

A particular pleasure came on Sunday morning when George Jessop G6JP was logged, but he himself had a surprise waiting when Chichester operator, Chris Bryan, passed the mic to "Dud" Charman G6CJ and to Gerald's widow, Irene, the VIP visitors in the museum's shack. Charles Nightingale G3IDX, the Chichester Club President, commented that it was a pleasure to work on 3.5MHz because of the impeccable manners and discipline of all those waiting to work GB2NM. He reported that no-one interrupted and everybody exercised patience and good behaviour, giving the Chichester operators a very enjoyable time.

One interesting point was the surprise of the newer callsigns at the achievements of Gerald's Empire broadcasts. They found it amazing that "anyone could do that in those times!" This was echoed by one of the younger club operators, Alan Page G6UYJ, who also said that he was surprised that Gerald could get out to Australia in 1927! Allan was enjoying his first stint as a special-event operator, proudly sporting his father's callsign (G6UYJ senior is now G4WIR) and his month-old licence was receiving on-the-job-training for JOTA. He has cut his teeth log-keeping for that event. Representing the future of the science of which Gerald Marcuse was such a notable pioneer, it was reassuring to hear him say how much he liked the idea of keeping the name alive with this special station. □

Godfrey Manning

It is just as well that I was at the controls of a word processor and not an aircraft when I was preparing September's *Airband*. **Tony Bernascone** (Middlesborough) told me that the Decca Navigator really **does** work on frequencies around 70-127kHz. As you were! I was right the first time. This means that there is still an error in part 3 of *Aeronautical Radio* in the July issue: Decca is not on v.h.f. but l.f. of course. I am always eager to correct errors or receive any information that results in expansion of knowledge. We will all be able to learn that way.

Hardly any reports have reached me this month! Where were you all? I suppose that many readers have been on holiday but this is no bad thing as far as *Airband* goes. Many of you must have travelled by air. So, how about some observations, reports, or anecdotes? Something must have happened to somebody out there — tell us about it!

Frequency Information

Malcolm Wayland (Huntingdon, Cambs) is a First Officer flying Boeing 737s for Britannia Airways. He tells me that virtually all of the military u.h.f. communications frequencies have changed recently and that 12.5kHz channels are now being used to replace the earlier 50kHz spacing. Should keep readers busy who try to catalogue frequencies on their home computers. Military frequencies are found between 225-400MHz and as many military aircraft carry no v.h.f. equipment it is often necessary for civil airfields to have a u.h.f. allocation available. Airfield air-traffic control doesn't just handle movements in and out of the aerodrome, but may also provide a radar service to aircraft wishing to transit the special control zone surrounding the runway. There's nothing to stop military aircraft wanting to do this too! If you look at, say, the "quarter-million" *Topographical Air Chart* that I mentioned last month you will see that major air terminals are surrounded by, variously, special rules airspace, control zones, terminal manoeuvring area (t.m.a.s.), military air traffic zones (m.a.t.z.s), etc., and you can't just fly through these unless you first obtain clearance from the controlling authority!

STOLport

More special rules airspace will have been established on October 1, this time around the London (City) airport, the so-called "STOLport" (STOL is an acronym for short take-off and landing) in the docklands. This special rules zone (s.r.z.) will be an appendage to the existing London Control zone, and to its east. It applies from the surface to 2500 feet altitude. Close to London (City) is a new non-directional beacon (n.d.b.) identity LCY (di-dah-di-dit-, dah-di-dah-dit, dah-di-dah-dah). I know neither its frequency

nor the procedures involved in departing or approaching this new airport: would one of the pilots or other readers out there please let the rest of us know? The controlling authority for the s.r.z. is "Thames Radar" on 132.7MHz. If you are thinking of flying on instruments to Biggin Hill (directly south of LCY) you'll have to mind out for the s.r.z. now! Information source: *Aeronautical Information Circular 77/1987* (published by the Civil Aviation Authority). The normal instrument landing system (i.l.s.) glide slope is typically inclined at 3° to the horizontal but I understand that STOLport glide slopes are more likely to be a steep 7½°. Can anybody confirm that there is i.l.s. at London (City)? And if so, has the C.A.A. an aircraft capable of calibrating it: they don't fly Dash-7s, as far as I know!

Omega

I notice on page 688 of September's *Radio Communication* that the standard frequency transmissions from WWV and WWVH on 2.5, 5, 10 and 15 (plus 20MHz for WWV) also contain a status report on the Omega very low frequency navigation system (Omega itself is on 10.2kHz). WWV (Boulder, Colorado, USA) transmits this report at 16 minutes past every hour and WWVH (Kauai, Hawaii) does the same at 47 minutes past each hour. Reception of the standard frequency service is one of the privileges granted by the amateur radio licence.

Museum Time

I first met **Mark Evans** (Great Alne, Warwickshire) through our common interest of collecting for our own aeronautical museums. Mark's group runs the Midland Warplane Museum, open to the public and based at the Coughton Court National Trust property, 3km north of Alcester (Warwickshire) on the A435. Group speciality is "archeology": sites of World War II crashes are investigated and dug up, the remains being cleaned and displayed in the Museum, partly as a tribute to those airmen involved in the hostilities.

Mark is thinking of restoring a (non-crashed) R1155 ex-aircraft receiver, very common in the RAF during the WWII. The March and May 1985 issues of *Practical Wireless* carried details on the restoration of this receiver, and I would suggest that you send £2.60 to PW Publishing Ltd., Enefco House, The Quay, Poole, Dorset BH15 1PP for the two back numbers. I believe that there are differences in frequency coverage depending on which variant of the R1155 you have, Mark. Some were even fitted with an optional direction finder, similar to the arrangement used for receiving n.d.b.s. today.

The problem with these old sets, as I found out with the HRO on which I began

my amateur h.f. listening, is that often the electrolytic capacitors have decided that enough's enough. After all, they did survive a war 40 years ago! Replacement of these is an important part of the restoration process.

Staying in the West Midlands, in the village of Baginton and only a couple of kilometres from the entrance to Coventry Airport is John Coggins' radio museum which boasts plenty of vintage airborne stuff. Please respect that this is a private collection, and so the best way to approach John for a visit might be to telephone Coventry Airport, where he has an aircraft radio installation and maintenance business, on (0203) 301717. Please do **not** turn up unexpectedly. Round the corner from Baginton in Rowley Road (which runs along the side of the airfield) is the Midland Air Museum. Not a radio specialist this time, but worth a visit. Lastly, the Royal Air Force Museum at Hendon has a few radio items dotted around on display.

Information Sources

I previously mentioned Aerad publications which can be purchased from Aerad Customer Services, Building 254, P.O. Box 10, London Heathrow Airport, Hounslow, Middlesex, TW6 2JA. Telephone for price confirmation on 01-562 0795 and don't forget to ask about postage, although there is no VAT. One notable reference book is *Europe Supplement — Volume 1: Communications* which lists airport, air-traffic control and navigational aid frequencies in alphabetical order.

One of British Airways' First Officers on Boeing 747 "Jumbos" is also a prolific writer. This column is not a book review, but it you see Stanley Stewart as the author on an aviation book — you'll be glad you bought it! *Flying the Big Jets* (Airlife Publishing) tells much about the technical side of flying airliners along with plenty of navigational and radio details. Included is a description of a typical trans-Atlantic flight complete with radio dialogue. Similarly *1 from the Flight Deck: Heathrow-Chicago* (Ian Allan) is a well-illustrated description of another flight also containing radio information. Lastly, *Air Disasters* (Ian Allan) is a detailed, reasoned account of selected well-known crashes. This sensible book should put popular rumours to rest and caught my eye on the bookstand because flight safety is a particular interest of mine.

You Write

R. Wilson (West Bridgford, Notts) adds a little more about Richard Branson's trans-Atlantic balloon attempt. The oceanic controller (Shanwick) obtained hourly position reports from the balloon, but of course could not dictate its flight path. At one time the balloon reached 27000 feet

AIRBAND

and was doing 82 knots. Five hundred feet higher begins the most crowded part of the North Atlantic Tract System!

Regular contributor **Dave Lawrence G6HXR** (Snodland, Kent) actually flew — as a fare-paying passenger from London (Gatwick) to “somewhere in Scotland.” He sends some interesting press cuttings about the Warbirds display that took place at West Malling, Kent, on August Bank Holiday. Included was a Vulcan B2 bomber actually flying. The last time I saw a Vulcan was at the Abingdon end-of-season display September 1986. Despite the weather closing in with an ever-lower cloudbase, I’ll never forget the look on my girlfriend’s face as we watched the display — it’s her favourite aeroplane, and she’d gone along specially to see it fly! The Midland Air Museum (as mentioned above) also have one, but on static display.

Glossary

In answer to the requests for a glossary of aviation terms I will start by describing altimeter setting. For future issues please write and ask for explanations of specific topics that are causing confusion.

The aneroid altimeter senses outside (static) air pressure which decreases with

Send your letters to:
Godfrey Manning, Airband,
Short Wave magazine,
Enefco House, The Quay,
Poole, Dorset BH15 1PP.

increasing altitude (this is distinct from a radio altimeter). The problem is that at any given place the barometric pressure of the day varies with the weather. If you leave an altimeter on a desk, its reading alters just like a barometer. An adjustment is therefore provided so that it can be reset to zero and thus compensate for the day’s barometric pressure. The knob is adjusted according to a barometric pressure subscale, calibrated in millibars (in the UK) or sometimes in inches of mercury (in Hg) on American aircraft.

Setting the QFE pressure (as given by the controller) results in the altimeter reading zero when on the ground at the aerodrome; QFE is the day’s pressure as measured at the airfield. If instead QNH is set, the altimeter will read height above mean sea level even when the aircraft is parked on the apron. Thus, airfield elevation may be determined.

Once flying high, small errors in height above sea level don’t matter just as long as all aircraft stick to a consistent standard.

Here, flight levels are used; they go in hundreds of feet and the barometric subscale is always set to QNE (1013.25 mB or 29.92 in Hg) which represents average sea-level pressure.

The point at which the change from QNH to QNE is made is called the transition altitude (transition level if descending). The London (City) s.r.z. described above goes up to 2500 feet altitude and because this is below the transition altitude for the area it is nonsense to quote this as flight level FL25. The surrounding t.m.a. on the other hand starts at 2500 feet altitude but goes up, through the transition altitude, to FL245 (the altimeter would show 24500 feet when flying at FL245 and set to 1013.25 mB). It does not make sense to say that the top of the t.m.a. is at 24500 feet altitude.

When an airline captain tells his passengers that they are flying at 30000 feet he really means FL300. If the day’s pressure is actually the same as the QNE set on the altimeter, the actual height is correct; otherwise there will be a small error that is not significant but which is shared identically by all other aircraft flying on QNE in the area.

That’s it, until we take the air again next month; and, as they say before all good flights, don’t forget to write! □

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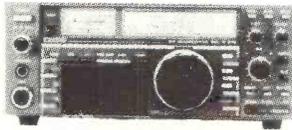
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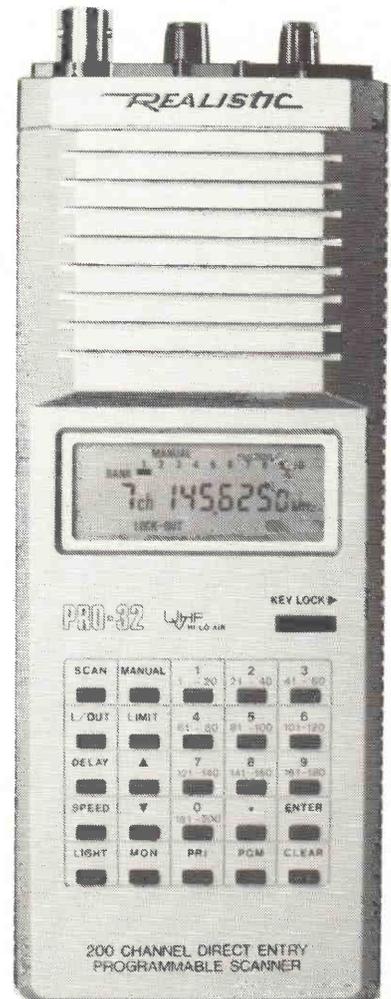
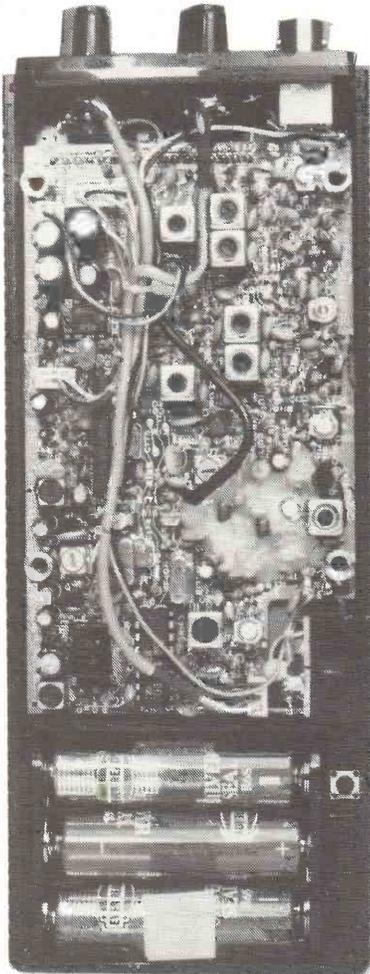
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REALISTIC PRO-32A SCANNER

John Waite

The Realistic PRO-32A is a very compact portable scanner boasting some 210 memory channels and sophisticated scanning modes. Its neat lines conceal a lot of features, John Waite takes a look inside.



A receiver of this type is necessarily complicated so I will describe the circuit in blocks rather than at component level.

The 50Ω antenna input is fed to two front-end modules. The first module is used on v.h.f. only and comprises a three-transistor circuit providing r.f. gain, first mixer and a.g.c. (automatic gain control). The second module provides similar functions on the u.h.f. bands and uses two transistors. The only function missing from this second module is the a.g.c. The 10.7MHz i.f. output from the front-end modules is combined and applied to a single transistor i.f. amplifier and crystal filter which provides the main selectivity.

The conversion to the final i.f. of 455kHz takes place in a dedicated i.c. This is the oscillator, 2nd mixer, i.f. amplifier and quadrature detector for f.m. The noise amplifier and detector for the squelch control are also derived from this i.c. Additional selectivity at 455kHz is provided by a ceramic filter after the second mixer.

When receiving a.m. the filtered but unlimited i.f. signal is extracted and amplified by a two transistor i.f. amplifier. The resulting a.m. i.f. is demodulated by a diode detector and passed to a simple diode noise limiter. The audio output of the a.m. and f.m. detectors are fed to the

single i.c. audio amplifier via a micro-processor controlled switch.

The heart of this type of receiver is the micro-processor and its software and in this case all receiver functions with the exception of the volume and squelch are under the control of the micro-processor.

The low band v.h.f. oscillator signal is produced by a single transistor v.c.o. (voltage controlled oscillator), the output of which is fed to the v.h.f. mixer via a buffer amplifier. This local oscillator signal is also applied to a prescaler which divides the frequency down to a rate suitable for application to the p.l.l. (phase locked loop). The reference frequency for the p.l.l. is produced by the micro-processor and any resultant error signal from the p.l.l. is fed to a three stage low-pass filter. The filtered error signal from the low-pass filter is fed back to the local oscillator v.c.o. which completes the frequency control loop. The v.c.o. for air band, high band v.h.f. and u.h.f. follow the same process, the only exception being that the local oscillator output is tripled in frequency before application to the first mixer.

The 9 volt power source, either from battery or external, is fed to 5 volt and 5.5 volt regulators which supply the radio and logic circuits. There appears to be an error in the block diagram in the users manual as the 5 volt and 5.5 volt regulator outputs are shown connected together! A two transistor d.c. to d.c. converter is used to generate the tuning voltage for the local oscillator v.c.o.s. Finally a battery backup facility is included which retains all the information stored in the memories.

Operation

As with a lot of scanning receivers, first contact produces a certain amount of confusion. The usual impatient fiddling with the new toy produced minimal results and I had to resort to reading the manual. Fortunately the manual is written in real English as opposed to oriental English and I was able to quickly get to grips with the basic operation. The user manual gets straight on with some simple instructions to get you on the air.

The simplest controls to master are the ones outside the control of the micro-processor, i.e. the volume and squelch controls. Both of these rotary controls are conventional in their operation and presented no problems.

The supplied helical antenna (Rubber

Duck), plugs into the BNC socket on the top panel. The results from this antenna were acceptable, but it is asking rather a lot to expect a 19 cm helical antenna to work efficiently from 68MHz to 512MHz! The antenna socket on the top panel can also be used to connect an external antenna which will give a much improved performance.

Also on the top panel are three small push buttons which enable the remote selection of either manual or scan mode and two rates of scanning speed. These controls are very useful when using the receiver handheld, as all the main panel controls can be locked leaving just the top panel operational. This method of working is ideal when operating in poor weather conditions, as the main bulk of the receiver can be well covered. The final item on the top panel is a 3.5mm jack socket for connection of an earpiece for personal listening.

Moving on to the main controls there are four main operating modes on the PRO-32A as follows:

- 1) Program.
- 2) Manual.
- 3) Scan.
- 4) Search.

REALISTIC PRO-32A SCANNER

Program Mode

This mode allows you to enter frequencies of interest into the main memory for later retrieval when in scan and manual modes. There are a total of 200 memories available which should satisfy the most avid listener. To help with the retrieval and general management of these memories they are arranged as 10 banks of 20 channels. The liquid crystal display shows which channel is in use with the channel number (1 to 200) and a numbered bar at the top of the display shows which bank the channel is in. Entering a frequency into a memory channel is a fairly simple operation and involves the following straight forward steps.

- 1: Press "Manual".
- 2: Enter the channel number (1 to 200).
- 3: Press "Program".
- 4: Enter the desired frequency in MHz.
- 5: Press "Enter".

It seems that everything hi-tech these days has to make a noise and this receiver is no exception, every key press is accompanied by a short beep which cannot be disabled. After a while though you do find that you can ignore it, thus saving your sanity. It might have been an idea to point out that the beep is not all bad. It does at least confirm that an entry has been made, which is not always easy with modern key pads.

Whilst entering a frequency into a channel the liquid crystal display clearly shows all entered digits and the mode. The mode is actually shown in plain English rather than abbreviations, which makes a nice change. If you are entering a series of frequencies in consecutive memories then you only need to repeat operations 3 to 5 to access the next channel. This is a time saver when initially loading the memory.

In common with most scanning receivers the PRO-32A can only tune in pre-set increments dependant on the band in use. The increments are 5kHz on v.h.f., 12.5kHz on u.h.f. and 25kHz on the air band. If a frequency is entered into a channel which does not align with these increments the PRO-32A automatically rounds the entered frequency down to the next nearest increment for the band in use. This is a point worth noting as it can leave you up to 24kHz out on your entered frequency i.e. if you entered 123.549MHz the receiver would round this to 123.525MHz instead of the correct next increment of 123.550MHz.

Manual Mode

This mode enables the manual selection of any one of the 200 channels. Unless you have an amazing memory I would recommend that you keep a written note of frequencies and channels. The manual has a page set aside for this very purpose, but it only has room for 15 entries. Once a channel has been selected you can step to the next higher channel by pressing the manual button again. You will probably have noticed that the manual mode was

used to select a channel for programming in the last section.

Scan Mode

This is the main operational mode which boasts a whole range of features designed to make life easier for the user.

To detect activity on a channel, the scanner uses the normal technique of monitoring the squelch circuit and stopping the scan when the squelch is lifted. The squelch control on the top panel allows adjustment of the squelch threshold which is useful when listening through a high level of QRM.

The scanning mode is activated by pressing the scan button on the top or front panel, once pressed the receiver scans forwards through all 200 channels continuously. Upon reaching channel 200 it resets to channel 1 and starts again. If, like me you don't know of 200 channels you want to monitor or you only want to monitor a few channels the PRO-32A can cope. As I mentioned earlier the channels are arranged in 10 banks, the reasoning behind this is to allow you to exclude any number of banks from the scan. If for example you are a fan of the Air Bands then you could put the local airport control frequencies in one bank and then, by excluding all other banks, monitor just the local activity. Any number of banks can be excluded, but you must leave at least one active. The display shows the state of the memory banks using a row of numbers from 1 to 10 at the top of the display. The bank being scanned is indicated by a flashing bar underneath the number whilst all other enabled banks have a steady bar. To enable or disable a bank whilst in scan mode is simplicity itself as you merely have to press a single digit corresponding to the required bank. The first press enables the bank and a subsequent press will disable the bank i.e. a toggle action.

When the receiver is scanning and it detects activity, the scan stops and the receiver waits on that frequency until the carrier disappears whereupon the scan recommences. If you are monitoring a two way conversation then the receiver will probably re-start the scan before the other half of the contact can reply. To overcome this problem, the PRO-32A can be set to wait for 2 seconds after the carrier has dropped before recommencing the scan. This facility is enabled simply by pressing the delay button whilst the scan is stopped on the channel of interest.

One other problem that often occurs during scanning is a frequency with a constant carrier, a continuous weather transmission for example. Every time the scanner detects this carrier it will stop indefinitely. To overcome this the PRO-32A has a lock-out feature which allows you to exclude selected single channels from the scan. To enable this feature the channel in question has to be manually selected and the lock-out button pressed. This will result in the word appearing on

the bottom of the display when this channel is selected. The lock-out button, like the bank disabling has a toggle action and a second press of the button will restore the channel to normal operation.

If you find that the standard scanning speed is too fast, it can be slowed from its normal rate of 8 channels/second to the half speed rate of 4 channels/second.

One other very useful facility is the priority channel. This feature interrupts the normal scan routine every two seconds and checks for a signal on the priority channel. I found this very useful for monitoring emergency frequencies. The logic in the PRO-32A is pre-set with channel 1 as the priority channel, but any single channel can be nominated. To activate this mode you merely press the priority button, which again acts as toggle. Once selected this facility continues to monitor the priority channel even when the scan has stopped on a carrier or manual mode has been selected.

Search Mode

This interesting feature allows you to search a range of frequencies for any signs of activity. The prime use for this facility is to discover "new" frequencies for entry in the main memory channels. The search can be set up to cover any range of frequencies covered by the receiver, the frequencies can span two or more of the coverage bands, which can be very useful. The search routine searches using the frequency increments appropriate to the band in use, as described in the scanning section. Whilst in the search mode the speed button can be pressed to alter the searching speed and the delay button can be used to dwell on any transmissions for 2 seconds after the carrier has dropped.

Having found an interesting transmission whilst in the search mode, the next problem is how to store it. The PRO-32 has this buttoned up with another bank of memory known as the monitor channels. These 10 channels are reserved for use with search routines and programming them is just a case of pressing the "MON" button when the receiver is tuned to the desired frequency, the information is automatically stored in the next available channel. The allocated channel is shown on the display as a number with a bar underneath, as per the bank numbers.

Once a selection of frequencies have been stored in the monitor channels they can be very easily transferred to the main scanning channels without having to re-type the frequency.

One final point regarding the main modes is that all the front panel keys can be disabled by operating the lock switch on the front panel. This feature is very useful when operating portable as it prevents accidental entry or erasure of any channels. The scanning and manual modes can still be operated by using the controls on the top panel.

REALISTIC PRO-32A SCANNER

Specification

Frequency Coverage:

68-88MHz in 5kHz steps.
108-136MHz in 25kHz steps.
138-174MHz in 5kHz steps.
380-512MHz in 12.5kHz steps.

Memory Channels:

Scanning
200 arranged as 10 banks of 20.

Monitor:

10 channels.

Scanning Rate:

Fast 8 channels/second.
Slow 4 channels/second.

Search Rate:

Fast 8 steps/second.
Slow 4 steps/second.

Priority Sampling:
Every 2 seconds.

Antenna Impedance:

50 Ω

Audio Output:

300mW.

Power Consumption:

9 volts d.c. @ 45mA squelched, no signal.
160mA full volume.

Dimensions:

187mm (H) 74mm (W) 45mm (D).

Weight:

550g complete with batteries.

Performance

The PRO-32 was taken to the *PW* test laboratory to evaluate its measured performance.

Sensitivity

The sensitivity was measured at the centre and band edges for each of the four bands and the results were surprisingly good. The receiver equalled or exceeded the specification on all bands and returned a very creditable performance for a wide-band receiver. The manufacturer's figures are shown here, with the measured results in brackets and the measured 12dB SINAD figure in italics:

AM 20dB signal-to-noise at 60% modulation.

108-136MHz: 2.0 μ V (1.6 μ V): (-120dBm)

FM 20dB signal-to-noise at 3kHz deviation.

68-88MHz: 0.6 μ V (0.6 μ V): (-122dBm).

138-174MHz: 1.0 μ V (0.8 μ V): (-118dBm).

380-512MHz: 1.0 μ V (1.0 μ V): (-110dBm).

Selectivity

The measured selectivity turned out worse than the specification but still quite acceptable for this type of receiver. The specification is shown here with the measured results in brackets:

-6dB \pm 9kHz (\pm 11.25kHz).

-60dB \pm 15kHz (\pm 26kHz).

Audio Response

The frequency response was measured on the a.m. range using a Marconi 2017 generator with a carrier frequency of 122MHz. The signal generator was modulated with a high quality audio oscillator which was swept across the audio band. The -6dB points on the response curve were at 260Hz and 1.9kHz. The low frequency response was fine, but the h.f. response was rather restricted and I would have liked to see the -6dB point at about 2.5kHz to 3kHz. In use the audio quality was slightly muffled which would support the measured result.

The PRO-32A has been in use over a protracted period and I have found it very easy to handle and operate. The organisation of the 200 channels into banks enabled me to easily find groups of frequencies without having to refer to a list, very useful when you're operating portable. If you live close to a transmitter site you may find problems, as the high r.f. sensitivity combined with a wide front-end may well result in a lot of spurious signals. One further point to note is that there is a significant gap in the frequency coverage between 174MHz and 380MHz.

Worthwhile Reading

If you are just deciding which scanner to buy, or have just bought one and want to know how to get the best from it, then there are several books that may be of interest to you. (Available from *SWM Book Service*, of course.)

The first is a book called *Scanners* by Peter Rouse GU1DKD. This gives quite a lot of guidance on how to choose your scanner. Other topics covered are what type of antenna you should use, where to look for signals and how to best use the functions on your scanner.

Then there are a range of books each specialising in a different area of listening. *VHF/UHF Airband Frequency Guide* is one such book, and if airband listening is your forte then it's an ideal choice. It explains what type of receive antenna to use as well as where to find all those interesting signals.

The third category of books are for those who prefer general listening. These are the "confidential frequency" books, which usually cover all transmissions in a given frequency range.

The PRO-32A costs £249.95 and is usually available from Tandy retailers. Our thanks go to **Link Electronics, Tandy Millfield, 228 Lincoln Road, Peterborough** for the loan of the review model.



BANDSCAN

Peter Laughton

BBC Hong Kong Opens

The new BBC relay station in Hong Kong was opened with a special ceremony on Sunday September 27. The sign-on announcements refer to it as the "BBC East Asia" relay station. This is to avoid confusing announcements like "This is BBC Hong Kong . . . Next from London we have etc". The schedule of the new station is 0400-0845UTC on 15280kHz, 0900-0945UTC on 7180 and 5995kHz, 1100-1130UTC on 5995 kHz, 1300-1330 and 1430-1515UTC on 7160 and 5995kHz. Then in the morning time in the reception area 2115-2300UTC on 7160 and 5965kHz, and 2300-2345UTC on 5965kHz.

The two Marconi transmitters in Hong Kong have a capability of 300 kilowatts, but in fact are operated at 250 kilowatts. We understand that they are of a new energy saving design incorporating the PULSAM system. Reception reports from China, Korea and Japan are especially welcome by the BBC. The station has been noted in the UK, and you can hear that the audio is slightly behind the UK transmitters (such as 648kHz medium wave).

The BBC has also switched on a new 100 kilowatt transmitter in Lesotho, Southern Africa. It is coupled to an omnidirectional antenna, and the frequency used is 3340 kilohertz between 1500-2130UTC, greatly improving reception in the evening hours.

Radio for Peace . . . Weak but on Air

Towards the end of September, the Radio for Peace International project started operating from Costa Rica. It is a joint operation between the University for Peace run by the United Nations in Costa Rica, and a group called the "World Peace University" in Sweet Home, Oregon USA. RFPI started up on 7380kHz between 0000 and 0300UTC but with a power of only

The North American public are confused by the two competing a.m. stereo broadcasting systems in use. Will a.m. stereo survive?

12000 watts. Reception, even in the United States, is rather poor. With the evenings drawing in here in Europe, this might be an interesting target to aim for. They also have plans for a broadcast between 2000-2300UTC on 15405kHz, but the crystal for this frequency had not arrived at the time this column goes to press.

Medium Wave Restrictions

At a recent meeting in Anaheim in California USA, the National Association of Broadcasters Radio Systems Committee proposed new voluntary standards for American medium wave radio stations. AM stations should limit their bandwidth to 10 kilohertz to avoid interference to broadcasters on nearby channels, and also improve their audio. This sounds very unusual to European engineers since bandwidths here are 9kHz at most. Currently some US stations, especially those using medium wave a.m. stereo, use bandwidths as high as 15kilohertz for improved fidelity. The a.m. stereo receivers often have a WIDE setting with filters as wide as 15kHz at -6dB. With this sort of bandwidth, the audio quality approaches that of f.m. stereo. The advantage is mainly in the car where you can drive across an entire US state without having to constantly retune the radio.

However a.m. stereo needs a boost if it is to survive in North America. Two competing systems from Motorola and Kahn have confused the public. The availability of a.m. stereo receivers has dwindled to a minimum. Some

broadcasters are already experimenting with ways to improve their coverage in other ways. The Kahn a.m. stereo station WCBS in New York on 880kHz has reduced its upper sideband, and pre-emphasised the treble response in the audio. Even some transatlantic DXers noticed this in the past few weeks whilst adjusting the u.s.b./l.s.b. controls on their receivers. This is not immediately apparent though, as the programming is not music but mostly news and current affairs.

CFCs Damage Your Health not the Ionosphere.

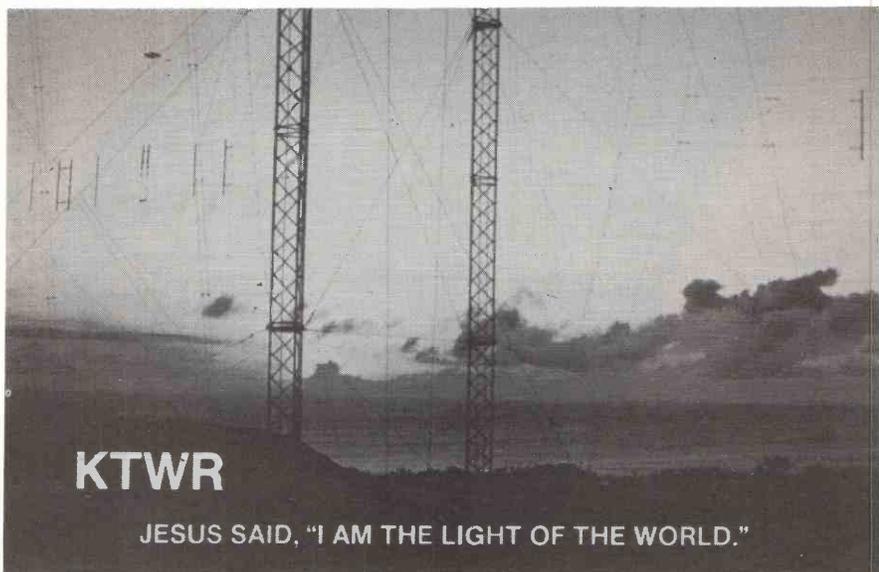
Twenty-four countries signed a historic agreement in Montreal, Canada on September 16. It is aimed at cutting chemical emissions that are seriously affecting the earth's ozone layer. Chlorofluorocarbons used as coolants in refrigerators, in styrofoam packaging and as propellents in aerosol cans, have drifted up to heights of between 16 and 48 kilometres, eroding the planet's ozone layer. *Short Wave Magazine* asked several scientists at the environmental conference whether the chlorofluorocarbons, commonly known as CFCs, are causing any damage to the lower ionising layers of the ionosphere. The "D" layer starts around 50 kilometres from the earth's surface. The unanimous answer was that there's **no** evidence at the moment to suppose that CFCs are affecting the ionosphere.

Baby Alarm Broadcasters

Recently in Washington DC, USA, the Federal Communications Commission decided to initiate a sweeping overhaul of the so-called "Part 15" rules. These govern low power r.f. devices, such as radio receivers, cordless phones, computers, tape recorders, intrusion alarms, walkie-talkies, etc.

Intended to expand the options available to the consumer, the basic approach is to discard nearly all design restrictions while retaining regulations as to how much radio energy a device may radiate. The new rules may create the possibility of unlicensed low-power broadcasting and packet radio networking for home computers. But at the same time it may also put a lot more radio frequency energy in the air generally, and short wave listener groups are therefore concerned this may increase the level of background noise, especially in cities.

Gone are the day when the FCC would rush out to a house and investigate an interference complaint from a low-power babyphone transmitter. Rather than ignoring the illegal transmitters, the emphasis now seems to be to keep the power down to acceptable levels. This would limit the range to a few hundreds metres.



KTWR

JESUS SAID, "I AM THE LIGHT OF THE WORLD."

Sunset through the curtain antennas at KTWR, Trans World Radio, Guam.

Pashto Poems

The Voice of America Pashto service has announced a novel way of bridging the huge cultural gap between the US and Afghanistan. Poetry appears to be a popular means of storytelling amongst the Pashto speaking service, so the VOA will be setting Pashto poetry to contemporary country music. Sounds fascinating . . .

Good Response to Ontario Test

CFRX is the callsign of a small 1000 watt short wave transmitter on the outskirts of Toronto, Canada. Normally that sender puts out a relay on 6070kHz of its sister medium wave talk station CFRB. Back in August, we reported that the Ontario DX Association got permission to do some special broadcasts on s.w. only. Three transmissions went out on August 2 and 3. Ron Hopkins of the ODXA told us that a couple of hundred letters have come in, including accurate reception reports from as far away as New Zealand. The QSL cards have now been printed and despatched, and the ODXA is in negotiation with CFRX to see if other special events can be arranged.

New VOA Site

October saw the installation of a new transmitter for the Voice of America at the Deutsche Welle transmitter site of Wertachtal in West Germany. The target area for the VOA programmes is Eastern Europe and the USSR.

Feeder Challenge Results

Radio Netherlands was one of the first short wave broadcasting stations to serve its two overseas relay stations by satellite. Previous to 1978, programmes had to be pre-recorded three weeks in advance and shipped by air to the transmitter sites in Bonaire and Madagascar. News was fed by a short wave single-sideband transmitter at Kootwijk in the east of the Netherlands, though because of the limited fidelity this was kept to a minimum. Because of essential work to the Intelsat satellite ground station on the island of Madagascar, most telephone and telex traffic with the island was interrupted for quite some time during October. That included the feeding of the Radio Netherlands studio signal from Hilversum to the relay station.

One of the solutions to the communications problem was the hiring of a special independent sideband transmitter owned and operated by the Belgian Maritime service. This is located at a place called Ruislede near Gent. A 10kW transmitter was on the air between 0500UTC and 0030UTC. Programmes were fed from Hilversum to Ruislede and then transmitted using a rhombic antenna

beamed in the direction of Madagascar. The signals were then picked up and fed into the ordinary short wave broadcast transmitters.

Radio Netherlands turned the event into challenge, asking listeners to find the i.s.b. feeder frequencies. Because this was a point-to-point link, the frequencies chosen were just outside the international broadcast bands. In case you sent in a report, you may like to know the correct frequencies should have been as follows: 0500-0600UTC on 15946.5kHz, 0600-0825UTC on 20350kHz, 0827-1625 on 22935kHz, 1627-1725UTC on 18526.4kHz, 1727-1925 on 15946.5 kHz, 1925-2125UTC on 11075kHz, and 2127-0025UTC on 8193.75kHz.

But that's not all. One of the four 500 kilowatt a.m. transmitters at the Flevo transmitter site was taken out of broadcasting service. This transmitter was used for a back-up feed to Madagascar. The four frequencies in that case were 25970, 21480, 13700 and 9860kHz. These were a.m. of course, not s.s.b.

New Station to Sign on Shortly

Surprisingly, Ontario, Canada will be the target of a new radio station which should start testing during this month of November. The callsign KUSW has been designated to a station based in Salt Lake City, Utah, an offshoot of the established stations KRSP-FM and KRSP-AM. The log-periodic antenna went up in September, and the 100 kilowatt Harris transmitter was delivered in October.

Ralph Carlson, president of Carlson Communications, told us the antenna is beamed at 70 degrees towards Canada. The programme format will be similar to existing commercial station WRNO. Because of its base in Salt Lake City, it will be interesting to see if religious programmes from the Mormon Church also materialise. KUSW has already had frequencies coordinated for it by the FCC. They should operate 0330-0600UTC on 9755kHz, 0600-1100UTC 6135kHz, and

1900-2200UTC on 17715kHz. The initial address for reception reports is KUSW, c/o KRSP, 1130 West 5200, Box 7760, Salt Lake City, UT 84107, USA.

Swiss — Chinese Swap Gets Green Light

The director of the Swiss Broadcasting Corporation Leo Schuermann made an interesting announcement at the end of September during his visit to Beijing, China. Agreement has been reached between Radio Beijing and Swiss Radio International for a daily programme exchange, starting November 1st. Radio Beijing will relay Swiss Radio International programmes for two hours a day over two 125kilowatt transmitters. The beam will be in the direction of Indonesia and Australia. In exchange, Swiss Radio International will put out 2 hours of Radio Beijing per day on two 250 kilowatt transmitters at one at Lenk, the other at Beromunster. Each station is responsible for its own programme content, and no money will change hands. Co-incidentally on the same day the European Spanish language broadcast of Spanish Foreign Radio announced that Radio Exterior d'España has plans to establish a relay station in the Peoples' Republic of China allowing better Asian coverage. It is not clear at this stage whether this is a similar arrangement as announced by the Swiss.

Satellite Hijack — Part Two

The Federal Communications Commission in Washington DC is investigating another short satellite hijack, similar in vain to the Captain Midnight affair last year. On the evening of Sunday, September 6 an unidentified pirate broke into the US *Playboy* channel via the RCA satellite, replacing the erotic movie with a caption lasting several seconds. The message read "Repent Your Sins, Keep The Sabbath Holy". No videotape was made of the incident and that is hampering investigations. □



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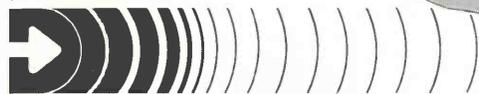
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DATONG FL-3 AUDIO FILTER

Ken Michaelson G3RDG

Datong's basic multi-mode filter, the FL2, has been around for several years now and before that there was the FL1 which really impressed me when I had one.

The latest version is the FL3 which, while being based on the original design, has been improved by technical modifications based on experience. The unit is housed in a stylish aluminium case which measures 184 x 54 x 153mm and weighs 860g. The front and back panels are matt black with white and yellow lettering. The controls are all mounted on the front panel, the mode being selected by a bank of four latching push-button switches along with the AUTO NOTCH facility. The two different colours for the calibrations around the three rotary controls are used to good effect to distinguish SSB (white) and CW/RTTY (yellow).

The main p.c.b. is essentially the same as for the FL2, but Datong have arranged the additional "auto notch" board to fit inverted on two pillars above the main board. A 4-way ribbon cable connects the two boards. The quality of the boards is a pleasure to look at.

Performance

In use the filter seemed to be fantastic. I used it a great deal for both AMTOR and RTTY and using an oscilloscope for tuning, displaying the conventional cross, it was possible to tune out either tone, even though the shift was the normal 170Hz. Not that that helped reception, of course, but demonstrates the efficiency of the FL3. For receiving RTTY at the normal amateur shift of 170Hz I found that the CW(2) position was the best, it being necessary to simply set the bandwidth sufficiently wide to include both the mark and space tones. Initial tuning was accomplished by switching to CW and setting the filter to the midway position between mark and space, then bringing in CW(2) and expand the bandwidth to the desired degree.

This also applied to reception of AMTOR. When I was operating in the evening trying to have a RTTY or AMTOR QSO, against all the continental stations, it was possible to tune them right out and receive only the station I was working. As you know, AMTOR operates on upper side band (u.s.b.) and the only other filter in circuit in my rig was the normal 2.4kHz s.s.b. one. This was not of very much help in the evening, and without the FL3 it would have been impossible to have had a contact, at least as far as this particular QTH is concerned.

In passing, interference with the reception of RTTY or AMTOR signal could be eliminated by combining the "low pass", "high pass" and manual "notch/peak" filters into a single variable filter having twelve poles. I found that using these three controls it was possible to use a much wider bandwidth for a given interference suppression which reduced ringing effects.

Have you ever wished for greater selectivity in your receiver while attempting some exotic DX? Ken Michaelson knows only too well the frustration of having another station tune up almost on top of the rare one you are trying to work. He reckons that this unit could be the answer.

When copying s.s.b. a slightly different approach was required. The centre and right-hand knobs in this context might be called, respectively, the LOW PASS and HIGH PASS filters. I started with the centre knob fully anti-clockwise at the minimum (200Hz) cut-off and the right-hand knob fully clockwise at the highest (3500Hz) cut-off. These were then adjusted to give the desired settings. "Monkey chatter" from adjoining stations could be mostly completely eliminated by lowering the upper cut-off frequency. If required the SSB + NOTCH button could be brought into circuit giving a 200Hz wide rejection notch. This notch could be moved anywhere in the passband by means of the left-hand knob, but the easiest way to find the notch position was to adjust on SSB + PEAK and then switch to SSB + NOTCH.

Automatic Notch

Of course, the big difference between the FL2 and this model is the addition of the automatic notch filter. The purpose of this is to remove unwanted tones or whistles from speech signals **automatically**. The extra filter unit is mounted on a separate p.c.b. and uses eight i.c.s. It is normally set to scan the audio frequency range between 200 and 4000Hz in search of any continuous interfering tones. Less than a second after such a tone appears, the filter locks onto it and removes it. It was quite uncanny to hear it happen, and could be demonstrated by tuning in to any heterodyne and pressing the AUTO NOTCH button, whereupon the heterodyne would disappear. In use I found that QSOs which

were carried out without any trouble would have been ruined by interfering whistles.

This was proved to me by switching the auto notch filter in and out. It was best if the filter was kept by-passed except when in the s.s.b. mode, otherwise it would tend to lock onto one tone of a RTTY or AMTOR signal, or neutralise a c.w. transmission completely!

Interestingly, the auto notch filter could also be used to process off-air tape recordings which include interference.

I only used it when receiving s.s.b. and observed with attention the random flashing of the l.e.d. showing that interference was being neutralised.

Conclusions

The outstanding performance of the FL3 puts it, in my opinion, at the top of the class referred to other units of a similar type and I can recommend it to anyone using a receiver which might be lacking in the selectivity necessary in today's crowded bands, never mind the auto notch facility.

I used the unit continuously for a period of four to five weeks and feel that it would assist both the short wave listener and amateur in copying signal which would otherwise prove to be impossible.

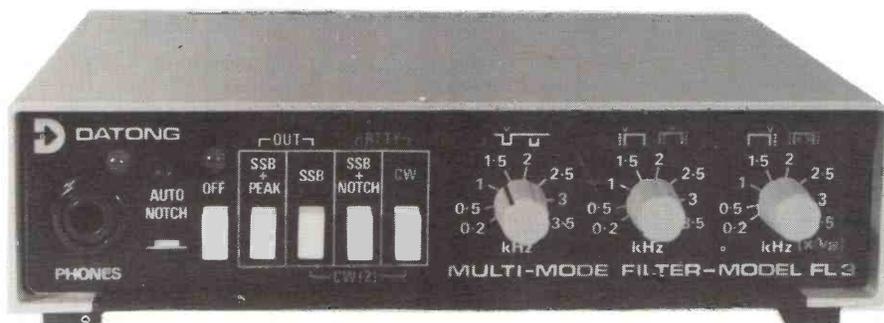
The most noticeable benefit was on the 7MHz band in the evening, when I could separate out the station I was trying to work from the rest of the transmissions close to me.

Of course, the FL3 showed a good account of itself on the 3.7MHz phone part of the band on a busy Sunday morning where the auto notch worked perfectly. All in all a very great help to reception.

Details

The Datong FL3 costs **£129.37**, including VAT and delivery in the UK. If you already own an FL2 then a conversion kit, which includes a fully assembled p.c.b. with hardware and instructions, costs £39.67 inclusive.

My thanks to **Datong Electronics Ltd, Clayton Wood Close, West Park, Leeds LS16 6QE. Tel: (0532) 744822** for the loan of the review filter. □



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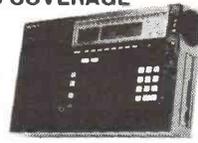
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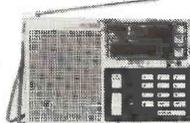
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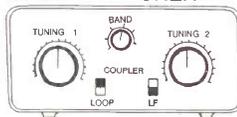
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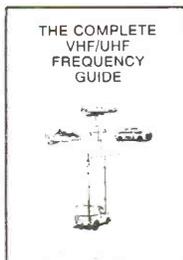
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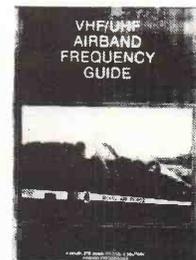
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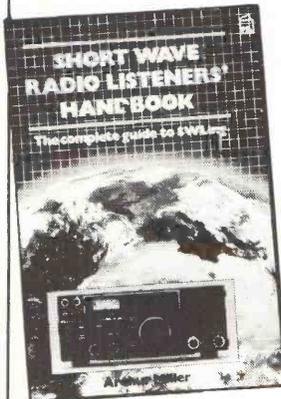
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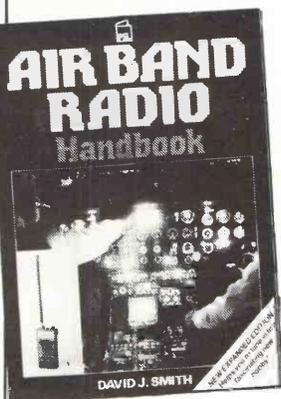
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INTRODUCTION TO DX-TV

Keith Hamer and Garry Smith

Part 4

In the last article we outlined the various options available in selecting a receiver system for DX-TV reception. One inexpensive suggestion involved the fitting of a multi-band tuner to an existing receiver for picture-only reception. Although many enthusiasts consider the reception of the sound channel to be a low priority, it does add an extra touch of excitement, especially when giving a demonstration to any disbelieving friends.

However, it should be remembered that the sound channel is not always present. Sporadic-E propagation can be frequency-selective, resulting in a picture without sound, even though the signal strength is sufficiently high. This is more noticeable on the lower Band I channels such as E2 and R1. Signals propagated on the higher channels R2 and E4 tends to be more stable and slower fading with a greater chance of receiving the accompanying sound channel. These observations also apply to colour reception.

Intercarrier Sound Systems

There are two intercarrier sound spacings in use which are of interest to TV DXers, namely 5.5MHz as used in Western Europe, Africa, the Middle East and Australasia and 6.5MHz as used in Russia and the Eastern Bloc countries. Note that the French system has a 6.5MHz sound spacing but uses a.m. rather than f.m. intercarrier. This means that receiver modifications for their system becomes rather involved. Attempting to adapt a receiver for full French reception also involves the problems of positive-going vision modulation.

Others

Two other spacings are 6.0MHz as used in the UK and Eire and 4.5MHz used by North and South America, Japan and the American Forces TV in Europe. The chances of receiving the latter system are extremely slim, although AFN-TV SHAPE in Belgium and Soesterberg in the Netherlands have been received in the UK during intense tropospheric openings at u.h.f.

Receiving sound with your DX pictures makes the end result more impressive, even if you don't understand the lingo. Removing the receiver casing often involves more effort than intercarrier strip re-alignment!

Useful Information

The following countries have a 5.5MHz spacing: Norway, Sweden, Denmark, Finland, West Germany, East Germany, Switzerland, Austria, Belgium, The Netherlands, Italy, Albania, Turkey, Iceland, Spain, Portugal, Yugoslavia, Greece, Tunisia, Morocco and Jordan.

Countries having a 6.0MHz spacing are UK and Eire.

These countries have a 6.5MHz spacing: Russia, Poland, Czechoslovakia, Hungary, Rumania and Bulgaria.

It should be noted that Luxembourg and Monaco both transmit programmes with 5.5MHz f.m. intercarrier spacing as well as the French 6.5MHz a.m. (System L) standard.

Modifications

Re-aligning a receiver for sound reception is relatively easy, especially with the modern type of intercarrier soundstrip using integrated circuit technology. Nowadays, with compact board layouts, the biggest problem is locating the appropriate adjustment within the receiver.

Having said that, removing the casing from small portable receivers can pose a problem too. Often case removal takes longer than the actual modifications! It is advisable to obtain the correct circuit diagram before proceeding with any re-alignment. This reduces the possibility of tweaking the wrong cores and upsetting other sections of the receiver, such as the decoder or vision i.f. strips.

There are no apologies for repeating the usual safety warnings when attempting

modifications to television receivers. **Most colour receivers, including portables, are equipped with a live chassis which could be lethal irrespective of mains polarity.** Small monochrome portables generally have an isolating transformer fitted making the chassis safe but it is imperative to double check by carefully scrutinising the circuit diagram.

Adjustments are usually confined to two areas: the quadrature coil and any tuned circuits feeding the input of the i.c. A typical circuit featuring the TBA 120S i.c. is shown in Fig. 1.

Re-alignment is best carried out on a good quality off-air tropospheric signal on u.h.f. The quadrature coil should be adjusted for the required sound channel. The correct type of trimming tool is recommended rather than a screwdriver. It is all too easy to crack the delicate ferrite core, but not so easy to remove the broken pieces and obtain a correct replacement. Adjust for maximum sound with minimum buzz. Adjust the input coil in the same way.

Some circuits using the TBA 120AS do not have a quadrature coil, but use instead a ceramic filter which resonates at the appropriate frequency. This will have to be removed and another fitted. Filters can be obtained fairly cheaply for 5.5 and 6.5 MHz, although the latter are more difficult to obtain. Sendz Components, 63 Bishopsteignton, Shoeburyness, Essex stock both types. The ceramic input filter will also need replacing. Occasionally a ceramic filter will be encountered in lieu of the input coil in the former circuit.

Switching

There is no reason why a three-position switch could not be introduced to enable any of the three main spacings — 5.5, 6.0 and 6.5MHz — to be resolved. The length of the wiring from the switch connections should be kept as short as possible to avoid any chance of instability or losses.

A method of switching the appropriate input filter using diodes is shown in Fig. 3. D1, 2 or 3 will conduct depending upon the setting of the selector switch SW1. A similar arrangement is used in the JVC CX-610 GB colour portable set.

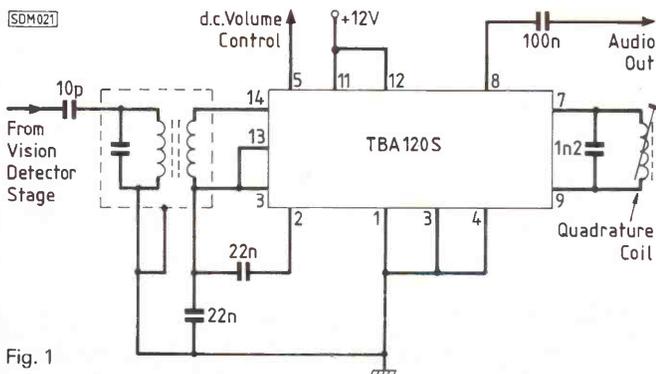


Fig. 1

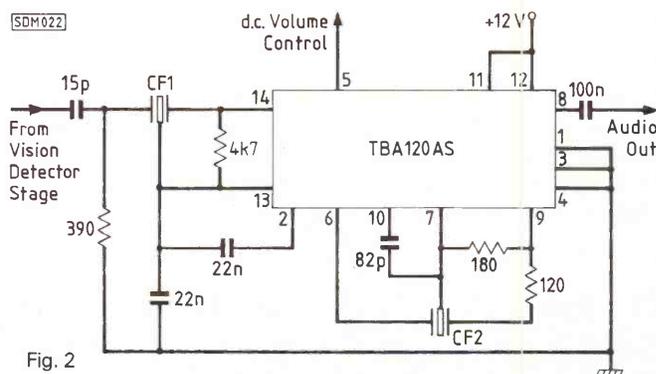


Fig. 2

INTRODUCTION TO DX-TV

Older Receivers

Earlier intercarrier sound i.f. strips use discrete components. In theory, re-alignment is possible by returning the quadrature coil for maximum sound minimum background buzz, although in practice the value of the tuning capacitor across the quadrature coil may have to be altered by experiment for the best results.

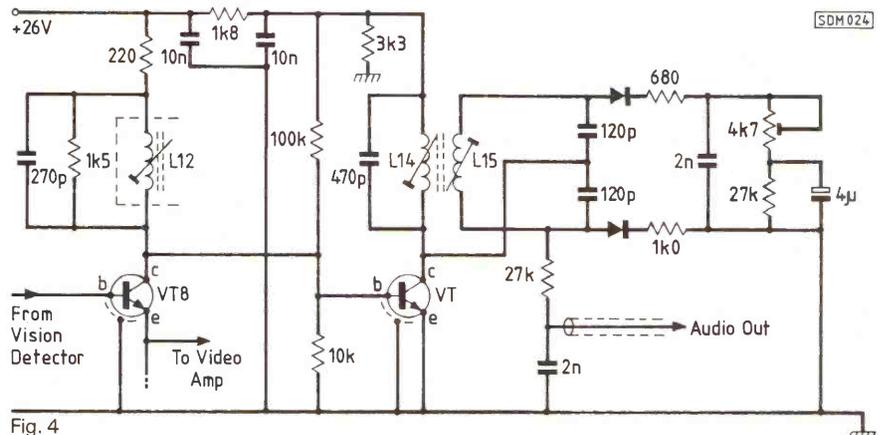
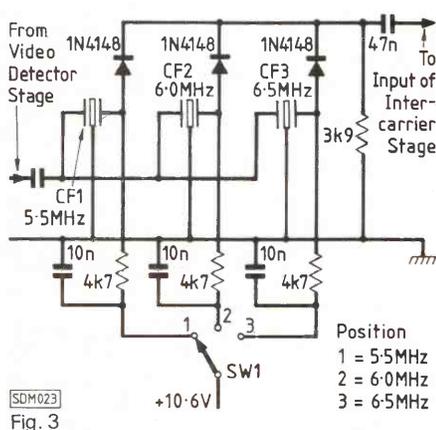
A discrete intercarrier sound i.f. arrangement as used in the Thorn 1500 series hybrid receiver is shown in Fig. 4. In this particular example the adjustment of

L14, L15 and L12 gave satisfactory results when re-aligned to 5.5MHz.

There are various other methods available to allow the reception of a TV sound carrier. For instance, a few years ago a fairly inexpensive receiver of American origin covering 30 to 40MHz was distributed by Tandy. Some enthusiasts, realising its potential, coupled it to the i.f. output of a multi-band tuner and operated it as a form of variable i.f. By tuning into the required sound carrier within the i.f. passband, all sound systems could be easily retrieved. This approach also

allowed signals such as the Eastern European (OIRT) f.m. broadcast band and cordless telephone channels to be monitored.

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PRESENTS

The staff of Short Wave Magazine have been trying out a selection of receivers and listening gear which will not set you back a king's ransom. You should be in time to buy something useful for the person interested in listening from the sets mentioned.

REGULAR FEATURES

Follow what is going on in the world of listening with the Seen & Heard columnists. Bandscan will keep you informed on broadcast station news and Airband is essential reading for those interested in aeronautical radio. For the scanner owner we introduce a new column to help you get the most enjoyment from your set.

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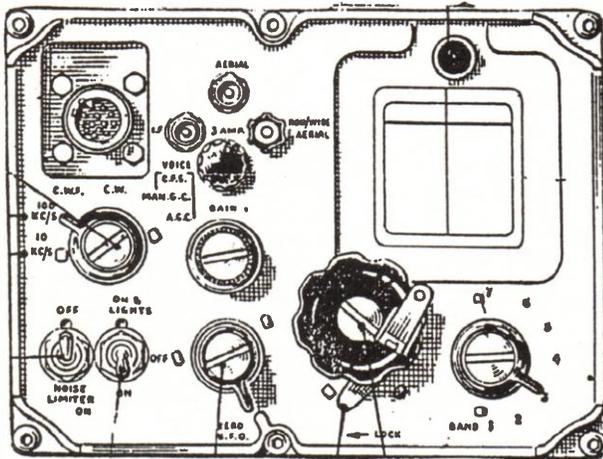
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A GOLDEN AGE APART FROM THE GREMLINS

David Lazell

Now that Cable News Network (CNN) has arrived in Europe, courtesy of satellite, few people will want to recall an earlier golden age of US news, when W1XAL (25.5 metres) offered late news without advertising. From Boston, of course; New Englanders have always been bright — and this station somehow managed much of its transmissions without advertising. Indeed, the station seemed to be almost a mini-BBC in the late 1930s, when the "ultra short frequencies" were being used for experimental work in the USA — 7.7, 8.4 and 9.5 metres. It may seem a golden age now, but broadcasters in the 1930s tried to please short wave listeners, i.e. an overseas audience.

Goodwill

Meanwhile, in Europe, a spirit of tranquility and goodwill prevailed, as may be judged from this terse comment in *Modern Wireless* during 1932: "Luxembourg — The lady announcer is a German and is aged 24". *Modern Wireless* — like all radio journals of the time — covered short wave transmissions, and for that matter a new gizmo called television, in detail. It also affirmed that British was best, e.g. "It would be difficult to find six radio shops of any kind in the whole of central Paris" though radio components were available from a stall "under the St Lazare Station". Considering the French rush into cable and satellite communication today, you can understand that the scene was somewhat different fifty years or more ago.

Eiffel Tower

The Eiffel Tower featured much in the life and listening of operators, described as "generally good enough in quality and range of programmes but with power far in excess of Paris' needs". It was of course a radio mast merely disguised as a tourist attraction and (later) site for an Ealing Studios comedy, "The Lavender Hill Mob". But even with that advantage, French radio had problems, as an early 1930s report affirmed: "Paris PTT breakdowns which have recently been frequent, have been due to hitches at the power station supplying it, and not to trouble at the station itself".

Pauses

It's true that operators, carefully tuning into stations on short wave frequencies could never be sure whether they were on target, seeing that the announcer might have merely popped out to the bathroom. There were all kinds of mysterious pauses in transmission, these not being taken too seriously overseas though the BBC, in dinner jacket, would never allow such

When radio frequency came with goat gland treatment and innocent operators wrestled with Short Wave Wobble . . . we retune to the short wave experience of the 1930s.

happenings. Here are some typical warnings and reports for operators in the great days:

PMY: The New Dutch East Indian transmitter PMY was recently leased to a firm of advertising agents, the money so raised being devoted to relieving unemployment: (yes, that was in 1932; today such an idea would be organised by YTS).

PARIS: Radio LL has been dabbling in auto-suggestion for listeners, and broadcasting "Keep Cool, Calm and Collected" music on 370.4 metres: (This was specially useful for home-builders surveying the radio shack after Ma had been in to tidy up).

RADIO SCHAERBEEK: Recently (1932) organised a parade of dissatisfied radio enthusiasts through the streets of Brussels: (No doubt they had rude banners tied to their antennas).

LENINGRAD: The use of loudspeakers in factories is continually growing, and recently 32000 loudspeakers for this purpose were ordered: (I sometimes think my neighbours have a few of them, though their taste in music is happily impeccable).

GEORGIC: The new White Star liner has its wireless installation fitted in the vessel's dummy funnel.

Bloopers

Bloopers, i.e. mistakes of the radio frequency variety, caused alternating frustration and hilarity for operators. An April 1932 Blooper detected in the USA will give some idea of what you could find, or lose, on the radio dial.

"Radio Vatican was recently put on the air by one of the big American hook-ups and after an hour's working, somebody phoned the station and diffidently pointed out that the programme in question was not Radio Vatican at all, but an adjacent station. Surely one of the biggest radio mistakes ever made!"

Well, as they say at the BBC, who needs a twitchy listener with an urge to telephone the producer?

Given the vast output of US stations, even in those days, no-one could be surprised if some mistakes occurred. America had been into radio since the early years of the century, the publisher/writer, Hugh Gernsback featuring the topic in a magazine from around 1905. Indeed, he opened possibly the first radio parts store in the whole of the USA (just to save people going to the stall under St Lazare Station in Paris).

Giant Stations

By the mid to late 1930s, the Federal Communications Commission — renamed from the Federal Radio Commission — was planning new Giant Stations. These tidings were much covered in the UK radio press, though there was much debate as to likely power, one sage suggesting that they could never run more than "100000 watts" because of interference.

Military Purposes

In fact, there was more popular interest in the Giant Stations being built in Western Europe, those in Germany prompting keen interest. No one seemed to tie in the radio boom of the late 1930s with at least a continental interest in radio for military purposes immediately before the first world war (when Britain was, as often is the case, last to think about it).

In retrospect, one reads reports on US plans of the time with some historic insight; were some radio boffins in the bureaucracy aware that war was coming?



"The problem with short wave radio is that there are too many people who talk about it without moving from their armchair!" Drawing from a 1932 issue of *The Wireless Constructor* caption by the author.

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Mais, parmi toutes ces ondes, il y a d'autres signaux faibles. Faibles, parce qu'ils ont voyagé à travers le monde entier. Ces signaux sont en ondes courtes. Ils proviennent de certaines stations de radio dans le monde, et comportent des programmes dans chacune des langues que vous avez déjà entendues, et beaucoup d'autres que vous n'avez pas entendues, aussi!

Pourquoi vouloir écouter des programmes de l'étranger, en ondes courtes? Les raisons sont multiples. Les expatriés et voyageurs à l'étranger peuvent rester en contact avec leur pays d'origine. D'autres auditeurs souhaitent entendre des informations de tous les coins du monde. D'autres, encore, peuvent connaître le météo dans le monde entier. Il y a choix impressionnant d'écouter en ondes courtes: informations, commentaires, musique, théâtre, affaires économiques, divertissements, et même cours de langues. Tout ceci, et encore plus, est disponible vingt-quatre heures par jour, tous les jours de l'année. Tout ce que vous avez à faire, est de vous synchroniser sur les ondes courtes. Avec un si grand choix, la radio domestique semble bien ennuyeuse...

Des millions de personnes écoutent régulièrement les émissions en ondes courtes. Pour certaines, les ondes courtes sont le seul moyen d'obtenir des informations à jour, de bonne source, sur le développement, non seulement mondial, mais de leur propre pays. Des stations comme la BBC, Radio France Internationale, ou la Deutsche Welle diffusent des bulletins d'informations non censurés, toute la journée, en russe, ukrainien, pachtou, urdu, chinois... vers l'Union Soviétique, l'Afghanistan, le Proche-Orient, l'Extrême-Orient, en donnant un moyen unique d'information sur le reste du monde.

Des programmes viennent d'Union Soviétique et de la République Populaire de Chine. Radio Moscou Internationale diffusent en français vers le monde. La BBC a un Service Mondial en anglais diffusé vingt-quatre heures sur vingt-quatre (et mentionnons les trente-six autres langues), et Radio Moscou a pris modèle sur la BBC pour créer son Service Mondial en anglais. All India Radio diffuse en français, anglais, urdu, ... Radio Nederland est entendue en hollandais, anglais, français, indonésien, espagnol et arabe. Radio Australie diffuse des programmes en français, anglais, thaï, japonais... alors que Radio Suisse Internationale est en espéranto, allemand, italien, et autres langues.

Il est possible d'apprendre à parler une langue étrangère en écoutant la radio en ondes courtes. Des leçons viennent de Hollande, de Chine, d'Union Soviétique, de Grande-Bretagne, pour apprendre le hollandais, chinois, russe, ou anglais.

Comment Ecouter

L'indispensable pour écouter les programmes de radio d'autres pays c'est, naturellement, un récepteur radio à ondes courtes. De nombreux récepteurs de radio domestique comportent une partie des ondes courtes. Souvent, en Europe, les radios possèdent la bande des 49 mètres — bande "Europa" — que de nombreuses stations en Europe utilisent. Mais, pour explorer pleinement le monde de la radiodiffusion en ondes courtes, un récepteur couvrant davantage les ondes courtes est indispensable.

Si vous projetez d'acheter un récepteur ondes courtes, En vous devez vérifier s'il couvre au moins ces bandes. En

Acknowledgements
French translation — R.F.P. Paget
& Miss E.L. Spanswick BA

Europe, il est possible d'acquérir une radio à ondes courtes à partir de 80 FS (400 FF), et dans le sous-continent indien un récepteur de radio qui captera la BBC, Radio Moscou ou d'autres stations puissantes coûte environ 25 FS (100 FF).

Cependant, pour l'auditeur souhaitant quelque chose d'un peu plus sophistiqué (et plus facile à manipuler), il est nécessaire de dépenser un peu plus. La plupart des récepteurs à ondes courtes sont fabriqués en Europe ou, surtout, en extrême-Orient, et l'éventail de prix s'étend de 125 FS (500 FF) à un peu plus de 2 500 FS (10 000 FF) pour les modèles les plus élaborés.

Avec cette brochure, une liste des récepteurs vous donne quelques détails sur les récepteurs les plus populaires et couramment disponibles. Pour une écoute facile en ondes courtes, recherchez un récepteur avec l'affichage numérique de la fréquence.

Comment Vous Y Retrouver

Essayez de trouver qui est sur les ondes, dans quelle langue, à quelle heure et sur quelles fréquences, est un peu comme tenter de trouver votre chemin dans une ville inconnue sans un plan des rues.

Cependant, il y a plusieurs ouvrages qui aident l'auditeur. **WORLD RADIO TV HANDBOOK** publié annuellement depuis plus de quarante ans, reconnu comme le guide de référence pour la radiodiffusion internationale, avec les fréquences, horaires, langues, adresses, cartes, et autres informations pratiques.

RADIO DATA BASE INTERNATIONAL seconde édition, avec une liste fréquence par fréquence des bandes ondes courtes.

INTERNATIONAL LISTENING GUIDE publié quatre fois par an, un guide de référence, aisé, de ce qui est sur les ondes.

Il est aussi possible de rejoindre l'une des nombreuses associations qui se consacrent à l'écoute des ondes courtes. Elles publient des bulletins réguliers avec des informations sur les programmes, les changements de fréquences, et d'autres informations pour les auditeurs d'ondes courtes. Le Conseil DX Européen (EDXC) produit un guide annuel des clubs dans le monde. Le Conseil publie aussi quelques brochures spécialisées pour l'intérêt des auditeurs internationaux passionnés.

Reporting Guide: comment rédiger des rapports de réception pour les stations.

QSL Survey: comment les stations répondent aux rapports de réception.

Landlist: le guide définitif des auditeurs avec la "liste des pays en radio".

Toutes ces publications sont proposées au stand de l'EDXC.

La radiodiffusion internationale est, divertissement, éducation et information. La radiodiffusion internationale aide à faire tomber les barrières entre les pays. La radiodiffusion internationale promouvoit le contact et l'amitié internationale.

Nous espérons que vous voudrez écouter les émissions de radiodiffusion internationale et que maintenant vous avez découvert un peu plus sur ce que vous offre la radio en ondes courtes.

Les personnes de l'EDXC sont heureuses de vous donner tout renseignement, de répondre à vos questions, et de vous aider pour tout problème.

**LA RADIO EN ONDES COURTES —
Votre Passeport Pour le Monde!**



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AROUND THE WORLD

— an introduction to short wave radio

At this moment, the air around us is filled with invisible waves — radio waves. There are domestic national and local radio stations, the Police, Fire Brigade — everyone is trying to keep in touch, using radio.

But amongst all these, there are other, much weaker, signals — weaker, because they have travelled around the world. These signals are on short wave — they are from many hundreds of radio stations in almost every country of the world, and include programmes in every language of which you have ever heard; and many of which you have not heard, too!

Why should anyone want to listen to programmes from abroad on short wave radio? The reasons are many: long distance radio reception brings people closer together, offering first-hand impressions. The expatriate and traveller can keep in touch with their homeland; other listeners can hear about news from every corner of the globe; others may be interested in the weather on the other side of the world; some may wish to verse themselves in international politics from different viewpoints. There is a tremendous choice of listening on short wave radio, twenty-four hours every day of the year: news; commentary; music; drama; sport; economics; comedy — even language courses. All that is needed to tap into this vast arena of information, education and entertainment is a short wave radio.

Many millions of people listen regularly to short wave broadcasts. For some, short wave is the only means of getting reliable, up-to-date news about developments not only around the world, but, in some cases, their own country, too. Stations such as the BBC, Radio France and Deutsche Welle broadcast uncensored news bulletins around the clock in English, Russian, Dari, Ukrainian, Pashto, Chinese, Urdu: to the Soviet Union, Afghanistan, the Near and Far East — providing lifelines of information about the world.

Programmes come from the Soviet Union and the Peoples Republic of China — Radio Moscow has a twenty-four hour-a-day World Service in English, modelled closely on the long-established BBC World Service also on the air around the clock in English. Radio France International is on the air in French throughout the day and night. All India Radio broadcasts in English, French, Urdu and others; Radio Netherlands has English, Dutch, Spanish, Indonesian and Arabic; Radio Australia has Cantonese, French, English, Thai and Japanese whilst Swiss Radio has

Esperanto, German, French and Italian, to name but a few. It is even possible to learn a foreign language by listening to short wave radio. Lessons come from Holland, China, the Soviet Union, Great Britain, for Dutch, Chinese, Russian and English.

How Does it Work?

Now that you've got a short wave receiver, you'll be interested to know how it is that these short wave radio signals can travel right the way around the world, whereas the signals of medium wave and v.h.f.-f.m. radio stations only travel relatively short distances (perhaps only tens or hundreds of kilometres).

Short wave signals can cross the world thanks to a co-operative part of the earth's atmosphere known as the ionosphere. This layer, which surrounds the earth, acts as a mirror, reflecting radio signals back to earth, enabling transmissions to travel tremendous distances. Engineers have studied the precise way in which the ionosphere behaves, and can calculate quite accurately how to beam signals in such a way that they can bounce, perhaps two, three or even four times, into particular areas of the world.

However, the further the distance these signals travel, the weaker they become, and the more interference they will suffer from. Therefore many international broadcasters make use of relay transmitters located in different parts of the world, to

boost their programmes. Radio Moscow uses transmitters in Cuba, Deutsche Welle has relays in Malta, Portugal, Rwanda and Sri Lanka. The relay stations are fed by high-quality satellite links, which means that the signal leaving the relay transmitter is as good as the signal from the transmitter in the country of origin!

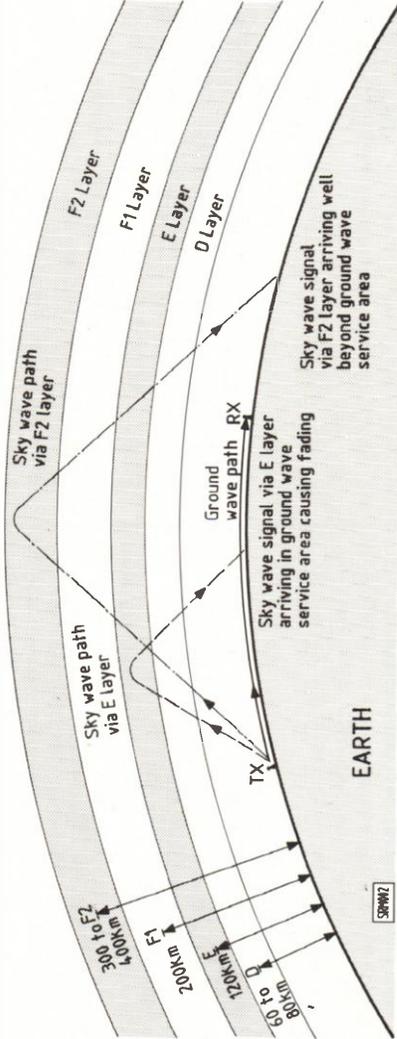
With all this technology, coupled with the natural working of short wave, international radio broadcasts are becoming easier to receive.

How to Listen

Naturally, to listen to international radio stations, you'll need a radio designed for this purpose. International broadcasters use frequencies between 3 and 30 MHz and in particular, specific areas designated by the International Telecommunication Union (ITU) for broadcasting. These parts of the short wave bands are: —

13 metres	21.450 — 21.750 MHz
16 metres	17.700 — 17.900 MHz
19 metres	15.100 — 15.450 MHz
25 metres	11.700 — 11.975 MHz
31 metres	9.500 — 9.900 MHz
41 metres	7.100 — 7.300 MHz
49 metres	5.950 — 6.200 MHz

Most radios to be found in the home will usually not



How short wave radio signals travel the world.

cover any of the short wave bands, although some models in Europe may occasionally have the 49 metre band which many European based international — and a few domestic — broadcasters use. But for comfortable listening, it's necessary to have the use of a good receiver. With the explosion of computer-based technology in the past few years have come benefits to many areas, including radio receivers. This is particularly true of short wave receivers, where the latest generation of sets is compact, user-friendly and have excellent performance. New sets come on to the market regularly, and there is tremendous competition amongst Japanese and European manufacturers. But what should one look for in a short wave radio? Size is an important consideration if you want to take the receiver on business trips or on holiday. Today's small travel portables provide good listening and value for money. If you plan to use a receiver only in one place (at home or in the office), look for a bigger, table top model.

It is important to look at what frequencies are covered by the set which you are thinking of buying. As the short wave radio bands become more and more crowded, many stations are moving to clearer frequencies just outside the limits of the bands shown above. For that reason you should look, ideally, for continuous coverage (in other words all of the short wave spectrum from 3 to 30 MHz, although some of the sets with slightly more restricted coverage do provide most of the "out of band" frequencies popular with most broadcasters. There are other key points to look out for: sensitivity and selectivity.

Sensitivity is the ability to pick up weaker signals, whilst selectivity is the ability of the set to separate the signal one is trying to listen to from transmissions on adjacent frequencies. Most of today's modern receivers have good sensitivity, although selectivity can vary from model to model.

With the advent of inexpensive computer chips, many receivers now incorporate features such as digital frequency readout, showing the user exactly where a set is tuned, making station identification much easier, especially when using a reference book. Other useful features to be found are direct entry of frequency, enabling a known frequency to be called up, using a calculator-like keypad, and memories which allow several frequencies of favourite stations to be stored and instantly recalled.

Prices of short wave radios vary enormously. In the Indian sub-continent, it is possible to purchase a receiver which will pick up most powerful

▶ international broadcasters for around £8.00 (Sfr. 25) whereas in Europe, the cheapest set on the market is generally the Soviet built "Vega" for about £35.00 (Sfr. 80).

A listing of the most commonly available receivers in Europe, compiled by the European DX Council, is featured in this booklet, and shows frequency coverage, and approximate retail price on the continent amongst other information.

Finding Your Way Around

Trying to find out what is on the air when and in what language and on which frequency is a little like trying to find your way around a strange city without a street plan! However, there are several publications to help listeners to the international short wave radio bands: —

WORLD RADIO TV HANDBOOK published annually for more than forty years, and recognised as the authoritative guide to international broadcasting. Frequencies, times, languages, addresses, maps and features are included.

INTERNATIONAL LISTENING GUIDE published four times each year and available on subscription. An easy reference guide to the English and French services of all international broadcasters. **RADIO DATABASE INTERNATIONAL** Currently in its second edition, with frequency-by-frequency listing of the short wave bands, and some features, too.

It is also possible to join one of the many clubs devoted to short wave listening — or DXing, as it's known by enthusiasts (DX is an old radio telegraphy term meaning distant communication). These clubs publish regular bulletins with news of programmes,

frequency changes and other information for listeners. The European DX Council produces an annual guide to clubs around the world: full details are given in EDXC Publications in this brochure.

Other EDXC publications include a **REPORTING GUIDE**, **QSL SURVEY** and **LANDLIST**. All of the EDXC publications may be purchased at the *Telecom 87* stands, or by mail order.

Telling the Time on Short Wave

It's not as daft as it sounds: with the world divided into so many time zones, how does the listener know whether he's coming or going?

The answer is simple: GMT! All international radio stations base their programming times on **GREENWICH MEAN TIME**, based on the longitude of Greenwich (0°). Thus when it is 1200 hours, GMT, it is 1300 hours on the European continent during winter. New York is five hours behind GMT, and so on.

Greenwich Mean Time is also known as **UNIVERSAL CO-ORDINATED TIME** (abbreviated to UTC), and some stations use GMT, others UTC — but it is all the same time!

With voices from all over the world — from Moscow to Washington, London to Melbourne, Seoul to Johannesburg — you can be informed, educated and entertained on short wave radio.

Information is a precondition for communication, and for better knowledge about one another, is a foundation for trust.

We hope that you will want to listen to international radio broadcasts now that you have found out some of what short wave radio has to offer. The European DX Council will always be pleased to offer help and advice, and to answer any questions because we know:

SHORT WAVE RADIO — is your passport to the world!

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'LE MONDE AU BOUT
DES DOIGTS'

RECEPTION RADIO A LONGUE DISTANCE

" Depuis 1973 au service du DX francophone "

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HOW THE RED CROSS SPEAKS TO THE WORLD



Red Cross Broadcasting Service

The International Committee of the Red Cross began broadcasting in May 1945. In Europe, many ex-prisoners of war were waiting to be taken back to their homes, and they wanted their families to know they were alive. However, normal communications had broken down. Until the end of the 1940s, lists of prisoners of war and of displaced civilians were broadcast by the ICRC from the studios of Radio-Genève, and were heard by listeners in various parts of Europe. (In the first 3 1/2 years of operation, more than 600'000 names were broadcast).

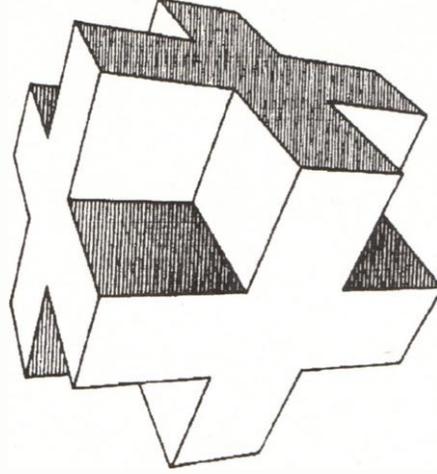
The ICRC realised the usefulness of radio for rapid communication in times of crisis. The 1948 International Broadcasting Conference in Mexico City granted the ICRC its own frequency — a unique asset among international humanitarian organisations.

Test transmissions began in 1951, with the object of finding out whether listeners in different parts of the world could hear the broadcast. These

continued sporadically until 1965, when the ICRC installed its own studio at its Geneva headquarters and formed the Red Cross Broadcasting Service. Broadcasts became more regular, and in 1978 the Swiss PTT gave permission for the ICRC to broadcast once a month omnidirectionally in English, French, German, Spanish and Arabic. Beamed transmissions were also made to Africa, Asia, and the Middle East.

Today, RCBS broadcasts omnidirectionally twice a month on 7.210 kHz, in English, French, German and Spanish. Furthermore, broadcasts in English, French, Spanish, Portuguese and Arabic are beamed to Africa, Asia, Latin America and

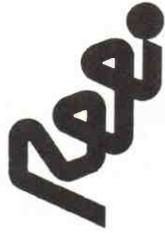
the Middle East. The programmes are broadcast from the Swiss PTT's transmitters at Schwarzenburg (directional) and Beromünster (omnidirectional): facilities are placed at the ICRC's disposal free of charge by the PTT and Swiss Radio International. Listeners' reports are received from every continent, and are regularly answered by QSL card.



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Cinq

DEVELOPMENTS FROM SONY

The multi-band receivers introduced by Sony in 1987 all incorporate tuning systems made possible by the advanced digital and microprocessing technology developed by Sony. The new models are the ICF-7600DA and the small handy ICF-PRO70 and PRO80.

Sony has developed and marketed a variety of multi-band receivers since the 1960s, and this short article will introduce some of Sony's recent developments in multi-band radio receivers.

During the late 1970s and into the 80s Sony produced two types of multi-band receivers for the world market; one with analogue tuning and the other with digital tuning.

The analogue, 7-band ICF-7600 of 1977, and its successor the 9-band ICF-7600A introduced in 1982 became global best sellers. Their compact, paperback book size was established as the standard for this type of radio across the world. All the features of the ICF-7600A were retained in its even more compact successor, the ICF-4900 released in 1984. Sony's analogue multi-bands are distinguished by their quartz-controlled circuits and stable reception.

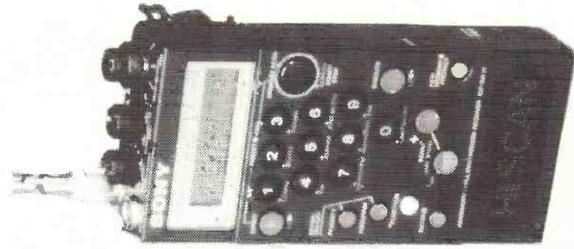
In the field of digitally tuned radios, the sensational ICF-2001 made its debut in 1980. This revolutionary receiver featured 4-way tuning, including the direct input of frequency through a key pad. A substantial reduction in size was realised in 1983 when Sony announced the ICF-7600D which retained the ten-key direct entry tuning system, all packed into a paperback book size. Yet another breakthrough came in 1985 with the ICF-2001D which featured the new synchronous detection tuning to improve the short wave reception quality to that of medium wave.

The ICF-7600DA features a revolutionary tuning system utilising the latest digital and microprocessing techniques. All the merits of both analogue and digital tuning systems are united in this model. It covers f.m., l.w., m.w. and 12 short wave bands, all with dial-tuning simplicity and the drift-free precision of a quartz phase locked loop (p.l.l.) synthesiser.

The large, analogue style liquid crystal display (l.c.d.) with "dial pointer" makes locating a station quick and simple, even for beginners, while the direct frequency display confirms with digital accuracy the frequency of the station to which you are tuned. Key protect means that you won't accidentally "tune-out" the station to which you are listening by hitting a wrong button. The memories can store a total of 15 stations, five each for f.m., l.w./m.w. and s.w., and there is a built-in timer with stand-by reception and

2-way alarm. The ICF-7600DA is an outstanding world-band receiver which offers an easy way for anybody to enjoy the world of short wave listening.

The latest Sony handy portable set, the ICF-PRO80, has a variety of advanced features with continuous coverage from 150kHz to 108MHz, plus an additional range from 11.5.15 to 22.3MHz using an add-on frequency converter. The optimum detection mode is automatically selected for the frequency tuned, from the five modes available: a.m. wide, a.m. narrow, f.m., narrow band f.m. and s.s.b.



The long, medium and short wave bands all utilise dual-conversion superheterodyne techniques with the extremely high 1st i.f. of 55.845MHz realised by the high selectivity monolithic crystal filter.

Its versatile tuning system includes direct tuning, memory tuning, manual tuning, scanning, limited scanning, memory scanning, programmed memory scanning and priority tuning.

From this brief history you can see that Sony has been at the forefront of advanced radio technology as well as the world wide, multi-band radio market.

Five

RADIO RSA — a history

The history of the South African Broadcasting Corporation's external radio services dates back to December 1950, when the first broadcast to territories beyond South Africa's borders was transmitted.

This was made possible through the use of a Post Office transmitter at Voortrekkerhoogte. No special programmes were prepared for this Service — the normal programmes of the internal English and Afrikaans Services of the South African Broadcasting Corporation were relayed via the hired Africa transmitter.

These transmissions continued until 1957, when the South African Broadcasting Corporation commissioned two 20 kilowatt short wave transmitters at the Paradys transmitting station near Bloemfontein, giving coverage for Africa. The transmitters were not directed to specific areas in Africa, but were aligned in such a way as to provide good reception as far north as the Equator. There were still no programmes specially prepared for these broadcasts.

The transmitters were on the air from 1300 to 2000, relaying Afrikaans Service programmes on Mondays, Wednesdays, Fridays and Sundays and English Service programmes on the other days.

The purpose of this Service was primarily to act as a link between South Africans living to the north and home.

In June 1962 the broadcasting times of the Africa transmitters were altered and programmes from Springbok radio were also transmitted. At this stage talks on suitable topics in Swahili were also introduced and news reviews broadcast in this language.

After the 1960 disturbances in the Congo, a daily news bulletin in French was broadcast, a service that was highly valued in those chaotic times in the Congo. At this stage a total of eleven news bulletins each day was broadcast in the Africa Service, including the news services relayed by the internal Afrikaans and English Services.

The approach to the South African Broadcasting Corporation's Africa Service was radically changed following the government's decision to purchase four 250 kilowatt short wave transmitters for an external Radio Service, to be entrusted to the South African Broadcasting Corporation.

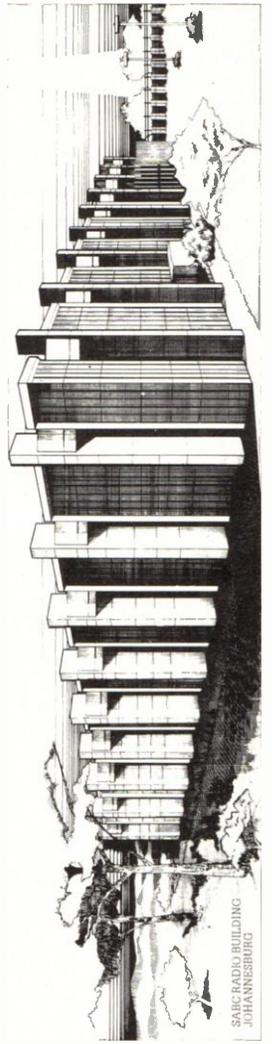
On 1 May 1964, the first special news bulletin for Africa was presented in English. This bulletin was broadcast at 0630 and became a regular feature from Mondays to Sundays.

A further milestone was reached when Dr. H.F. Verwoerd opened the new transmitting station at Bloemendal 64km south of Johannesburg, on 27 October 1965. On that day the first of the four 250 kilowatt transmitters was put into operation and the scene was set for the birth of Radio RSA.

Radio RSA — "The Voice of South Africa" — commenced broadcasting to territories beyond the borders of South Africa, providing 15 hours of broadcasting daily in English, Afrikaans, French, Portuguese, Swahili and Zulu.

Since then, further expansion has taken place and today Radio RSA broadcasts for almost 30 hours per day in eleven languages — English, Afrikaans, French, Portuguese, Spanish, German, Dutch, Swahili, Chichewa, Lozi and Tsonga.

Between 1967 and 1970 elementary courses in Afrikaans were broadcast for English, French, German, Dutch and Portuguese speaking listeners. This service was later replaced with elementary and advanced courses broadcast once a week, and at the end of 1978 there were more than 6000 students studying Afrikaans by radio. After a short gap, November 1979 to April 1980, when no courses were on the air, a new course was introduced for English, French, Dutch and German speaking students and Radio RSA is the only external service in the world which evaluates students' answers individually and comments on their progress.



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19 languages and 4 television services broadcasting in 7 languages, cater for South Africa's multiracial and multicultural society. S.A.B.C. Replacing the beat of the jungle drum with the most advanced technology in Africa.



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"Have you heard what's been going on in South Africa lately?"

"Hebt u wel gehoord wat er nu weer in Zuid-Afrika aan de hand is?"

"Je mmewahi kusikiya ambalo limekuwa likitokea Aarika Kusini hapa karibuni?"

"Het u gehoor wat nou in Suid-Afrika gebeur?"

"Han oido lo que está pasando en Sudafrica ultimamente?"

208 hours a week, in 11 languages, Radio RSA keeps the rest of the world in touch with South Africa.

Tourism, lifestyle, political updates and news are only a few of the subjects you're likely to tune in to.

Judge the programme quality for yourself. Shortwave listeners in East Germany did, when they voted Radio RSA the top external German shortwave station in 1983. And that's only one of the many accolades that have been bestowed upon the station in its 21-year history.

If the external service is that good, imagine what it's like locally, where 23 radio programme services broadcasting in

"Kodi mudamva zochitika mu South Africa posachedwapa?"

"Savez-vous ce qu'il va se passer en Afrique du Sud prochainement?"

"Kana ne se nu utwile se ne si sweli ku ezahala mva South Africa kalenyana?"

"Tem ouvido os acontecimentos verificados ultimamente na Africa do Sul?"

"Xana mi swi twile leswi swikarhi swi humelelaku eAfrica-Dzonga eka nkarhi wa lowu hi nga eka wona ke?"

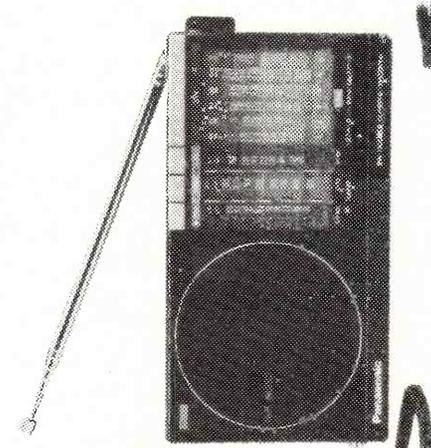
"Sind Sie über Südafrika auf dem laufenden?"

KLERCK & WHITE 14622

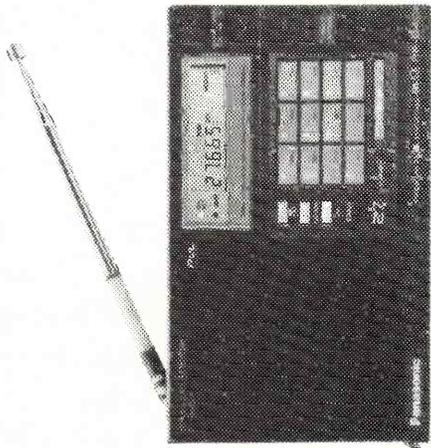
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Circuitry



RF-B60DL
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Panasonic

Further information available from:
Panasonic U.K. Ltd., 300-318 Bath Road, Slough, Berkshire
Telephone: Slough (0753) 34522

INTERNATIONAL BROADCASTING PAVILION

Directory of Exhibitors

Welcome to the world of international broadcasting at Telecom 87.

We are pleased to present short wave radio to the world — the stations; the frequencies; the technology; even some faces behind the microphones — in fact, everything you could possibly want to know about international short wave radio broadcasting is here at Telecom 87.

Here in the International Broadcasting Pavilion you may find out about some of the world's short wave radio stations — from the giants to the not-so-large broadcasters. You may also visit the European DX Council exhibits to discover what other stations you can find — and hear some of them, too!

This Directory will help you get the most from the International Broadcasting Pavilion.

EUROPEAN DX COUNCIL

The European DX Council was founded in Denmark in 1967, with the aim of promoting international short wave radio listening in the European continent and to co-ordinate the activities of clubs for short wave radio (or DX) listeners. The Council also aims to foster good relations between broadcasters and listeners.

Each Spring, the Council holds a major international conference for listeners, broadcasters and station engineers to discuss all aspects of international broadcasting and listening.

The Council offers advice to new and experienced listeners and produces publications to help and guide listeners.

The European DX Council works closely with its North American counterpart, the Association of North American Radio Clubs and co-operates with the International Telecommunication Union

LE PAVILLON DE LA RADIODIFFUSION INTERNATIONALE

Annuaire des exposants

Bienvenue dans le monde de la radiodiffusion internationale, à TELECOM 87. Nous sommes heureux de vous présenter la radio en ondes courtes dans le monde — les stations, les fréquences, la technologie, et même quelques aspects du côté du microphone. En fait, tout ce que vous voulez probablement savoir sur la radiodiffusion internationale en ondes courtes est ici, à Telecom 87.

Ici, dans le Pavillon de la Radiodiffusion Internationale, vous pouvez découvrir quelques-unes des stations de radio mondiale en ondes courtes, des géantes aux plus petits radiodiffuseurs. Vous pouvez aussi visiter l'exposition de l'European DX Council (Conseil DX Européen) pour découvrir quelles autres stations peuvent être entendues, et en écouter aussi quelques-unes!

Ce catalogue vous aidera à obtenir le plus, de ce Pavillon de la Radiodiffusion Internationale.

EUROPEAN DX COUNCIL

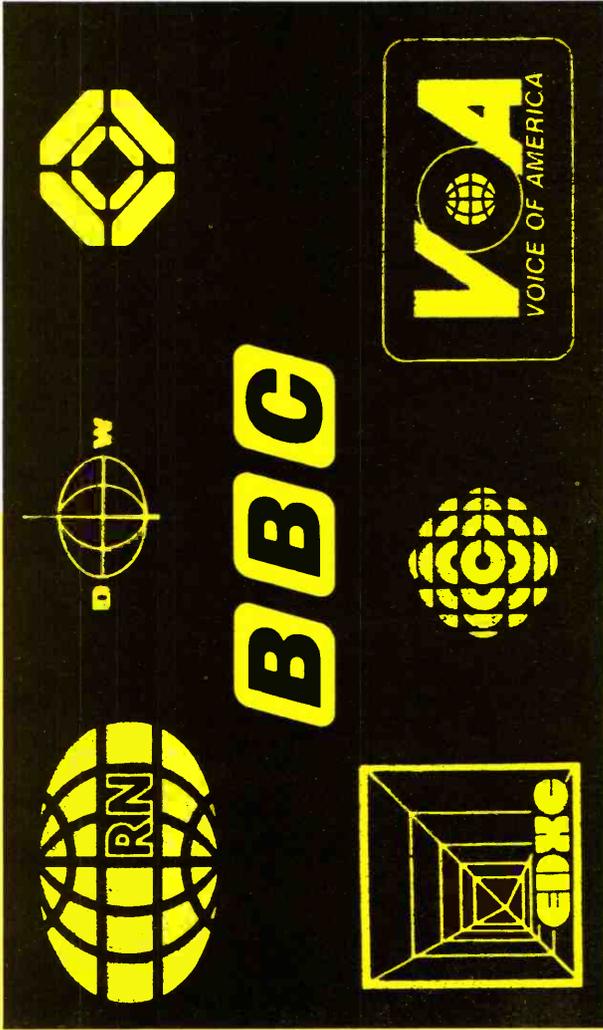
L'European DX Council (Conseil DX Européen) fut fondé au Danemark, en 1967, avec pour objectif de promouvoir l'écoute de la radio internationale en ondes courtes, sur le continent européen et de coordonner les activités des associations d'auditeurs de radio en ondes courtes (ou DX'eurs).

Le Conseil tente aussi de renforcer les bonnes relations entre les radiodiffuseurs et les auditeurs.

Chaque printemps, le Conseil organise la principale conférence internationale pour les auditeurs, radiodiffuseurs et techniciens des stations, pour discuter sur tous les aspects de la radiodiffusion internationale et les auditeurs.

Le Conseil offre des conseils aux nouveaux auditeurs et aux plus expérimentés et produit des publications pour aider et guider les auditeurs.

L'European DX Council collabore étroitement avec l'ANARC (Association Nord-Américaine des radio-Clubs) et l'UIT (Union Internationale des télécommunications).



DEUTSCHE WELLE

Deutsche Welle is the external broadcasting service of the Federal Republic of Germany. Founded in 1953 by all ARD-broadcasting stations in Germany, it was legally instituted by the German government in 1960. Deutsche Welle employs today about 1500 people, many from foreign countries, and broadcasts daily 93 different programmes in 34 languages.

For the transmission of 607 programme hours each week, 28 transmitters are available, 18 of them in Germany, 10 at the relay stations in Rwanda, Portugal, Malta and the West Indies. DX programmes are regularly broadcast every second Friday per month in the German language programme, and monthly in several foreign language programmes. Detailed QSL cards are only issued on special occasions, but each reception report is confirmed and much appreciated.

DEUTSCHE WELLE

La Voix d'Allemagne est la station de radio de la République fédérale de l'Allemagne émettant à l'étranger. Fondée en 1953 par tous les stations de radio de l'ARD, elle fut légalement instituée par le gouvernement allemand en 1960. Aujourd'hui, elle emploie environ 1500 personnes, dont un grand nombre vient de l'étranger; elle diffuse 93 différents programmes en 34 langues étrangères 24 heures sur 24. Pour la transmission de ses 607 heures de programme la semaine, elle dispose de 28 émetteurs, dont 18 en Allemagne et 10 aux stations-relais au Rwanda, au Portugal, sur l'île de Malte et aux Indes occidentales. Des programmes DX sont diffusés le deuxième vendredi de chaque mois au cours du programme en langue allemande et chaque mois dans le cadre de différents programmes en langues étrangères. Des cartes QSL détaillées sont uniquement établies pour des occasions spéciales, mais chaque rapport d'écoute sera confirmé et est très apprécié.

RADIO BEIJING

Radio Beijing, the overseas radio service of the People's Republic of China, began broadcasting in 1947 when its English language service was inaugurated. After 40 years on the air, Radio Beijing today broadcasts in 37 languages beamed to all areas of the world.

Programmes include news and commentaries on international affairs, features on China today and special programmes are often produced for holidays and festivals. There is also a *Learn to Speak Chinese* course broadcast in the English, French and Japanese services. All Radio Beijing's programmes are designed to enhance listeners' understanding of China, and programme schedules are available upon request.

VOICE OF AMERICA

From its studios in Washington, DC, the Voice of America broadcasts more than 1200 hours of programming weekly in 44 languages. Now in its 46th year, the Voice employs the talents of nearly 3,000 staffers in the United States and at news bureaux and transmitter relay stations and operates on public funds appropriated by the US Congress. Its programming is governed by a Congressionally-enacted charter. The charter requires VOA to "serve as a consistently reliable and authoritative source of news. "VOA news is to be "accurate, objective and comprehensive."

The charter directs VOA to present "a balanced and comprehensive projection of significant American thought and institutions." VOA is also charged with presenting US policies and responsible discussion and opinion on those policies.

Research indicates that VOA has more than 130 million regular listeners worldwide. For programme schedules and other information about VOA write:

RADIO MOSCOW

Radio Moscow broadcasts in 62 languages for more than 1400 hours every week with transmitters throughout the USSR. There is a 24 hour a day English language World Service. The Radio Moscow exhibit is on the USSR National pavilion.

BRITISH BROADCASTING CORPORATION

External broadcasting by the BBC began in English with the Empire Service in 1932 and broadcasting in other languages started in 1938. Today the External Services broadcasting the World Service in English for 24 hours each day, and programmes in 36 other languages, in all some 734 hours of direct transmissions a week.

The government prescribes the languages which are broadcast and the length of time each one is on the air, but editorial control of what is broadcast rests with the BBC. Programmes are designed to give news and reports of world events, and project a broad picture of Britain's life and thought.

These programmes originate mainly from 53 studios in Bush House, External Services' headquarters in London, and are carried over 90 transmitters scattered across 12 BBC External Services major transmitting sites, four of them in the United Kingdom and eight based outside the country. The World Service programme *WAVEGUIDE*, broadcast four times a week, gives advice on how to get the best reception and welcomes reception reports from listeners although QSL cards are not generally sent in return.

The BBC Monitoring Service reports on foreign radio broadcasts, providing the world's press and government departments with a service of international news and background.

THE GROUP OF FIVE

Five stations — one purpose . . .

"A free choice of information for better communication . . ." This is the maxim which unites five stations on a common stand at Telecom '87:

Radio Australia, Radio Canada International, Radio Nederland, Radio Sweden International and Swiss Radio International. These five stations are co-operating in a number of fields, and joint presentation at international exhibitions is just one of them. They are similar in several respects, for example in programming and both technical and financial affairs.

Above all, they have a common aim: to comprehensively as possible, and, free from any pressure, to illustrate in an interesting and objective way their countries' people and institutions.

BRITISH BROADCASTING CORPORATION

Les Emissions Internationales de la BBC ont commencé en anglais par le Service de l'Empire en 1932. A partir de 1938, la BBC a diffusé dans d'autres langues. Aujourd'hui, les Services Extérieurs des programmes en 36 autres langues soit au total 734 heures d'émissions en direct par semaine.

C'est le gouvernement qui prescrit le nombre de langues dans lesquels il veut diffuser, ainsi que le temps d'antenne pour chacune de ces langues. Cependant la BBC conserve le pouvoir absolu sur le contrôle éditorial. Dans ses émissions la BBC accorde la priorité aux informations, à l'actualité mondial et projette la réalité de la vie intellectuelle et sociale en Grande-Bretagne.

La plupart de ces émissions sont réalisées dans les 53 studios de Bush House, Siège des Services Extérieurs à Londres et sont diffusées par 90 émetteurs disséminés à 12 endroits différents dont 4 au Royaume-Uni et 8 à l'Étranger. Le programme du Service Mondial "WAVEGUIDE", diffusé 4 fois par semaine, informe sur les meilleures conditions de réception et tient compte des rapports d'écoute des auditeurs bien que les cartes QSL ne soient pas renvoyées.

Le Service d'Écoute de la BBC rend compte des émissions diffusées par des radio étrangères fournissant ainsi à la presse internationale et aux départements ministériels, un service d'informations et d'analyses internationales.

LA GROUPE DE CINQ

Cinq relais — un seul but . . .

"Un choix libre d'information pour meilleur rapport". C'est la maxime qui unit les cinq relais dans un seul stand à Telecom 87.

Radio Australie, Radio Canada International, Radio Nederland, Radio Suede International, Radio Suisse International. Ces cinq relais collaborent dans des nombres des domaines, et ceci est seulement un de leur activités. Ils sont semblable en plusieurs aspects, par exemple la programmation et aussi la technologie et la finance.

Au dessus ils ont un but commun: — de diffuser les informations du monde entier et les problèmes d'actualité exacte et complet et sans contrainte et pour illustrer leur peuple et ses institutions dans un façon intéressant

RADIO BEIJING

Radio Beijing, la service étranger de la République Populaire de Chine, à commencé ses émissions en 1947 quand le service anglais était inauguré. Après 40 ans, Radio Beijing diffuse, aujourd'hui, en 37 langues pour le monde entier. Les émissions incluent les informations et les problèmes d'actualité, des articles sur la Chine, et des émissions spéciales pour les fêtes.

Il y a aussi un cours "Apprends le Chinois" diffusé par les services français, japonais et anglais.

Tous les émissions de Radio Beijing sont pour le meilleur compréhension de la Chine; les grilles des programmes sont disponible sur demand.

LA VOIX DE L'AMERIQUE

De ses studios à Washington DC, la Voix de l'Amérique diffuse plus de 1200 heures d'émission par semaine en 44 langues différentes. La VOA a maintenant 46 ans. Elle emploie près de 3000 personnes aux Etats-Unis ainsi que dans ses bureaux et stations-relais à travers le monde. La VOA fait partie de l'Agence d'information des Etats-Unis et elle est financée par fonds publics débloqués par la Congrès américain. Sa programmation obéit à une charte adoptée par le Congrès. Cette charte donne pour mandat à la VOA d'être "une source d'information fiable consistante et qui fait autorité". L'information de la VOA se doit d'être "exacte, objective et complète". La charte requiert que la VOA "reflète la pensée et les institutions significatives des Etats-Unis de manière équilibrée et complète". La VOA est chargée également de présenter la politique américaine ainsi que les opinions et discussions sérieuses qui s'y rattachent. Des sondages indiquent que plus de 130 millions de personnes sont régulièrement à l'écoute de la VOA à travers le monde.

Pour obtenir les grilles des programmes et de plus amples informations sur la VOA, écrivez à:

RADIO MOSCOU

Radio Moscou diffuse plus de 1400 heures en 62 langues chaque semaine avec émetteurs en tous les URSS.

Il y a un émission 24 heures sur 24 en anglais pour le monde entier. Le stand de la Radio Moscow est situé dans la pavillion URSS.

EXHIBITORS' ADDRESSES

EDXC, PO Box 4, St Ives, Huntingdon,
Cambs PE17 4FE, England
Telephone: +44 480 68885;
Telefax: +44 491 32002

Telex: 940 16374 = LOWE G

RADIO BEIJING, Beijing, People's
Republic of China

BBC, Bush House, London WC2B 4PH,
England.
Telephone: +44 1 240 3456;
Telex: 265781

DEUTSCHE WELLE, Postfach 100444,
D-5000 Koln 1,
West Germany
Telephone: +49 221 389 3201;
Telex: 888485

RADIO MOSCOW, Moscow, USSR
VOICE OF AMERICA,
Washington DC, 20547, USA
Telephone: +1 202 655 4000

RADIO AUSTRALIA, GPO Box 428G,
Melbourne, Victoria 3001, Australia
Telephone: +613 235 2222;
Telex: RADAUS 30470

RADIO CANADA INTERNATIONAL,
Box 6000, Montreal, Quebec H3C 3A8
Canada.
Telephone: +1 514 285 2653;
Telex: 055 61 247

RADIO NEDERLAND, PO Box 222,
1200 JG Hilversum, Holland
Telephone: +31 35 16151;
Telex: 43336 WOMR NL

RADIO SWEDEN INTERNATIONAL,
S-105 10 Stockholm, Sweden
Telephone: +46 8 7840000; Telex:
10000

SWISS RADIO INTERNATIONAL,
CH-3000 Berne 15, Switzerland
Telephone: +41 31 43 92 22;
Telex: 911 538 CHRI CH

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TO CHOOSING
THE RIGHT BANK
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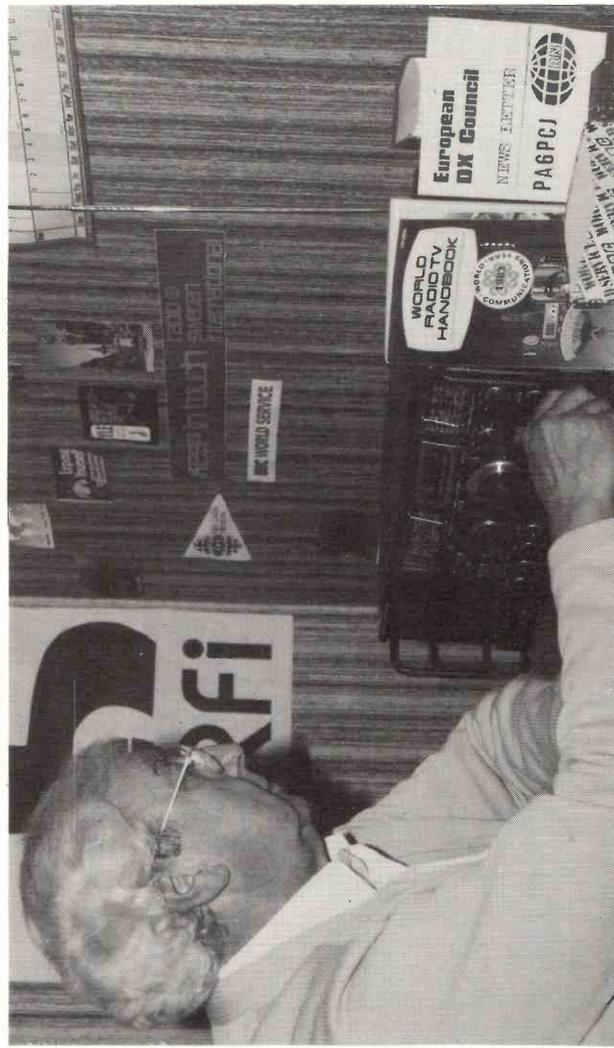


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STARTING TO LISTEN — to the world!

Turn on a short wave radio, tune along the bands, and discover the world at your fingertips . . .

International broadcasting is concentrated in certain areas of the short wave bands. In general, radio stations will be found around:—

- 5.950- 6.200MHz 49 metres
- 7.100- 7.300MHz 41 metres
- 9.500- 9.755MHz 31 metres
- 11.700-11.975MHz 25 metres
- 13.600-13.800MHz 21 metres
- 15.100-15.450MHz 19 metres
- 17.700-17.900MHz 16 metres
- 21.450-21.750MHz 13 metres

These bands have been officially designated for the exclusive use of international broadcasters by the International Telecommunication Union, although some stations treat the restrictions somewhat liberally and broadcast on frequencies well outside the "broadcast bands" in order to avoid overcrowded frequencies and interference. However, if you start listening in the bands shown here, you'll be on the right track to listen to the world.

It must be stressed that short wave behaves differently to medium wave or v.h.f.-f.m. radio. Signals on short wave propagate in different ways at different times of the day and night, and at different stages in the year.

A very general rule is that higher frequencies will work during the daytime; at night, lower frequencies tend to be audible over greater distances. In other words, during the day, it is possible to hear stations transmitting in the 13, 16, 19 and 25 metre bands from a long way away, whereas during the hours of darkness, these bands will not have distant stations audible on them, although they may appear in the 49, 41, 31 and 25 metre bands.

It is also worth remembering that international broadcasters beam their signals to different parts of the world at different times, generally to coincide with peak listening times (for example, breakfast time and during the mid evening). That is when reception will generally be best, as the broadcasters are trying their hardest to put in the best possible signal to your area.

What is it Possible to Hear?

Wherever you are in the world, you can listen to the world! Tune in to Australia, Austria, Canada, India, Pakistan, France, the Soviet Union, Argentina, the United Kingdom, Switzerland, the United States . . .

To take you, listed here are some times and frequencies of stations to try for here in Europe. Remember that all times given are GREENWICH MEAN TIME, also known as UNIVERSAL COORDINATED TIME. During summer, continental Europe is two hours ahead of GMT, and during winter, one hour ahead. In Britain, during summer, GMT is one hour behind local time, but in winter, GMT is local time.

Frequencies on short wave are subject to change as a result of alterations in propagation conditions or increased interference. In addition there are four main periods of frequency use on short wave, with major changes occurring in March, May, September and November. This listing was compiled in late August and was current as we went to press.

Information is carried in special DX programmes, heard on several stations. In English, Radio Sweden's SWEDEN CALLING

Broadcasts in English	All frequencies are in megahertz (MHz)
0400 Voice of Israel, Jerusalem Radio RSA, Johannesburg Radio France International [0415-]	9.435 9.815 9.855 11.585 11.700 11.960 15.585 17.685 3.230 5.980 6.120 7.295 5.990 7.280
0500 Vatican Radio Voice of Nigeria R Korea, Seoul [0515-] Radio Canada International [0515-]	6.185 9.645 15.120 13.670 6.000 6.050 6.140 7.275 9.750
0600 Radio Berlin International WCSN-Christian Science Monitor	5.965 9.620 7.365
0630 Radio Austria International Radio Finland Radio Tirana, Albania Radio Polonia, Warsaw Radio Sofia, Bulgaria Swiss Radio International	6.000 6.155 9.600 9.635 6.120 9.560 11.755 7.205 9.500 6.135 7.270 9.675 11.720 15.140 3.985 6.165 9.535
0700 Radio Australia BBC, London Radio Moscow World Service Voice of America Radio Japan HCJB, Quito, Ecuador	9.655 15.395 17.715 7.150 9.410 12.095 15.070 7.290 12.010 12.030 13.710 5.955 5.995 6.040 9.670 15.195 15.230 9.845 9.860 11.835

This listing of English language programmes is by no means comprehensive, but does offer a selection of listening from European and the rest of the world throughout the day.

DXers, broadcast on Tuesdays (after 1400) and Wednesdays (until 1400) and Radio Netherland's MEDIA NETWORK heard on Thursdays, are perhaps the best sources of current information for European listeners.

DX clubs also publish regular bulletins with programme and frequency news. Details of many clubs are contained in the European DX Council's CLUBLIST — see the Publications Page in this booklet for more information.

Broadcasts in English	All frequencies are in megahertz (MHz)
1000 American Armed Forces Radio Radio Pakistan [1005-]	15.265 15.606 17.660
1130 Radio Netherlands	5.955 9.715 17.605
1600 Radio Australia Africa No One, Gabon Radio Budapest, Hungary Voice of Vietnam, Hanoi United Arab Emirates, Dubai Radio France International	6.035 7.205 7.200 15.200 6.110 7.225 9.585 9.835 11.910 9.840 15.010 9.640 11.730 11.955 15.320 6.175 9.860
1600 Radio Tirana, Albania R Pyongyang, North Korea Radio Havana, Cuba	7.135 9.480 6.576 9.345 9.715 or 15.295
1900 Radio Yugoslavia Radio Afghanistan Radio Canada International Radio Beijing Radio Prague, Czechoslovakia HCJB, Quito, Ecuador Voice of Greece [1920-]	5.980 6.100 7.240 9.620 7.310 9.635 9.665 11.755 5.995 7.235 11.945 15.325 4.130 9.850 11.500 5.930 7.354 11.740 15.270 17.790 7.430 9.395 9.425
1930 Voice of Islamic Republic of Iran Radio Portugal	9.022 9.765 11.930 9.605 11.740

Radio Berlin International
the voice of the
German Democratic Republic

We broadcast in English to Europe and North America on short wave in the 31, 42 and 49 metre bands. We also broadcast to Europe in French, Italian, Spanish, Portuguese, Swedish, Danish and German. We have daily reports on current affairs and life in the GDR. DX programmes every Monday. Please write to: Radio Berlin International Berlin, DDR — 1160.

STARTING TO LISTEN

Broadcasts in French	All frequencies are in megahertz (MHz)		
0400 Radio Sofia, Bulgaria Radio Moscou International Voice of Israel [0415-]	9.560 7.240 11.630 9.435	11.735 9.490 11.830 9.815	11.840 9.710 11.930 11.585
0430 BBC., Londres	6.155	7.105	
0500 Radio Canada International Radio Tirana, Albania Radio Prague, Czechoslovakia Swiss Radio International Radio Australe Deutsche Welle, Cologne [0515-]	6.000 7.205 6.055 3.985 11.945 7.150 11.765	6.050 9.500 7.345 6.165 15.315 7.225	7.275 9.505 9.535 9.565 9.765
0730 Medi 1, Maroc Radio Autriche R Finlande IBRA Radio Malta Radio Yerevan, USSR [0750-]	9.575 6.000 6.120 9.615 15.485	6.155 11.755	9.600
1500 Radio Yugoslavia Radio Polonia Radio Suede International RTBF Bruxelles R Coree [1515-]	7.240 9.525 6.065 7.140 6.480	9.620 11.840 15.345 17.585 7.550	15.240
1800 VRII, Teheran Radio Baghdad Voice of Nigeria R RSA, Johannesburg Radio Pakistan [1815-]	9.022 9.875 7.255 7.270 7.100	9.765 11.930	9.675 11.810
1830 R Yugoslavia Radio Canada International Voice of Vietnam Radio Netherlands Radio Sofia Radio Beijing	6.100 5.995 15.325 9.840 9.740 7.055	7.240 7.235 17.875 15.010 11.730 11.735 7.800	9.620 9.555 11.945 15.560 15.310
2000 Radio Portugal RNB Brasilia VOFC, Taipei Radio Le Caire	9.605 11.765 9.510 9.900	11.740	9.455 11.900

EUROPEAN DX COUNCIL RECEIVER LIST

The EDXC receiver List shows the most popular currently available short wave receivers on the European market. Whilst this list is not exhaustive, it does provide a useful guide to what is available, with the most relevant features highlighted. It should be noted that inclusion of any model does not indicate endorsement by the European DX Council of the product.

RECEIVER TYPES

This list shows three categories into which these short wave receivers fall: —

TRAVEL PORTABLE: compact, easy-to-carry, battery operated receiver, generally without many complicated features.

TABLE-TOP: a stay-at-home model, designed with, generally, more facilities than portables; usually mains operated.

DX MACHINE: a set for the serious listener, with many specialised facilities and features.

FEATURES TO LOOK FOR

COVERAGE: check that all the short wave broadcast bands are covered or that short wave coverage is continuous (i.e. from 3 to 30 MHz). The main broadcast bands are 13, 16, 19, 21, 25, 31, 41 and 49 metres. Some broadcasters use "out-of-band" frequencies, just outside these official broadcast bands — this listing shows which receivers cover "out-of-band" frequencies.

DIGITAL READOUT: a display of the tuned frequency in either kilohertz (e.g. 15205 kHz) or in megahertz (e.g. 12.095 MHz). Useful for ease of tuning

and identification of tuned station.

MEMORY: A facility for storing frequencies, for instant recall of favourite stations without the need to remember frequencies or refer constantly to reference books.

SINGLE SIDEBAND: Single sideband (s.s.b.) enables transmissions from radio amateurs or "hams" to be decoded. Useful only for listening to amateurs at the present time, although plans exist for broadcasters to use s.s.b. transmissions in the future.

DIRECT ENTRY: a keypad facility enabling frequencies to be directly entered saving the need for tuning through all the short wave bands.

VEGA SELENA MB215

Possibly the least expensive short wave receiver available in Europe. Built in the Soviet Union, covering LW, MW, VHF-FM and SW (16, 19, 25, 31, 41, 49 and 75 metre bands). Some coverage restrictions on out-of-band channels, although some later models have the new 21 metre band. Battery or mains operated. Good basic "no frills" receiver.

TABLE TOP
Around £35.00/SFr.88

GRUNDIG YACHT BOY 210

LW, MW, VHF-FM and SW (13, 16, 19, 25, 31, 41 and 49 metre bands). Some out-of-band channels covered on this new aging receiver. Battery operated with optional mains adaptor. Weight 505g.

TRAVEL PORTABLE
£55.00/SFr.140

TOSHIBA RP-F11

MW, VHF-FM and SW (13, 16, 19, 21, 25, 31, 41, 49, 60, 75 and 90 metre bands). Some out-of-band frequencies covered. Battery/mains operated. Weight 630g.

TRAVEL PORTABLE
£115.00/SFr.290

GRUNDIG YACHT BOY 700

LW, MW, VHF-FM and SW (1.6 to 26.1 MHz continuously). Digital readout. Clock and timer device. SSB. Weight 1400g.

TRAVEL PORTABLE
£130.00/SFr.325

PANASONIC RF-B40

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 27 memory channels. Battery or mains adaptor (supplied). Recent entry into the short wave market and known as National RF-B20 in some markets.

TRAVEL PORTABLE
£140.00/SFr.350

GRUNDIG SATELLIT 400

LW, MW, VHF-FM and SW (1.6 to 26.1 MHz continuously); Digital readout; Direct frequency entry; 24 memory channels. Battery or mains operated.

TRAVEL PORTABLE
£160.00/SFr.400

SONY ICF-7600DA

LW, MW, VHF-FM and SW (1.1, 13, 16, 19, 21, 25, 31, 41, 49, 60, 75, 90 and 120 metre bands). Exceptional coverage, despite division into separate bands: most out-of-band frequencies thus

covered. Digital readout; 15 memory channels. Battery operated or mains adaptor (supplied). May have different model number in some markets (i.e. North America). Incorporates some novel new technology. Clock.

TRAVEL PORTABLE
£160.00/SFr.400

PANASONIC RF-B60

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 36 memory channels. Clock and alarm facilities. Battery operated or optional mains adaptor. Weight 640g. Known in some markets as National RF-B60.

TRAVEL PORTABLE
£170.00/SFr.425

SONY ICF-7600DS

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 10 memory channels. SSB facilities. Clock and alarm. Battery operated or mains adaptor (supplied). Weight 640g.

TRAVEL PORTABLE
£170.00/SFr.425

SONY ICF-2001D

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 32 memory channels. Clock and timer. SSB facilities. Battery operated or mains adaptor (supplied). Weight 1800g. ICF-2010 in N.America.

TRAVEL PORTABLE or DX MACHINE
£330.00/SFr.825

RECEIVER LIST

GRUNDIG SATELLIT 650

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 60 memory channels. Clock and timer. SSB Facilities. Battery or mains operated.
DX MACHINE £350.00/Sfr. 875

PHILIPS D-2999

LW, MW, VHF-FM and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 16 memory channels. Clock and timer. SSB facilities. Battery or mains operated. Weight 4730g.
TRAVEL PORTABLE or DX MACHINE £375.00/Sfr. 940

LOWE HF-125

LW, MW and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry throughout *optional* keypad; 30 memory channels. SSB facilities. Mains operated with adaptor (supplied).
DX MACHINE £375.00/Sfr. 940

YAESU MUSEN FRG-8800

LW, MW, SW (1.6 - 29.999 MHz continuously). Digital readout; Direct frequency entry; 12 memory channels. SSB Facilities. Clock and alarm. Sophisticated machine for the dedicated listener.
DX MACHINE £620.00/Sfr. 1550

KENWOOD R-200

LW, MW and SW (1.6 to 29.999 MHz continuously). Digital readout; 10 memories. Mains operated. Receiver for the enthusiast or dedicated listener. Clock and timer.
DX MACHINE £640.00/Sfr. 1600

ICOM IC-R71

LW, MW and SW (1.6 to 29.999 MHz continuously). Digital readout; Direct frequency entry; 32 memories. Optional infra-red remote control and optional speaking readout of frequency. SSB facilities. sophisticated receiver for the enthusiast or dedicated listener. Clock and timer.
DX MACHINE £825.00/Sfr. 2075

JAPAN RADIO CO NRD-525

LW, MW and SW (1.6 to 29.999 MHz continuously). Sophisticated receiver for the enthusiast or dedicated listener. Digital readout; Direct entry of frequencies; 200 memory channels. SSB facilities. Timer
DX MACHINE £1,195.00/Sfr. 3000

In addition to the models detailed in this listing, others are available, notably several models imported from Taiwan which are based on a digital receiver manufactured at the start of this decade. It may also be possible to obtain recently discontinued models, at a considerable saving on the last recommended retail price.

Some duty free shops at airports sell short wave receivers at prices below those in downtown shops. Schiphol Airport (Amsterdam) has a very large selection of these receivers, but conversely, Singapore's Duty Free area

sometimes charges more than the shops in the city centre! It is worth shopping around for shortwave receivers if at all possible, as some retailers import receivers themselves, rather than through the official manufacturer's import operation and are able to offer receivers at below the recommended retail price.

When buying a set, check that the warranty offered is applicable in the country where you are resident.

NEW PRODUCTS

Manufacturers often bring on to the market new products without much publicity. Regular receiver reviews are carried on specialist programmes on three radio stations:

BBC WORLD SERVICE

"Waveguide"
 Sundays 0750gmt
 Tuesdays 1115gmt
 Wednesdays 04:30gmt
 Thursdays 0130gmt

RADIO CANADA INTERNATIONAL

"SWL Digest"
 Saturdays 200gmt
 Sundays 2130gmt
 Mondays 0100gmt
 Tuesdays 2300gmt

RADIO NETHERLANDS

"Media Network"
 Thursdays 0750gmt
 Fridays 0850gmt
 Saturdays 1050gmt
 Sundays 1150gmt
 Mondays 1450gmt
 Tuesdays 1650gmt
 Wednesdays 1850gmt
 Thursdays 2050gmt
 Fridays 0250gmt
 Saturdays 0550gmt

Receiver Reviews are also published in the annual **World Radio TV Handbook**, and appear in **Radio Database International**.

EDXC Receiver List compiled August 1987

Everyone has the right of freedom of opinion and expression; this right includes freedom to hold opinions without interference and to seek, receive and impart information and ideas through any media and regardless of frontiers.

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WHAT IS THE EUROPEAN DX COUNCIL?

The European DX Council is an association of short wave radio listeners' clubs and DX organisations in the European continent.

The Council was founded in 1967 in Copenhagen when a group of DX listeners from Holland, Germany and Scandinavia met and discussed the future co-operation between European DXers. These short wave listeners decided that for the future development of the DX hobby and for international understanding in the field of radio DXing, an organisation which centrally co-ordinated the activities of clubs, and acted as a point of reference for clubs, listeners and broadcasters, was essential. Thus the European DX Council was established.

Gradually, the Council has come to play a more important role in short wave radio listening and broadcasting in Europe, and today, with its headquarters in Great Britain, the Council is an important force in the promotion of international short wave broadcasting.

The European DX Council has close links with international broadcasters, not only in the European continent, but also throughout the world. EDXC is also privileged to have a good working relationship with the International Telecommunication Union.

How EDXC is Organised

The headquarters of the European DX Council have been located in Great Britain since 1980 and both the Secretary-General, Michael Murray and the Assistant Secretary-General, Simon Sparswick work from offices in the United Kingdom.

In 1986, a separate office looking after special projects, exhibitions and other major public relations operations was established, away from the Cambridgeshire headquarters, in the Thames Valley town of Wallingford. There the Assistant Secretary-General is based, with responsibility for promotional activities.

Reporting to the Secretary-General are a number of specialist Working Committees which have been established to examine subjects relating to international broadcasting and the short wave listening hobby. An important Committee is currently re-evaluating the role of Reception Reporting and the Verification of listeners' reports to stations, and is expected to publish its findings at the 1988 annual Conference which will be held in Antwerp, Belgium.

The European DX Council is a non-profit making Foundation. Funds for its numerous activities are raised through membership fees from DX and short wave listeners' clubs in Europe and world-wide, and through the sale of publications detailed in this brochure. The Council also receives occasional

sponsorship enabling full representation at important events such as the World Telecommunication Exhibitions.

Short wave listeners' and DX clubs may join the European DX Council and belong to one of two categories of membership: Full status or Observer status. Full membership is open to any club based in Europe with twenty or more individuals as members, whilst Observer status is available to clubs outside the European continent, or other bodies involved with international broadcasting and listening. Voting rights on matters affecting the Council are only granted to Full Members.

All member organisations receive the Council's monthly journal, "EURO DX", which is also available on subscription to individuals and other organisations.

European DX Council Conference

Since 1967, the European DX Council has held an annual meeting for short wave listeners, international broadcasters and engineers and others involved in international broadcast media.

In the past few years, the Conference has been held in London, Stockholm, Madrid, Paris and Helsinki and in 1988, will move to Antwerp in Belgium.

The 1987 Conference in Helsinki, Finland, was hosted by the Finnish DX Association, members of the Council, and more than 300 delegates from every part of the world attended: representatives from East and West European countries, South Korea, the United States, Central America and Taiwan added to the very international flavour of the event.

During the Conference, issues affecting international broadcasting and listening are discussed in depth, with equipment on display and visits to broadcasting establishments included in the agenda.

The Future for the European DX Council

With technology changing and improving the whole time in today's computer-dominated world, international broadcasting and listening is becoming more complex, and not necessarily easier for either the broadcaster or the listener. The European DX Council will continue to offer advice and assistance to the new listener to international radio broadcasts, and act as a focal point for established listeners.

The Council will also continue to improve relations between broadcasters and listeners, and between official regulatory bodies and listeners.

The Council hopes to be able to continue with its important publicity work, such as the EDXC Road Shows, where a travelling exhibition visits large towns and cities to promote international short wave radio to the public — a public which seems to be completely unaware of the existence of short wave radio broadcasting. The first Road Shows were held on an experimental basis in the Spring of 1987 in the United Kingdom, and we look forward to taking these important events further afield during the coming years.

We hope to see a reduction in the amount of deliberate harmful interference in the future on the short wave bands: jamming is an anathema to both listener and broadcaster, adversely affecting the precious resource of the broadcast bands, increasing overcrowding as stations move to avoid the 'splash' effect from jammers on adjacent channels and reducing the overall worth of many broadcasts by them from East or West, North or South.

It is hoped that enhanced broadcasting

techniques, and the introduction of single sideband transmissions at some future date, will improve reception for listeners throughout the world.

The European DX Council will remain non-political and will support all legitimate broadcasters whatever their ideology and background, just as we will support those who listen, and want to listen.

The Council hopes that international broadcasting will become more accessible with the advent of new technology in the field.

The European DX Council will continue to promote international broadcasting, recognising the importance of the medium, and knowledgeable of the fact that increased information and communication spreads understanding and co-operation.

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PUBLICATIONS FROM THE EUROPEAN DX COUNCIL

The European DX Council produces a range of specialist publications for short wave radio listeners to assist them. These include:—

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The second edition of the highly successful *EDXC QSL Survey* examines the role of the QSL verification from international broadcasters in the 1980s, looking at how radio stations around the world regard the QSL card. Find out how reception reports are used by broadcasters and by engineers, and find out what is wanted by stations in reports.

Europe: £0.50 or SFr1.25
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EDXC RADIO LANDLIST

The *Radio Landlist* is now in its third edition, and contains listings of all the world's current and former radio countries for use in conjunction and QSL ladders and DX diplomas. The *Radio Landlist* is also useful for keeping a record of countries heard.

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Compiled annually in the Spring, the *EDXC Club List* contains full and comprehensive information about all the Council's Full and observer Members throughout the world, with details on individual club activities, their publications, areas of specialisation and information on membership including current subscription rates. An invaluable guide to anyone who wishes to join a short wave club.

Europe: £0.75 or SFr1.75
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EURO DX

The monthly journal of the EUROPEAN DX COUNCIL, *Euro DX* carries information about the Council and its activities, together with reviews of articles appearing in the bulletins of member clubs, news from international radio stations, developments in the field of international broadcasting and many other items of interest to today's short wave listener and international broadcaster, including important and authoritative articles about all aspects of international broadcasting.

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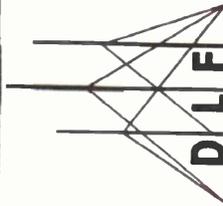
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A GOLDEN AGE APART FROM THE GREMLINS

Meanwhile, and on a much less significant level, the "Uncle Charleys" of the Federal Communication Commission were having to pursue the wayward. Given the abuses of recent years, not least some of the more esoteric and troublesome aspects of CB radio, one should not be surprised at what went on years earlier.

Shaggy Dogs

For radio shaggy dog stories, it would be hard to beat that of "Villa Acuna", a powerful station that broadcast just inside the Mexican border, in English, but which had originated in the USA. The operator had gone "south of the border" to escape the eager handcuffs of the federal authorities, having used the station for advertising purposes, to wit, a medical treatment using goat glands, presumably to rejuvenate weary frames.

Radio stations owned by promoters of quack remedies may be part of our liberalised radio future — a sort of medicine show in the age of satellite communication.

Favourite

My own favourite radio shaggy dog story from this period was originally reported in a *Wireless Constructor* journal, and focussed on a lamp-post in central London, which "transmitted" the BBC London Radio signal.

The report did not say whether you had to take your own headphones in order to enjoy this experience but, no doubt influenced by the conversation of short wave enthusiasts, correspondents often referred to such phenomena as picking up radio via the plumbing, i.e. when the water pipes brought music in volume according to the flow of water. Whether or not someone hearing radio in this way was required to take out a "wireless licence" is a tricky legal point.

Pirates

In Bucharest, so many people were getting into radio without taking out a licence, the radio service began broadcasting names of the "pirates". Presumably, a large detector van parked outside the parlour at the same time, as added persuasion.

Eruption

Although my memories of radio in the 1930s are modest if bright enough (as Pa loved twiddling the knobs) I can fully understand the sense of wonder that afflicted operators. Hardly a week went by without some station, somewhere in the

world, offering "a first". For example, KGU of Honolulu astonished listeners by broadcasting a volcanic eruption during 1931, this being Mount Halemauan, using what they called "a moving microphone". Not just moving but probably quivering occasionally.

But tuning was no light matter, and one expert warned, in *The Voice* (July 1937) that "in the hands of the novice, the S3 band (7-16 metres) is apt to be a blank. This is because extra careful tuning is essential on very low wavelengths, otherwise quite strong signals are very easily missed altogether".

Learning how to do it, could be a great alternative to taking piano lessons. In addition, there was much to be considered regarding "the state of ionisation", not to be confused with the present state of the ozone layer, which might itself revive the "Keep Cool, Calm and Collected" music programmes from Paris.

Although picking up stations based in the African continent was usually very difficult indeed, by 1937, Tokyo was providing impeccable news programmes in English. Indeed, the Tokyo transmissions were remarkably strong, perhaps indicating the kind of electronics success that nation was to enjoy in the post-war world.

Increasing Choice

As the 1930s deepened towards world war, short wave operators seemed to have an increasing choice of English language radio programming, some from nations which, alas were soon to be "on the other side".

One would not want to draw any comparisons with the emphasis on news broadcasting today, including that via satellite — but, as the doctor said in relation to my recent heart attack, you need to keep an eye on it.

The Goop Wayfarer

In case you think the 1930s all tuning one's fingers and listening to the faucet (tap) let it be said that *The Wireless Constructor*, a very handsome monthly

which carried many articles by John Scott Taggart, developed a humour-plus-tall-tales feature called "The Goop Wayfarer".

This was a sort of short wave soap opera starring a certain Professor Goop, a bearded boffin who knew everything about radio, but without letting it interrupt his dinner. Gooperised versions of real radio life were found in such features as "The Goop Warfarer Wireless Service Bureau", a somewhat unlikely approach to the answering of readers' questions which of course represented a heavy editorial chore for technical writers.

The Wireless Wizard

Claims relating to the discovery of entirely unknown — till now — radio stations were included in "The Wireless Wizards Wonder Shop — The Home of Red Hot Radio". In pre-transistor, hot bottle days, it was certainly possible for radio chassis to get warm if not actually red hot. I have often wondered if Professor Goop was any relation to an American character of the amateur radio world, a certain Charlie Loudenboomer, whose exploits appeared anonymously in *Frendx Magazine*.

Exploits

Genial, enthusiastic and out-going, Charlie Loudenboomer was the kind of man who liked to tell everyone he met about his most recent radio achievements. Eventually, his exploits ceased, but I feel sure that I saw him in London some years ago, peering through the railings of Buckingham Palace, and looking for a radio antenna amongst the regal chimney pots. He was trying to figure out whether or not HRH Prince Charles had a short wave radio. With proper respect, a wide grin and a floral shirt, he cried, "Why, that Prince Charles looks as though he used short wave, doesn't he? You can tell folks like that the world over, dammit".

I did not like to tell him that if he listened carefully to the Buckingham Palace railings, he could probably pick up the output of Capital Radio, just like they did in that other golden age. □

THE OLD DAYS



What they called "Rattle and Roll". Drawing from a 1932 *Wireless Constructor*.

INTRIGUE ON THE SHORT WAVE BANDS

Peter Shore

Observant listeners may have noticed that amongst the whistles and crackles, the high-speed data and Morse, are stations transmitting strings of numbers in various languages. These have been known as "number stations", and in recent years, listeners have heard numbers broadcast in English, German, Spanish, Czech and Korean.

Number Stations

These "number stations" are believed to carry coded messages for agents operating in the field, away from their home country. The first one heard was the East German number station beaming to Western Europe — established over twenty years ago. This was followed soon afterwards by a Cuban outlet in Spanish

Anyone who regularly tunes around the short wave bands will be aware that there are some strange signals to be heard. What are they? Read on and find out.

voice with four or five digit number groups. The mechanical rhythm to the message results from the method used to produce them. Much like the Speaking Clock, a recording of the appropriate number is selected by a keyboard, one figure at a time.

Attention

A call-up ("attention") is followed by a three digit address (the agent's

easy to spot:

0915 on 9.030, 6.455 and 5.822MHz
1700 on 3.370, 3.258 and 3.225MHz
2200 on 4.010, 3.820, 3.415, 3.370,
3.258, 3.235 and 3.225MHz

Messages are usually sent in full a.m. mode, although some emissions are made using sideband.

Once Received

Once received, the messages may be decoded by one of two means: either a substitution cypher where the letter received are looked up on a table and a word or letter substituted and rearranged or a one-time pad can be used. These cannot be broken by computer analysis, (Wormold in Graham Green's *Our Man in Havana* made use of such a system . . .).



with message probably destined for agents in Latin America. Most recent additions have been Korean and English number stations.

The sites of the transmitters for the number stations have been identified by means of radio direction finding equipment. There are most certainly transmitters in East Germany, Cuba and West Virginia (no prizes for who runs what!) There has been no evidence of any number station being transmitted from sites in the UK.

The message format is similar from wherever they originate; usually a female

identification) then a group count (the number of groups in the message which follows). At the end of the message, "end of message" or "finale" is heard.

Frequencies are used throughout the short wave bands, both at the edge of broadcast bands, and elsewhere adjacent to amateur frequencies and those to fixed services. Often, a transmission will use two frequencies to ensure that the message gets through to the recipient, and the message is often repeated on a different frequency after the first transmission. Most number stations operate on the quarter hours, and are quite

The most recent addition to these number stations are the phonetic broadcasts, (e.g. "kilo papa alpha two").

It is sometimes easy to pinpoint the site of the transmitter without the need to resort to r.d.f. Some channels used for number stations transmissions suddenly switch over to Moscow's Overseas and Home Services, and American-sounding voices have been heard to transmit numbers just as clandestine stations which are known to be run from the USA come on air.

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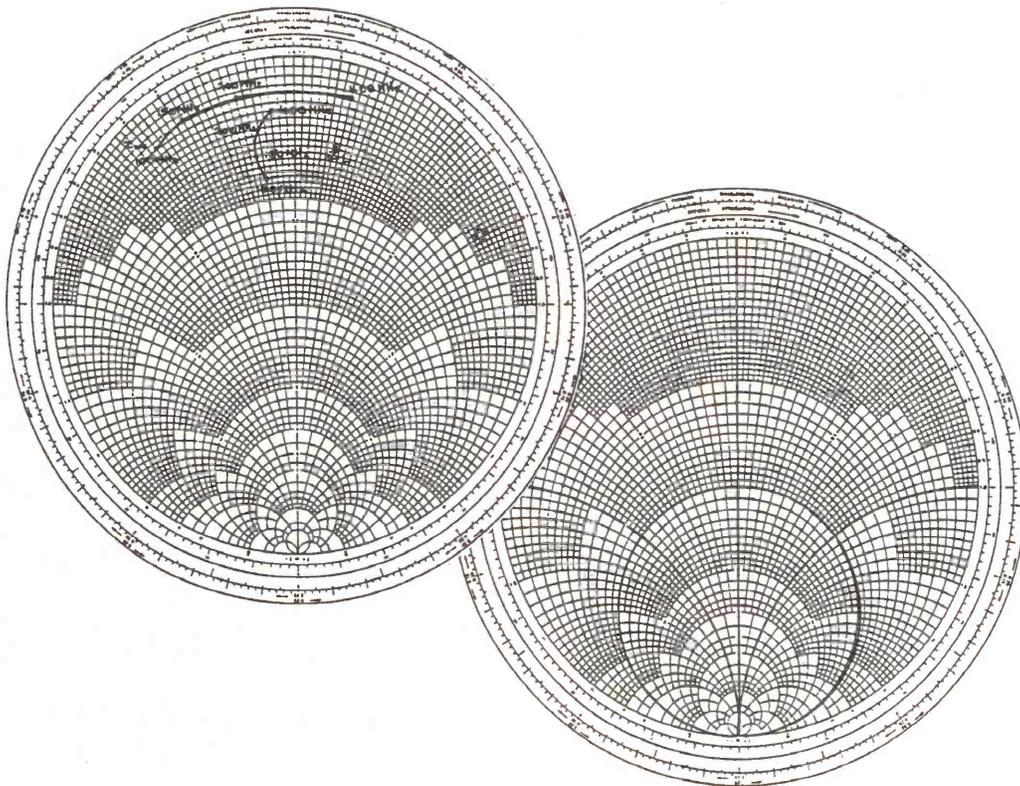
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STARTING OUT

Brian Oddy G3FEX

Direct Transmissions

The majority of broadcasts heard on the s.w. bands reach the listener by means of a direct transmission from the country concerned. The output of a broadcasting centre, often located in the heart of a major city, is frequently linked by specially equalised land lined to the transmitting station, which can be located several hundred kilometres away at a suitable site in open country.

The final link in the chain between broadcaster and listener is, however, unpredictable since it depends on propagation conditions prevailing on the normally optimum higher frequency s.w. bands which are used for long distance direct broadcasting: these tend to be generally unstable due to a number of continuously changing factors (see Starting Out, *SWM* July & August '87).

In an attempt to ensure that a programme reaches a chosen target area a broadcaster may often back-up with a transmission on a less effective lower frequency, in case the m.u.f. falls. However, this does not always work, indeed the provision of a reliable long distance service may prove to be very difficult, if not impossible.

Relays

One way of tackling the problem is to employ a relay station located in a more suitable site to broadcast the programme to the chosen area. The programmes can be fed to these relay stations by means of single-sideband (s.s.b.) or independent-sideband (i.s.b.) s.w. transmitters, called feeders, which develop high peak powers and use directional beam antennas. However, more often another form of relay system is used — microwave satellite links.

The use of these relay stations can be very confusing, even to the more experienced listener, since there is no easy way of distinguishing a relay transmitter from one located in the originating country. For example, the famous words broadcast by the BBC World Service, "This is London . . .", could be coming from one or more of its UK-based transmitters at Daventry, Ludlow, Orfordness, Rampisham or Skelton — but they could also be coming from relay transmitters located on Ascension Is., Misarah Is., or via Canada, Cyprus, Lesotho, USA, West Indies or even Singapore!

Some of the relay stations used by the major broadcasters are detailed in Fig. 1. A few of these relays are owned and used exclusively by particular BC stations, but many are operated on a shared basis. Some of the BBC transmitters located in the UK also relay broadcasts from Voice of America (VOA) in Washington, and RCI in Montreal, Canada. Voice of Free China and WYFR in Oakland, USA, share the use of transmitters at Taipei, Taiwan, and

The unwary newcomer to short wave listening should proceed with caution when logging a far-flung s.w. BC station for the first time as some broadcasters make use of modern technology to ensure that their signals reach the chosen target area, which may deceive the listener!

Okeechobee in Florida — all very confusing unless you know the facts!

Before making an entry in the log or sending a report to any of the stations shown in Fig. 1, it is advisable to check if the broadcast was a direct transmission or via a relay. But how do you check? The only simple way is to obtain a copy of the station's latest broadcast schedule; alternatively, refer to a guidebook such as the *International Listening Guide*, details

from Bernd Friedewald, D-3588 Homberg, West Germany.

Some broadcasts to a chosen target area are made on two frequencies within the same band at the same time, but via different routes — one by direct transmission and the other through a relay, with the choice for best reception left to the listener. A typical example of this technique is the early morning broadcast from Radio Japan to Europe which takes place on two frequencies in the 19m band — one direct from Tokyo, the other via a relay in Moyabi, Gabon.

Several new relay stations are presently under construction, though many dedicated listeners hope this trend will not continue because their main interest is in direct-transmission DXing, no matter how weak the signal may be! Perhaps it is worth remembering that many of these relay stations are themselves located in some of the world's DX spots and that they make good pointers to reception conditions. □

Broadcast Station	Associated Relays
BBC London	Antigua, W. Indies Ascension Is. Bethany, E. USA Delano, W. USA Greenville, E. USA Kranji, Singapore Limassol, Cyprus Maseru, Lesotho Misarah Is., Oman Sackville, E. Canada
RCI Canada	Daventry, UK Montserrat, W. Indies Rampisham, UK Sines, Portugal Skelton, UK
Radio DW, Cologne	Antigua, W. Indies Cyclops, Malta Kigali, Rwanda Montserrat, W. Indies Sackville, E. Canada Sines, Portugal Trincomalee, Sri Lanka
Radio Afghan- istan RHC Habana, Cuba RN Laos	Relayed via transmitter sites located in USSR
REE Madrid, Spain	Las Mesas, Canary Is.
RFI Paris, France	Montsinery, Fr. Guiana Moyabi, Gabon Nicosia, Cyprus

Broadcast Station	Associated Relays
Radio Free Europe & Radio Liberty, Munich	Gloria, Portugal Playa de Pals, Spain
Radio Japan, Tokyo	Moyabi, Gabon Sackville E. Canada
Radio Moscow	Habana, Cuba Leipzig, GDR Plovdiv, Bulgaria
Radio Nederlands	Bonaire, Neth. Antilles Talata, Madagascar
SRI Berne, Switzerland	Moyabi, Gabon
AFRTS, USA UN Radio Marti Voice of OAS VOA Washington	Antigua, W. Indies Ascension Is. Brasilia, Brazil Columbo, Sri Lanka Kavala, Greece Monrovia, Liberia Munich W. Germany Poro, Philippines Rhodes, Greece, Tangier, Morocco Tinang, Philippines Woolferton, UK
WYER Cali- fornia, USA	Taipei, Taiwan
VOFC Taiwan	Okeechobee, USA

Fig. 1. Table of relay stations used by some of the major broadcast stations.

AMATEUR BANDS ROUND-UP

Justin Cooper

c/o Short Wave Magazine, Enefco House,
The Quay, Poole, Dorset BH15 1PP

If you are thinking of acquiring, or better building, a receiver to replace the present collection of knobs-and-dials, what should one aim for? First, when talking of a used receiver, and most obvious, has it had a "hard life" as evidenced by its external condition? If, for instance, it has rub marks on the outer case, one could enquire whether it has done a lot of travelling; if so it's "adjustables" may have self-adjusted, leaving you a need for re-alignment. If it has dents, then it has been maltreated, and so on. Are the gain controls noisy, and so on. Above all, is the tuning smooth and free of backlash; if it isn't don't buy unless you are confident you can rectify the problem. Personally I would try to avoid anything with a digital readout, because of the noise they generate, and that goes for phase-locked-loop oscillators too.

In the case of a new receiver, you are almost stuck with digital readout and a p.l.l. — but it's only in the last few months that realisation is beginning to dawn of the shortcomings of this type of oscillator, as perceived by its owner. The manufacturer prefers the p.l.l., of course. If you look at any oscillator design on a spectrum analyser, you will see the wanted signal as a "spike" on the trace; and way down the sides of the signal you will see a bit of "grass". Given that the oscillator is stable, as shown on our counter, the criterion of oscillator quality can be summed up as how low the "grass" is, relative to the wanted v.f.o. signal. The grass in fact represents noise around the oscillator signal which gives rise to what we call reciprocal mixing effects.

Secondly, we look for some indication of a high dynamic range in our receiver. Dynamic range is the measure of how well a receiver copes with the typical situations where you are listening to a weak signal surrounded by all the enormous ones appearing on the antenna — which are nominally outside the passband of the receiver. The "minimum discernible signal" (m.d.s.) is the smallest signal the receiver can hear under ideal conditions, the biggest will cause upsets in the receiver. As soon as one of these big 'uns upsets any stage of the receiver between antenna and the crystal filter, every signal reaching that stage mixes with every other signal, and the result is just NOISE, into which your weak signal disappears.

In practice, you can assess this

All-Time Post War HPX Ladder		
Name	Last Mth	Prefixes This Mth
Phone Only		
B. Hughes (Harvington)	3269	3269
E. M. Gauci (Malta)	3199	3207
E. W. Robinson (Felixstowel)	2592	2600
H. M. Graham (Chesham)	1932	1932
M. Ribton (Gillingham)	1867	1867
M. Rodgers (Bolton)	1802	1811
P. Oliver (Paisley)	1730	1730
F. Dunn (Chester)	1566	1566
N. Henbrey (Northiam)	1561	1561
P. Davies (Market Drayton)	1427	1442
B. Patchett (Sheffield)	1157	1207
Mrs. A. Sitton (Stevenage)	929	929
A. P. Lincoln (Aldershot)	888	888
C. R. Eve (Jersey, C.I.)	687	878
J. J. Sales (Lancaster)	874	874
R. G. Williams (Borehamwood)	857	857
G. Caselton (Orpington)	775	775
D. R. J. Hughes (Alderley Edge)	545	771
S. Field (Barningham)	735	735
L. Marquardt (Hereford)	609	629
A. Vest (Durham)	605	605
N. Fox (Wakefield)	595	595
A. Woodcock (Denmark)	603	603
CW Only		
F. Dunn (Chester)	2035	2035
H. Scott (Rievaulx)	1396	1396
N. Melville (Edmonton)	1147	1174
C. R. Eve (Jersey, C.I.)	302	306
M. Rodgers (Bolton)	202	237
RTTY Only		
A. P. Lincoln (Aldershot)	547	547
W. J. Prior (Lochcarron)	501	501
C. R. Eve (Jersey, C.I.)	448	474
N. Henbrey (Northiam)	334	334
M. Rodgers (Harwood)	New	251

Starting score, 500 for Phone, 200 for CW or RTTY. Entries in accordance with HPX Rules.

Annual HPX Ladder Starting date January 1, 1987

Name	Last Mth	Prefixes This Mth
J. J. Sales (Lancaster)	450	450
R. G. Williams (Borehamwood)	449	449
Mrs. A. Sitton (Stevenage)	378	378
L. Griffiths (Sheffield 6)	315	315
A. Hall (Lockington)	281	281
M. Probert (Basingstoke)	260	260

200 Prefixes to have been heard for an entry to be made in accordance with HPX Rules. At score 500, transfer to the All-Time list is automatic. Note, the Annual Table is a Phone only listing.

Most in 1987

E. M. Gauci (Malta)	726	740
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Rules as for the Annual Listing. An entry for this listing must be in addition to any claim for the All Time Post War listing.

by tuning, say to 3.5 or 7MHz, with all the r.f./i.f. gains run wide open and a.t.u. tuned to the band. Now turn the r.f. gain down slowly and listen carefully. Signals and noise at first reduce together, until you reach a point where suddenly the noise falls faster than the signals, so the effect is of signals popping up out of the noise. Skill in doing just this could be said to be the criterion of successful operation on 3.5 or 7MHz where DX is concerned, because if you don't learn the skill, you'll never

hear DX on those bands save by luck!

Modern receivers often have an attenuator fitted between the input terminal and the receiver proper, and successful operators on these bands will be found to have the attenuator cut in almost all the time. Whilst it is true that usually the problem manifests in the r.f. stage or the first mixer it can happen later, and so the design must aim to maximise dynamic range all along the line. Few of the older solid-state

receivers were as good as valve ones. Only in the last decade have we seen decent solid-state receivers, at least in this context. I have an old Heathkit GC1U which does duty as part of an antenna noise bridge set up; putting that into comparison with the main receiver on, say, 14MHz, and it seems like two totally different bands! Of course, this also says that the use of an outboard "pre-selector" between the antenna and the receiver to give extra gain is usually a formula for hearing less — rather than buy a pre-amp, service the main receiver!

SWL Contest

The White Rose Radio Society are running their 8th SWL LF Band contest in January 1988. Phone is over the 24 hours 1200UTC January 16 to 1200 January 17, and the c.w. leg is between 1200UTC January 30 to 1200 January 31. The contest is open to s.w.l.s anywhere in the world, including transmitting amateurs holding "B" (v.h.f. only) licences; but no multi-op stations. Bands 1.8, 3.5, and 7MHz. The practice of logging a series of contacts made by one station is deprecated. Log entries must not include the same callsign in the "Station Worked" column more than ten times on each band. A station appearing in the "Stations Worked" column can be claimed only once for scoring. Duplicate entries will incur penalties unless noted as such.

The object of the Contest is to log a maximum of five stations in as many countries as possible. Scores should be compiled as follows: up to five stations may be logged from each country, on each band. Countries outside own continent count five points per logging, all other countries one point. The multiplier is the total number of countries on each band. The final score is the sum of the three band scores, where each band score is logging points times band multiplier. Call areas in USA, Canada, Australia and New Zealand each count as a separate country, otherwise all-same ARRL Countries List. No CQ, QRZ or similar calls will be allowed to count for points. /AM or /MM are not to be included in the entries.

Log sheets to show the following: Data, Time (UTC), Band, Station Heard, Station being Worked, Report at s.w.l. QTH. Points may only be claimed for stations actually heard and the callsign must be shown in full.

Entries to Contest Manager, G3ZGA, White Rose ARS, 146

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Street Lane, Leeds LS8 2AD, to arrive not later than Tuesday 23 February 1988. Certificates will be awarded at the discretion of the White Rose ARS, and their decision will be final. This indicates some changes in the Rules, and is to some extent a paraphrase of the issued ones; this, I hope will have clarified the odd point. All I can add is that this is well worth supporting, and I hope you all give it a whirl. For a full copy of the Rules, contact the Contest manager at the given address.

Letters

D. A. Whitaker (Harrogate) sent us the details of the contest; on a more personal note, David says he has been listening to the WARC bands on a National Panasonic RF2800, just using the telescopic whip. On this David noted that on 24MHz there was quite a lot of s.s.b. activity; KV4AD was noted, and VE/W stations as outstanding signals. So much for the intention not to have phone on these bands. On a different line altogether, David notes that the broadcasting seems to have moved out of 7MHz of late, in particular Radio Tirana; makes listening on 7MHz a pleasure! We don't know whether this really means something or whether they are merely doing a temporary QSY — we can but wait and hope and see.

The short list from **E. M. Gauci** (Malta) is due to the fact that with temperatures up around 40 degrees C, his shack has been no place to be; and even when he wrote, in mid-September, the temperature was nonetheless still at 33 degrees! I can sympathise, but have to admit I wish Eddie could have passed some of the warmth over this country — our summer has been abysmal.

While many people have listed H25MF, I have to admit to not having connected. I heard the pile-up a couple of times but each time, before I had heard the station for certain, I was interrupted by the telephone and by the time I got back the propagation was gone.

One of the lucky ones was **E. W. Robinson** (Felixstowe) who also made it 40th anniversary commemoratives from India and Pakistan. On the business of antennas, Ted heard VK3MO, as always the biggest VK audible on the band, telling someone he had a 40m rotating mast, with 4-over-4-over-4 stacked elements on 14 MHz; this led to Ted wondering just what would the planning authorities think of an application to put such a monster into one's back yard. I can assume any planner would burst a bloodvessel instantly, which I think means we should all put in applications for such skywires — if every planner burst a bloodvessel, perhaps we would be able to get something DONE in this country!

B. Patchett (Sheffield) is not saying much this time, but seems to have been occupied in filling-in gaps in the commoner prefixes. However, I can't help but wonder if his FF1BSR is any relation to that MO1FFI known to most of those over sixty!

Now to **C. R. Eve** (St. Helier, Jersey) who has some interesting calls logged. To Chris though, the prize of the month goes to VE8RCS, who is now the only station to appear in his c.w., RTTY and phone listings. Again changing subject, Chris noted that he heard D44BC switch off in disgust because he couldn't hear the stations he was working for ill-mannered breakers.

I agree that the phone bands do tend to be full of Clots, but after all it is up to the DX station to control the pack. Whether he does so by going QRT, or by operating split, or tuning either side alternately or whatever is up to him, but he must be seen to be in total control if

things are not to go berserk. DX can't be softhearted. Only yesterday I was in the queue for N4NJH/DU8, and a cloth-eared IT station was continually calling at silly moments. The DX told IT in words of one syllable that if he didn't stop causing QRM, he'd not get a QSO or QSL. It stopped the rot long enough for me to get his QSO at least!

I am surprised at the number of amateurs who don't monitor 28MHz; **D. R. J. Hughes** (Alderley Edge) for example has prefixes heard on 144MHz right through to 21MHz, but now on 28MHz. However, he has got a "SW2MO" heard on August 31 on 14MHz — if no-one knows anything about this one we will have to conclude he is either Warsaw Slim or Stockholm Slim!

N. Melville (London N18) is still having trouble with his old Trio 9R59D receiver. Although he has heard YB and ZS fairly recently, Neil hasn't heard VK, ZL or JA for a long time. All I can say is Snap! Seriously, the band has been too low for these long-distance signals without a super antenna for over a year now; the band picked up enough for me to raise VK2AU a couple of days ago on 14MHz in mid-afternoon for the first phone VK for a long time — and by the size of the pile-up John was raising that went for a lot of other people. So, while the receiver is indeed a bit down it is also true that the shortage of sunspots means that such long-distance calls are not often to be heard at "convenient" times.

Now to **L. Marcquardt** (Hereford) who is another one to claim prefixes heard on v.h.f. right down to 3.5MHz, however, Luciano claims all his on phone though.

Antennas

To be a good antenna doesn't mean it has to cost the earth or be an eyesore. From outside, my patch is far more noticeable for the boat on the lawn than for the antenna farm. However I have three antennas available to me at the flick of a switch, one of which is reversible by courtesy of a switch and a bit of string, and I don't miss much that is on the bands, and of course I have v.h.f. too. Anyone passing the back of the house must look hard to see any of the "inhalers" — though indoors the rig is much more evident, since I put my gear where I live rather than in a separate room.

However that may be, don't forget there are good spots for radio and bad ones. For example, GW3KFE in retirement finds he has a QTH from which he cannot radiate to the west. The take-off in all directions looks about the same — fair to middling. However, even East Coast Ws are like hens teeth from there, while other local amateurs have no trouble in that direction at all. Even a 20m tower and big beam would probably not be much help in such a case — one just has to move! He proved the point adequately by erecting a vertical (an old mobile whip in fact) as high and in the clear as possible for a few days and doing some concentrated listening; then he plotted signal strength and direction for all signals heard onto one sheet of paper. Something rather like those charts that tell you where so-and-so scored his runs in a long innings at cricket resulted. For various antennas erected a similar procedure was followed; then the various diagrams in effect cancelled the effect of the antenna leaving the site effects clear. Now he is satisfied he won't get a great deal of improvement with a beam and tower — so he'll probably save some money!

Lets have your letters and comments on your activities, by the dates in the body of the piece. Meantime, grab that DX!

Your deadlines for the next three issues are:
November 17,
December 11, January 7

DECODE

Mike Richards G4WNC

200 Christchurch Road, Ringwood, Hants BH24 3AS

I have received reports of some particularly interesting FAX charts. The station involved is Hamburg Meteo DDK3 on 7.880MHz, 13.882 MHz and 3.855MHz. This station transmits some very detailed maps showing the Gulf of Bothnia and includes towns, landmarks and water depths, etc. This chart is sent using the standard weather format of 120r.p.m. and an IOC of 576. The best time for

monitoring seems to be between 2000 and 2100UTC on 7.880MHz. Do you know of a station which transmits any particularly interesting charts? If so then please write and let me know.

Readers Stations

Rick Matthew (Vancouver) has written in with details of his shack. He uses the Info Tech range of

decoders with the M-6000 for RTTY and TOR and the M-800 for FAX. On the receiver front he has an Icom R-70 and R-71, as well as a selection of Radio Shack (Tandy to you and I) scanners for v.h.f. and u.h.f. He has been monitoring utility stations for about 25 years and specialises in collecting information from around the world. Rick has kindly offered his assistance in identifying any mystery stations, which should be

very useful.

Ray Parnell (Bude) started monitoring non-speech transmissions just over a year ago. He has a particular interest in SSTV and RTTY on 14MHz and has logged 46 countries and 350 SSTV pictures to date. His station comprises a Sony ICF-6700W h.f. receiver with a Yaesu FRV-7700 converter to cover the v.h.f. bands. The h.f. antenna system is a 40m long wire at 6m which is

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coupled to the receiver via a Multi-Match a.t.u. On v.h.f. three home brew dipoles are used to cover the amateur bands. In order to decode the signals Ray uses an upgraded 48K Spectrum which has been built into a screened console to minimise the amount of computer QRM. He has taken extreme care with the screening and filtering of all his interconnecting leads by making extensive use of ferrite rods and screened cable. I am glad to see that he has also made a good common earthing point with two 1.25m earth spikes. All his efforts have been rewarded as he can now resolve signals down to half an S point whereas before the computer QRM was around S5.

My thanks to both Rick and Ray for their station details.

Humour

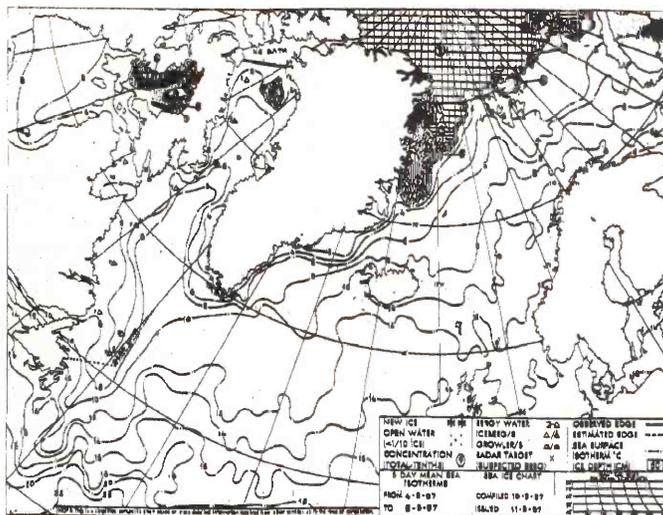
Those of you who are worried by the regulatory aspects of listening, could perhaps benefit from the following notice which was discovered in a s.w.l.'s shack: IF RAIDED EAT THE RACAL FIRST! My thanks to Jack Birse for this little gem.

Prestel

Do you have access to the Prestel database? If so you can use the mailbox facility to send me messages and reports. I have used Prestel for some time but my recent change to a BBC B computer has meant that I am now able to process messages more easily. I would like to use the mailbox to offer a fast response clinic for handling any queries or problems you may have. My mailbox number is: 425470071 and any comments would be very welcome.

Rallies

I recently spent a very pleasant weekend at the Lincoln Hamfest, which is probably one of the best organised rallies I have attended. Whilst at the rally I made my usual tour to visit the computer software and hardware suppliers. There seems to be plenty of cheap computers available which are suitable for radio use. The Dragon is available between about £30 and £50 whilst the ever popular Commodore C-64 is usually priced between £80 and £100, though I did find one at £60. Sinclair computers abound with a very wide range of prices depending on



A FAX chart received on the ICS Electronics PK-232



QSL card from Rick Matthew in Vancouver

the model. The BBC B, although very well supported with software seems to be quite rare at rallies. One bargain I did spot was a complete Tandata remote control Prestel terminal for £50.

Have you heard about Computercations '87? The details can be found in Rallies on page 52. As this rally seems to be particularly relevant to this column I shall be attending on the SWM/PW stand. If you can make it I would be very pleased to meet any readers and have a chat about the hobby.

BBC B Interference

Having recently changed to this computer I have had several readers inquire as to how I found the QRM Levels. I seem to have been very fortunate as the only problem I have is some QRM around 21MHz at about S3. From

speaking with colleagues the main sources of QRM seems to be the RGB video output and colour monitor. As I only use the composite video output with a high resolution mono-chrome monitor, this may explain why my set-up is working so well. If you have any suggestions for reducing computer QRM then please write and let me know.

RTTY

The amateur bands have been quite interesting over the past month with some quite good DX about. The early evening seems to have been particularly good with the following selection of stations logged on 14MHz RTTY between 1600 and 1900UTC; VU2NR (India), K2NJ (USA), PY7JJ (Brazil) and ZS6CDJ (South Africa). On 21MHz RTTY the DX

was equally good; PT7AQ (Brazil), TR8JLD (Gabon), LU2DGO (Argentina) and PY2BD (Brazil).

Commercial reports have highlighted the weather station TNL Asecna in the Congo on 14.724MHz using 50 baud reversed. TNL is reported to be a good strength in the early evening. Also of interest is the US Information Agency on 14.638MHz using 75 baud normal. This station appears to transmit US press releases and can be very interesting. The evenings are probably the best times to monitor as the signal is at its strongest then.

FAX

I have received a very encouraging response to my request for information on the unidentified FAX station on 12.777MHz. Rick Matthew (Canada) reports that an American weather publication shows the station as NDT at Yokosuka, Japan running about 15kW.

D. Worthy (Sunderland), has sent in a very useful report which points out that the station relays the Guam transmission. The report also included a list of all the frequencies used to relay the Guam transmission as shown here:

Guam: 4975, 7894, 10255, 15990, 19860 and 22910MHz.
Philippines: 3377.5, 10966, 13395 and 22865MHz.
Japan: 12777MHz.
Diego Garcia: 4235 and 15564MHz.
Australia: 9498.5 and 17060MHz.

D. Worthy also reports that some of these frequencies appear to be unused at present, so don't be too surprised if you can't find them.

Doug Middleton (Poole) has also written commenting on the unpredictable nature of the 12.777MHz FAX transmission with apparently random top tones and erratic changes in signal strength!

Chris Kirby has found this station listed as NDT in the US Department of Commerce listing of marine weather broadcasts.

Well, I think that's evidence enough and we can now sleep easy in the knowledge that we have positively identified the 12.777MHz station as NDT in Yokosuka! Thank you all for your comments and reports.

INFO IN ORBIT

Pat Gowen G3IOR

17 Heath Crescent, Hellesdon, Norwich, Norfolk NR6 6XD

The large manned Soviet space-station "MIR" is a very bright visual object, brighter than Venus

in clear skies before dawn and after dusk. In terms of radio observation, it is a regular hive of

activity, and is one of the most interesting and exciting space exploration vehicles to listen to.

The cosmonauts use f.m. in the air band for their contacts with stations in the eastern Soviet

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Union and with the communications ships moored in international waters off Nova Scotia, the Straits of Gibraltar, etc., to give adequate coverage. Thus, when they are over our horizon and active, the transmission content can be overheard at excellent strength by listeners in the UK, and indeed often both sides of the contact, as the audio from the ground station will be re-broadcast by the operating cosmonauts microphone.

The ground communications frequency used is just below the 144MHz amateur band on 143.625MHz (plus and minus some 2kHz of fast doppler shift), upon which the cosmonauts will often be heard talking to the command station and to the boats, as well as relaying telemetry from the various medical and physics experiments on board. Most v.h.f. f.m. scanning receivers will cover the frequency, many 144MHz amateur band receivers will go that low in frequency, and if a 144MHz converter is used with an f.m. communications receiver tuned to 27.625MHz, an adequate signal will result from even the simplest antenna system.

I use a CB receiver switched to channel 3 (27.621MHz) fed from a simple 144MHz amateur band 144-146/28-30 converter, and a 144MHz ground plane antenna. On weekdays, on the proviso that the cosmonauts are not sleeping (normal activity hours being linked to Moscow time, 8.00am to 11.00pm, which works out to 0500 to 2000UTC, the same as GMT) voice and telemetry signals will invariably be heard, provided that the transmission times evolve when the sub-satellite point is within some 1100 miles of the listener. On Saturdays and Sun-

days, unless important serialised experiments are in vogue, they can often be heard talking to their wives and families. A good time to listen to MIR activities will be now, from late October until the end of December, when the orbital passage of the space station will coincide daytime passes over the UK with normal operating times.

The transmissions normally commence soon after the spacecraft comes over our western horizon, when it comes within radio range to the station being contacted, and a plain carrier will come up. Usually the call "Mata Mara" starts the contact, of which both sides will be heard, the ground station being re-transmitted by the operating cosmonauts microphone. Communications will normally be audible until the spacecraft goes to the east below our horizon, although still within range of stations to our east.

John Branegan GM4IHJ, is a regular observer of the MIR cosmonauts communications, and finds that he usually copies signals five times each day for 150 days of the year. The cosmonauts are not always speaking, but John has used these periods to discern spacecraft activities, by studying the background noises, the telemetry format, as well as the audio quality. In June 1985 he was looking at MIR's predecessor, SALYUT-7 (currently unmanned) and found that they were using the SOYUZ taxi capsule frequency of 121.750MHz instead of the usual 142.420MHz SALYUT-7 downlink. He noticed the rattle of ice into the microphone from their frozen breath, and the sounds typical of one breathing freezing cold air, and concluded that the ailing space station was being rescued by the crew who had entered to resurrect the system.

After a few days of activity, the background sounds of operating machinery, missing in the earlier transmissions, was again in evidence, and the SALYUT downlink frequency came back into use again. John had found, long before we learned from the TASS newsagency, that the mission undertaken was to realign the solar panels in the ailing space station in order to get the power needed to operate the machinery and heating system for the earlier inoperative frozen spacecraft.

He spotted the extra-vehicular activities i.e. "spacewalks" long before they were officially detailed by noticing the slightly muffled

and echoing audio from the cosmonauts in their space-suits, when the "gold-fish bowl" helmets necessary in the cold vacuum of space produced the resonance observed as well as the characteristic breathing sounds. The fitting of an additional solar panel to boost the power to provide the 10kW needed to operate all the station systems was observed in a similar way, from the delivery of the package by Progress, to its fitting in space by the cosmonauts.

More recently, both John and I noticed telemetry that sounded similar to amateur slow-scan television, but with an irregular pulse, and with strange gurgling noises between them. We concluded that it sounded like a typical telemetered diastolic/cystolic heart beat transmission, although rather irregular. Soon after this it was announced that one of the cosmonauts who had earlier intended a ten month duration space flight, had been suffering from an irregular heart beat problem, and was to be brought back to earth for hospital treatment. The resulting "return journey" and transfer of crew was also monitored later.

Although much of the traffic to MIR goes via the "LUCH" geostationary satellite relay system in the 11-14GHz band, many activities can be observed by v.h.f. and even h.f. listening. At h.f. the vacant SALYUT-7 has a frequency shift beacon on the attached COSMOS-1686 which transmits on 19.955MHz. The SOYUZ-TM2 missions that carry the crews back and forth to MIR transmit on 121.750MHz v.h.f., plus, to use the ionosphere when out of v.h.f. range, 20.008MHz. The automatic Progress cargo spacecraft that carry supplies such as machinery, parts, food and mail to MIR use 166.000MHz, as does the Kvant scientific module. By monitoring these frequencies also, observers can get a pretty good understanding on what it going on up there, when things are both happening or about to happen, and what is going up or down from there.

All of this brings us to exactly when to listen, and this is a little difficult. Were MIR in a constant orbit, we could predict precisely those times when it came above

our UK horizon and could be monitored. As the space station is frequently manoeuvred when adding incoming cargo and crew, as well as for precise positioning for accurate scientific experiments, the current Keplerian element set on which future pass predictions are based may well have altered by the time this is in print. Even so, it is doubtful if an inaccuracy of greater than some twelve minutes will evolve with our passes which have been performed with the GM4IHJ "eqxer" program on a Spectrum computer. (This provides tracking, equator crossings, maps, etc., for all the main satellites of interest, and is available from the Sinclair Amateur Radio Users Group "SARUG", QTHR G4INP, Paul Newman, 3 Red House Lane, Leiston, Suffolk IP16 4JZ, and a s.a.s.e. will provide details.)

MIR has a present orbital period of 91.1 minutes, and a westerly increment of 23.1 degrees. For those who calculate passes from equator crossings, the reference orbit for 1 November 1987 is 0005UTC at 230 degrees west. Each following day the equator crossing will come 19.1 minutes later and 11 degrees further west longitude.

The commencement of all passes audible from Thursday, October 29, is shown in Fig. 1, by when you should have your magazine, to Sunday, November 1. "ADS" is Acquisition of Signal time, when you first have the spacecraft in range. (Remember to start listening at least ten minutes earlier in case of orbital changes). "AZ" is the azimuth at which it will appear in degrees. The first pass will go from our south west to east, the next from the south west to east, then an almost overhead pass from west to east, followed by passes from west to south east, then west to south, as

MIR ON 31/10/87

ROS	1210	AZ	213
ROS	1343	AZ	249
ROS	1518	AZ	272
ROS	1653	AZ	279
ROS	1828	AZ	269

MIR ON 1/11/87

ROS	1229	AZ	232
ROS	1403	AZ	261
ROS	1538	AZ	277
ROS	1713	AZ	277

MIR ON 29/10/87

ROS	1132	AZ	158
ROS	1304	AZ	216
ROS	1438	AZ	251
ROS	1613	AZ	273
ROS	1748	AZ	279
ROS	1923	AZ	267

MIR ON 30/10/87

ROS	1150	AZ	191
ROS	1323	AZ	234
ROS	1458	AZ	263
ROS	1633	AZ	270
ROS	1808	AZ	276
ROS	1947	AZ	227

Fig. 1

MIR ON 28/11/87

ROS	0054	AZ	213
ROS	0228	AZ	250
ROS	0402	AZ	270
ROS	0537	AZ	278
ROS	0713	AZ	264

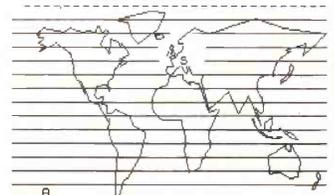
Fig. 2

MIR 31/10/87				KUUUU4U9U6			
UTC	AZ	EL	LAT	UTC	AZ	EL	LON
1210	209	20	44G	0000	00	00	000000
1212	198	20	44G	0000	00	00	000000
1214	187	20	44G	0000	00	00	000000
1216	176	20	44G	0000	00	00	000000
1218	165	20	44G	0000	00	00	000000

MIR 31/10/87				KUUUU4U9U6			
UTC	AZ	EL	LAT	UTC	AZ	EL	LON
1516	000	00	00	0000	00	00	000000
1518	000	00	00	0000	00	00	000000
1520	000	00	00	0000	00	00	000000
1522	000	00	00	0000	00	00	000000
1524	000	00	00	0000	00	00	000000

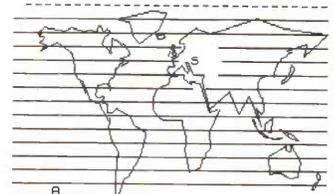
MIR 31/10/87				KUUUU4U9U6			
UTC	AZ	EL	LAT	UTC	AZ	EL	LON
1830	022	22	44G	0000	00	00	000000
1832	022	22	44G	0000	00	00	000000
1834	022	22	44G	0000	00	00	000000
1836	022	22	44G	0000	00	00	000000
1838	022	22	44G	0000	00	00	000000

MIR AT 1524 ON 31/10/87



SATELLITE IN RANGE AZ 113 EL 37

MIR AT 1528 ON 31/10/87



SATELLITE IN RANGE AZ 100 EL 0

Figs. 3 and 4

our position changes with earth rotation at 15 degrees further east each hour under the spacecraft orbit around earth. It will be noticed that passes occur earlier each day, and by the end of November, they have drifted to early morning passes as on Fig. 2.

Two minute tracking steps for MIR on the first, middle and last passes for the last day of October this year, as the times of the satellite azimuth and elevation to UK and the latitude and longitude of the sub-satellite point are shown in Fig. 3. The star under the "UA" column shows the times of mutual access to the Soviet Union command communications, by when transmissions should be in progress.

The satellite (S) position on a world Mercator map, and the "footprint" (area of the above horizon) as the unshaded area are shown in Figs. 4 and 5. It can be seen that mutual access is possible from both the UK and the USSR at 1524UTC on October 31, until we lose MIR below our

radio horizon at 1528UTC, when it is still in contact with the Soviet Union.

This should give you a good introduction to Soviet space activities in general, and permit you to follow some of the many future interesting developments planned. John Branegan thinks

that the next six months should see the launch of a new Russian manned spacecraft of the shuttle type, of which at least two vehicles are thought to exist already. A smaller space runabout is also probable. John suggests that monitoring 166.000, 166.140, 20.008 and 19.955MHz as a first choice, with 121.75, 142.400, 192.040 919.760 922.760 and 926.060MHz as a second choice could be productive. Monitoring ITV Oracle headlines on page 118 and the Radio Moscow news broadcasts and DBS TV satellites will give early pointers to activities. A knowledge of the Russian language will help enormously!

Your deadlines for the next three issues are:

November 20, December 14 and January 11.

Don't forget about posting your reports early for Christmas

BAND II DX

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

Although Philip Townsend (London) is primarily a long and medium wave DXer he turned his attention toward v.h.f. on August 2 using a Blaupunkt-Turin car radio. He heard Dutch and French stations at the top end of Band II. Since then he has been identifying the BBC and IBA stations which can be heard at his QTH under normal atmospheric conditions. This is a good idea Philip, because it helps to know which are the regulars when sorting through those additional stations which appear, on similar frequencies, while an opening is in progress.

Simon Hamer (New Radnor) heard Italian stations in full stereo during the afternoon of August 22 and may well have caught the last of the Sporadic-E disturbances to effect Band II this season.

Tropospheric

While using my Plustron TVR5D, with its own rod antenna, at 1700 on August 28, I counted 5 very strong French stations between 93 and 103MHz. The set was alongside my car which was parked, among trees, at the Bentley Motor Museum in E. Sussex. It was a fine hot day, the pressure was high and the prevailing weather conditions looked right for a lift. However, as there was no sign of these stations earlier in the day, it seems that I was in at the start of the opening.



Can you spot your favourite Band II signals?



From the home QTH I noted that foreign voices and many co-channel "warbles" were prominent throughout Band II at various times on the 29th and 30th.

Over in Belfast, Bill Kelly received programmes from Radio Clyde at 0340 on August 21, BBC Radio Lancashire at 0630 on the 25th, Liverpool's Radio City at 0330 on the 30th and ILR's West Sound from Ayr at 0815 and Red Rose from Preston at 0820, both on September 3.

John Berridge (Cardiff) is another early listener and around 0300 on the 13th, he counted 15 French stations in Band II on his main Sanyo receiver. He wrote, "I then tried my Bush-Murphy portable and, with its own rod antenna, the French were coming in at loudspeaker strength."

During the tropo-opening on the 30th, Simon Hamer was enroute to the Steam Rally at Bishop's Castle in Shropshire. He identified a multitude of stations, on his car radio, from Belgium, Denmark, France and Holland between 87 and 104MHz.

Keep an eye on that barometer readers and once it gets above 30.0in (1015mb) have a tune through the band and don't forget to let me know about any DX you find.

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November 20, December 14 and January 11

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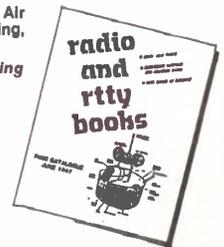
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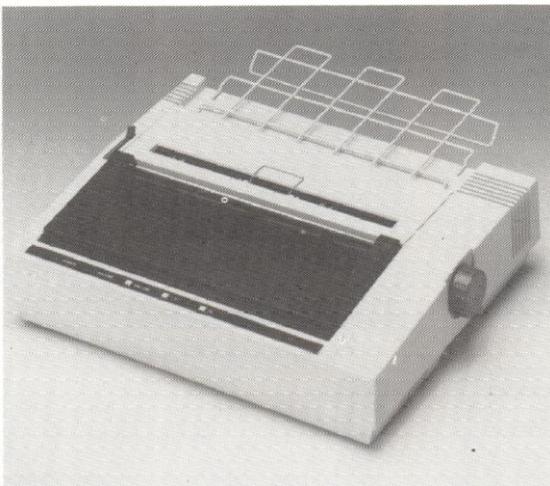
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SEEN & HEARD

TELEVISION

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

Generally speaking, the 1987 Sporadic-E season was good for DXTV with video signals frequently appearing from Iceland (Fig. 1) Portugal (Fig. 2) and Spain (Fig. 3). These particular pictures were received by Neil Purling

(Hull), Noel Smythe (Caerphilly) and Len Eastman (Bristol), respectively. Many readers often logged test-cards, complete with digital clock, from one or more of the Norwegian regionals (Fig. 4).

In Barbados, Dale Jordan is

preparing equipment for TVDXing around the Caribbean area. Back home in Upper Norwood, Monty Crocker plans to add a television system to his station ready for the 1988 Sporadic-E season. I will certainly be pleased to include

their reports in my future columns.

Band I

Between August 16 and September 13, Edwina and Tony Mancini (Belper) chalked-up pictures from 15 countries;

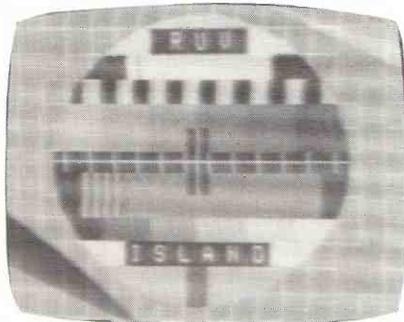


Fig. 1: Iceland

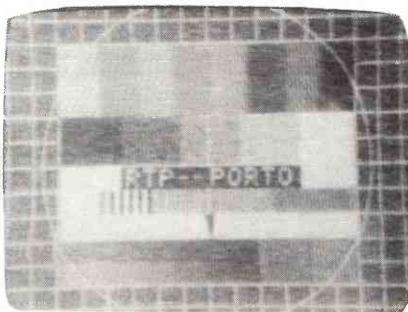


Fig. 2: Portugal



Fig. 3: Spanish TV

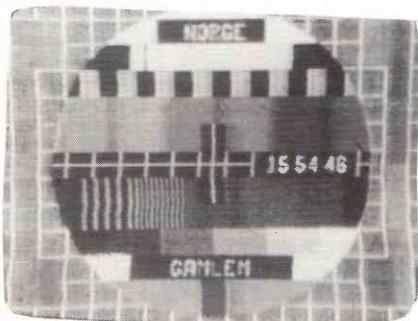


Fig. 4: Norway



Fig. 5: Ireland

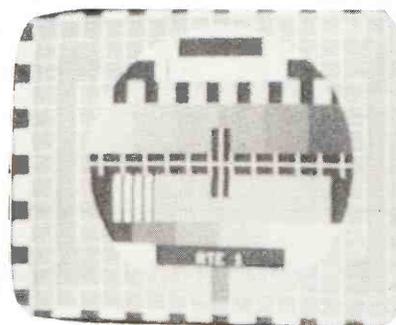


Fig. 6: Ireland



Fig. 7: Abu-Dhabi ident



Fig. 8: Dubai TV



Fig. 9: Russian TV received in India

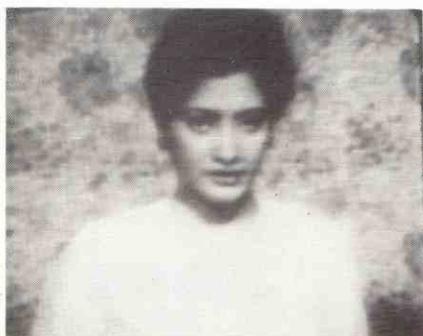


Fig. 10: Jullundur TV

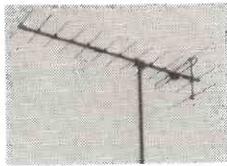


Fig. 11: SSTV



Fig. 12: Polish SSTV

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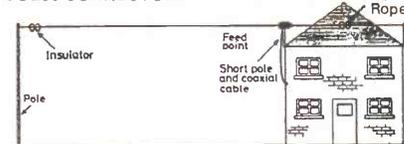


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In New Radnor, **Simon Hamer** logged test cards from Czechoslovakia (SR1 TV Bratislava) and Hungary (MTV) on August 17, 25 and September 1. Then he saw Italy, Poland and the USSR (BPEMR news) on the 17th and 25th, predominantly Spain on the 17th and 28th, Iceland and Norway on September 3 and Czechoslovakia (RS-KH) on the 14th. "Sporadic-E dropped down early this time," remarked Simon.

During the 30-day period from August 19 to September 17, **John Raleigh** (Bedford) received pictures from Italy on 10-days, Portugal on 3-days and Scandinavia and Spain on 4-days. He also found video from Poland at 1200 on September 9 and the USSR on the 15th.

Tropospheric

"There was a nice lift on August 30/31, with very strong pictures from RTE, RTBF-1 and Canal+ on the 30th and ARD, BRT and Canal+ on the 31st," wrote John

Raleigh. He also identified programmes from Belgium and France on August 28, September 2, 3, 6, 8, 10, 13 and 15.

I too received pictures from Ireland, during the evenings of the 29th and 30th and saw local adverts, the All Ireland final between Cork and Galway, a programme called *Henry's Leg* and the news (*Nuacht*) in Band III.

Although the Mancinis can receive signals from Radio Telefis Eireann on most days, the signals, Figs. 5 and 6, were extra strong with them, in Band III, on August 22, 27, 28, 29 and 31 and September 2 and 7. They also received pictures from Belgium (BRT and RTBF-1 WAVRE) on August 20, 30, 31, September 1 and 13, Denmark on August 16, 31, September 1 and 7, France (Canal+) on most days already mentioned and E/W Germany (DDR-F1 and ARD-1) plus a poor signal from Luxembourg (RTL+) on the 31st. With co-channel interference strong, they tried a bit of UK DXing after 2300 on the 30th. They identified transmissions, in the u.h.f. band, from Anglia TV on Ch. 24, BBC Wales and Yorkshire TV on Ch. 25, S4C from Wales on Ch. 42 and Granada TV on Ch. 59.

Simon Hamer received Band III pictures from RTE 1 and 2 on August 19 and from Belgium (RTBF-1), Denmark (DR Danmark), France (Canal+) and Holland on the 30th. He also logged test-patterns from Holland on Ch. 29 and both RTEs on several spots in the u.h.f. band.

While on holiday in Munich between August 26 and September 1, **George Garden**

(Edinburgh), watched the programmes *Ferien Express*, *Star Trek* and *Californian Highway* from Austria (ORF FS1) on Ch. E8 and transmissions from *Wendelstein* (ARD-1) on Ch. E10. He uses a JVC CX10 receiver and amplified loop antenna. "The weather was sunny, fairly hot and high pressure was predominant," said George. He also logged ZDF and ARD-1 on Chs. 24 and 26 and ORF-FS2 on Ch. 32 in the u.h.f. band. During the first week in September, he was in Garmisch, at the foot of the Bavarian Alps and with the hotel's receiver, he carefully tuned through the u.h.f. band and found ZDF on Ch. 45, BR MCHN 3 Programme on Ch. 46, ORF-FS1 and FS2 on Chs. 50 and 55 respectively and ARD-1 on Ch. 58.

News from India.

"As of June 28, India had 200 low power transmitters beaming programmes to people in various states and more are being commissioned every month," said **Major Rana Roy**. He logged Sporadic-E disturbances, on May 15, 17, 19, 20, 28, 29, 31, June 3, 6, 7, 8, 11, 14, 18, 23, 24, 27 and 28, July 11, 12, 13 and 16. He logged tropospheric openings on May 29, June 9, 10, 11, 27 and 28.

Rana received programmes and test cards, in Band I, from the United Arab Emirates stations; Abu-Dhabi TV on May 17, 19, June 6 and July 16 and Dubai TV on May 17, 20, June 6, 11 and 27. He photographed the station ident from Abu-Dhabi (Fig. 7) at 1729 on July 16, an announcer

from Dubai (Fig. 8) at 1950 on May 17 and a Russian General (Fig. 9) from the USSR at 0922 on June 28. Soviet pictures were received on most of the days when Sporadic-E was present. During the tropo-openings, Rana received Band III pictures from India's Jullundur TV (Fig. 10) Pakistan's Lahore TV and the India low power transmitters at Amritsar, Bhatinda and Kasauli.

SSTV

Among the slow scan television signals received on 14MHz by **Raymond Gilchrist** (Millom) toward the end of July were CQs from the Canary Islands (Fig. 11) and Poland (Fig. 12) and in August. He copied DLs on the 14th and 27th, YUs on the 19th and 23rd and HB9 on the 28th. "Propagation has dropped recently, so no real DX," said Ray at the end of the month.

"Conditions over the last couple of weeks have not been too good for DX," wrote **Les Hobson GOCUI** (Rotherham) on August 27. However, in addition to QSOs in Hungary, Portugal and Spain, Les exchanged pictures, on 14MHz, with ZP450A, an special event station in Paraguay, WA1SFU and a couple of new comers, KA1NDS and K1RUY in their first week of using the mode. One the 27th his total first-time SSTV contacts and reached 228.

In Aldershot, **Peter Lincoln** uses a Wrasse SC-140 and a Sinclair Spectrum computer to decode SSTV signals and he recently added Interface-1 and a couple of Microdrives to the Spectrum. Hard copy is provided by an Alphacom 32 printer and with a stock of the programmes, supplied by J and P, Scarab and Technical Software, Peter can resolve pictures with frame speeds of 8,16 and 32 seconds.

Your deadlines for the next three issues are:
November 20, December 14
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LONG MEDIUM & SHORT

Brian Oddy G3FEX
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DX REPORT

(Note: l.w. & m.w. frequencies in kHz, s.w. in MHz: Time UTC)

Long Wave DX

The reception conditions on the l.w. band are gradually changing as the hours of darkness increase. Listening after dark in London, **Phil Townsend** says he has noticed that the signal from Kalundborg, Denmark 245 is not quite readable now and that Tipaza, Algeria 254 is all but buried in the noise. Phil uses a Blaupunkt Turin car radio with a choice of two long wire antennas and an a.t.u. when checking the band.

A Turin car radio was also used

by **Paul O'Connor** in Birmingham — although most of his list was compiled during daylight, he also found difficulty in hearing Tipaza, Algeria at night. Writing from Wallsend, **David Edwardson** says he will be very interested to see what happens as the days become shorter — he intends to concentrate at night on the signals from Brasov, Roumania 153; Nador, Morocco 171; RUV Reykjavik, Iceland 209 and Erzurum, Turkey 245 since they seem to be the most likely to change.

Alex Mackow has recently returned to London from a five week holiday in Poland — he

remembered to take his receiver with him and spent some time monitoring the bands. Although the l.w. band was dominated by the 2000kW Konstantinow transmitter on 227 radiating the Polish home service, some of the East German stations were received well during the day too. After dark, the Russian stations could be heard more clearly, but the signal from the BBC Droitwich transmitter was always stronger than Leningrad which also uses 200kHz — in fact sometimes it was almost as good as in Margate!

A Polish Unita domestic receiver was used by **Jim Willett** in Grimsby to check the band below

200kHz this time, as he had loaned his Yaesu FRG-7, normally used with an l.f. convertor, to a local Scout Group. His ex-USAAF WW2 BC348 receiver pulled in some interesting stations at night above 200kHz — see chart. The performance of many of the older valve receivers is excellent on the l.w. band, but some modern transistor portable receivers leave a lot to be desired because they easily overload when an external antenna is connected to them.

Alexander Little says he has been experiencing this problem in Glasgow — he tried connecting a 30m wire antenna to his Sony ICF-7600D receiver with a view to

SEEN & HEARD

Freq kHz	Station	Country	Power (kW)	DXer
153	Brasov	Romania	1200	B,E*,J*,L*
153	DLF Donebach	W. Germany	500	C,F,G,H,I*,J*,K*,L
162	Allouis	France	2000	C,F,G,H,I*,K*,L
171	Kaliningrad	USSR	1000	B*,C,E*,F*,H,I*,J*,K*,L*
171	Medi 1 Nador	Morocco	1200	C,H*,I*
177	Oranienburg	E. Germany	750	C,E*,F,G,H,I*,K*,L
182	Polati	Turkey	1200	B,L*
183	Saarlouis	W. Germany	2000	C,E*,F,G,H,I*,K*,L
189	Motala	Sweden	300	C,E*,H,J,K*,L*
200	BBC Droitwich	UK	400	C,D*,G,H,K*
200	Leningrad	USSR	150	D*
209	DLF Munich	W. Germany	500	C,H
209	Azilal	Morocco	800	E*,I*,L
209	Kiev	Ukraine	500	J*
218	Roumoules	Monaco	1400	C,E*,F,G,H,K*,L
218	Oslo	Norway	200	C*,H*,I*,J*,K*
218	Baku	USSR	?	H*,L*
227	Konstantynow	Poland	2000	C*,D,E*,F*,I*,K*,L
236	Junglinster	Luxembourg	2000	A*,C,E*,G,H,I*,J,K*,L
236	Kishinev	USSR	1000	A*,H*
245	Kalundborg	Denmark	300	C,E*,F,H,L
245	Erzurum	Turkey	200	G*,L*
254	Tipaza	Algeria	1500	B*,E*,G*,H,I*,K*,L*
254	Lahti	Finland	200	C,H*,J*
263	Plovdiv	Bulgaria	500	B,E*
263	Burg	E. Germany	200	H
263	Moscow	USSR	2000	L*
272	Topolna	Czechoslovakia	1500	E*,F*,H,K*,L
281	Minsk	USSR	500	E*,F*,H*,J*,L*

Note: Entries marked * were logged during darkness. All other entries were logged during daylight.

DXers:

- A: David Edwardson, Wallsend
- B: George Efstratiades, Thessaloniki, Greece
- C: Glen Glen-Davidson, Newcastle upon Tyne
- D: Alex Mackow while in Warsaw, Poland
- E: David Mayhew, Yapton
- F: John Nash, Brighton
- G: Paul O'Connor, Birmingham
- H: Philip Rambaut, Macclesfield
- I: John Sheridan, Mapperley
- J: Tim Shirley, Bristol
- K: Phil Townsend, London
- L: Jim Willett, Grimsby

enjoying some l.w. DXing, only to find that overloading made the reception of BBC Radio 4 via Droitwich almost impossible. He was surprised to find that by attaching the same antenna to his low cost Selena B210 receiver it did not overload at all. Many transistor portables are designed to be used only with their built-in antenna, however a tip that may be worth trying is to connect the external antenna to the set via a variable capacitor and then adjust it for optimum performance.

There can be no doubt that a good loop antenna has a lot to offer the l.w. DXer. No wonder then that many DXers are now busy building loops.

Over in Wootton on the Isle of Wight, **George Millmore** is now testing out a l.w. version of his Long Arm Loop — see *SWM* September '87. David Edwardson has been experimenting with inductive loading on his 1.005m by 0.850m m.w. loop, with a view to l.w. operation — so far without success, although he has persuaded his 0.25m by 0.25m m.w. loop to resonate between 115 and 600kHz by loading it with a 3.9mH inductor. This loop consists of 20 turns of plastic

covered wire tuned by a 500pF variable capacitor — it has a 2 turn coupling winding. If you are experimenting with l.w. loops, please be sure to send along the details for inclusion in this series.

MW Transatlantic DX

The introduction of the new m.w. transatlantic DX chart into this series last month seems to be popular with many DXers. Although it provides a quick reference to the stations recently logged by DXers, it is important to check the band carefully for additional stations, because reception conditions are gradually improving as the hours of darkness increase.

Writing from Newcastle Upon Tyne, **Glen Glen-Davidson** says, "Transatlantic DX seems to elude me though I've identified VOXM in Newfoundland, but some folk seem to have success. I also admit to going to bed at night!" Well, the earliest signals to cross the Atlantic just now appear to stem from the Caribbean Beacon on 1610, so perhaps a check on that frequency before hitting the hay would provide a little encouragement. Alexander Little noted their signal as SINPO 21322 at 2306, but **Bill Kelly** found it to be a good S3 in Belfast around 0100 when he listened to their bulletin of world and local news in English, followed by a report on human rights.

Bill has been making good use of his JRC NRD-525 receiver at all hours of the night and logged CKOC in Hamilton, ON on 1150 for the first time and now awaits their QSL. The reception of the four signals he logged from the USA was good — peaking S3, but

Freq kHz	Station	Location	Time (UTC)	DXer
570	WMCA	USA New York, NY	0345	F
660	WNBC	New York, NY	0200	G
770	WABC	New York, NY	0135	G
880	WCBS	New York, NY	0150	G
1010	WINS	New York, NY	0425	B,E
1030	WBZ	Boston, MA	0150	G
1050	WHN	New York, NY	0224	B,D
1090	WBAL	Baltimore, MD	0215	B,G
1110	WMBI	Chicago, IL	2300	F
1130	WNEW	New York, NY	0210	D,E
1210	WCAU	Philadelphia, PA	0430	B,E
1260	WWDC	Washington, DC Canada	0130	F
580	CJFX	Antigonish, N/S	0516	E
590	VOXM	St. John's NF	0230	A,B,E,G
610	CKYQ	Grand Bank, NF	0503	E
920	CJCH	Halifax, NS	0515	E
930	CJYQ	St. John's, NF	0030	B,E,G
950	CHER	Sydney, NS	0210	G
1150	CKOC	Hamilton, ON	0425	B
1220	CKCW	Moncton, NB	0115	E,G
1570	CKLM	Lavel, PO C America & Caribbean	0145	B
750	XEKOK	Las Cruces, Mexico	0230	F
1470	XEBBC	Tijuana, Mexico	0250	G
1570	Atlantic Beacon	Turks & Caicos Is.	0116	B,E
1610	Caribbean Beacon	Anguilla South America Venezuela	2306	B,C,D,E,G
570	R. Rumbos	Venezuela	0447	E
750	R. Vision	Caracas, Venezuela	0215	B
860	R. Mundial	Rio, Brazil	0240	G
980	R. Nacional	Brazil	0240	G
1100	R. Globo	Sao Paulo, Brazil	0230	G
1220	R. Globo	Rio, Brazil	0130	A,D,E

no others were identified. The signals from CJYQ in St. John's, NF 930, which is frequently used by DXers as a pointer to conditions, were logged as S2 at 0030.

In contrast, **Nick Rank** says "VOXM on 590 has been very strong here around 0500 the past few mornings — I usually use this station as an indicator of transatlantic conditions". Nick uses a Trio 9R59DS receiver in conjunction with a Q multiplier and digital readout unit when DXing in Buxton, but the heart of his system is a giant 2m by 2m loop antenna! He says, "It covers the whole of the m.w. band plus the shipping band down to about 2.3MHz and has only 4 turns. It can be rotated (with some difficulty!) but I usually leave it pointing towards N.America/Canada".

Other MW DX:

Using a Racal RA17 receiver plus a long wire antenna, George Millmore was very surprised to hear Ain Beida, Algeria 531 and Barcelona, Spain 738 in broad daylight. He has been adding some more stations to his growing list of DX received during daylight, namely La Louviere, Belgium 1125; two stations in Germany — Bayreuth 549 and Muhlacker 576; also three in S. Ireland — Tullamore 567; Athlone 612 and Cork 729.

Lushnje, Albania 1395 was logged by Phil Townsend at 1830 — this station is seldom mentioned and may be one to add to your DX list. Some of the

DXers:

- A Glen Glen-Davidson, Newcastle upon Tyne.
- B Bill Kelly, Belfast.
- C Alexander Little, Glasgow.
- D Paul O'Connor, Birmingham.
- E Nick Rank, Buxton.
- F Tim Shirley, Bristol.
- G Jim Willett, Grimsby.

stations noted by Phil during the early evening include two in Czechoslovakia — Praha 639 and Ceskoslovensko 1287; Burg in E. Germany 783; five in W. Germany — Hessischer RF, Frankfurt 594; DLF Braunschweig 756; AFN Frankfurt 873; Saarbrucken 1422 and Mainflingen 1539; also three in Italy — Rome 846; Rome 1332 and Vatican City 1530. Others were Marnach, Luxembourg 1440 and three in Spain — Madrid 585; La Coruna 639 and Seville 684.

While exploring the band with his new Trio R5000 receiver in Redhill, **George Morley** noticed that some of the weaker signals completely faded out at times — in some instances this lasted for 45 minutes. His listening period extended from 1000 until 1700 and the stations concerned were Monte-Carlo, Monaco 702 (SIO 132); Kalundborg, Denmark 1062 (123); La Louviere, Belgium 1125 (143); Solvesborg, Sweden 1179 (142); Neumunster, W. Germany 1269 (132); Kvitsoy, Norway 1314 (234) and marnach, Luxembourg 1440 (122) — it would be interesting to know if any other DXers have noticed this effect.

Listening in Norwich, **Pat Kearevell** picked up the news in

SEEN & HEARD

Freq kHz	Station	ILR or BBC	DXer
585 603	R. Solway Invicta Sound	B I	M A,C*,D,E,G,H,I,J,K,L,M, N,O*,S
630 630	R. Bedfordshire R. Cornwall	B B	A,D,E,G,H,I,J,K,L,M,N,P,Q,S D,L
657 657 666 666 729	R. Clwyd R. Cornwall DevonAir R. R. York BBC Essex	B B I B B	A,E,G,H,J,M,N L,O* G,J,L A,E,H,J,M,N,R A,E,H,L,M,N,Q,S
756 756 765 774 774	R. Cumbria R. Shropshire BBC Essex R. Kent R. Leeds	B B B B B	B,R A,H,L,M,N A,B,D,E,G,H,I,J,L,M,N,O*,Q A,E,G,H,I,L,N,S M,N
774 792 801 828 828	Severn Sound Chiltern R. R. Devon 2CR R. WM	I I B I B	K,L,M,N A,E,G,H,J,L,M,N,P,Q,S D,G,H,J,L,M,N D,G,I,L,O* K,M,N
828 828 837 837 855	R. Aire Chiltern R. R. Furness R. Leicester R. Devon	I I B B B	N A,E,H,J,Q B,M A,E,H,J,M,N,R,S G,J,L
855 855 873 936 945	R. Norfolk R. Lancashire R. Norfolk GWR R. Trent	B B B I I	A,H,N,Q,S M,N A,B,G,H,J,M,N,Q,S A,D,G,H,J,K,L,M,N A,H,K*,M,N,S
954 954 990 990 990	DevonAir R. Wyvern R. Devon Beacon R. Hallam R.	I I B I I	G M,N G,H,L J,K,M,N N
999 999 999 1026 1026	Red Rose R. R. Solent R. Trent R. Cambridgeshire Downtown R.	I B I B I	F*,M,S D,G,H,I,L A,J A,B,E,H,J,M,N,P,S M
1026 1035 1035 1035 1107	R. Jersey R. Kent NorthSound R. R. Sheffield Moray Firth R.	B B I B I	G,H,I,L G,H,I,J S M,N S
1107 1116 1116 1152 1152	R. Northampton R. Derby R. Guernsey BRMB R. Broadland	B B B I I	A,G,H,J,N,P A,H,J,M,N D,G,I,L K,L,M,N,P A,J,S
1152 1152	LBC Metro R.	I I	G,H,I,J,L O

Freq kHz	Station	ILR or BBC	DXer
1161 1161 1161 1170 1170	R. Bedfordshire R. Sussex Viking R. R. Orwell Signal Radio	B B I I I	A,J,M,N G,H,L E,N,O* A,E,H,Q,S M,N,P
1170 1242 1251 1260 1260	Ocean Sound Invicta Sound Saxon R. GWR Marcher Sound	I I I I I	D,G,H,I,L A,G,H,I,L A,E,F*,H,J,L,M,N,O*,Q,S L,O* M
1260 1278 1305 1305 1323	Leicester Sound Pennine R. R. Hallam Red Dragon R. R. Bristol	I I I I B	A,H,N,P G,H N G,H,J,L L,N
1323 1332 1359 1359 1359	Southern Sound Hereward R. Essex R. Mercia Sound R. Solent	I I I I B	H,L,M,Q A,E,G,H,M,N,P,S A,E,H,J,Q K*,M,N,P,R G,L
1368 1368 1431 1431 1449	R. Lincolnshire R. Sussex Essex R. Radio 210 R. Cambridgeshire	B B I I B	A,E,N G,H,L A,E,F*,H,Q,S G,H,L E,G,M,N
1458 1458 1458 1458 1476	R. Devon R. London R. Manchester R. WM County Sound	B B B B I	L E,F*,G,I,J,L,P* M,P K,N,P D,G,H,J,L,M,Q
1485 1485 1485 1503 1521	R. Humberside R. Merseyside R. Sussex R. Stoke-on-Trent R. Mercury	B B B B I	E,N M,N G,H,L F*,G,H,K,M,N,S E,G,H,I,J,L
1521 1530 1530 1530 1548	R. Nottingham R. Essex Pennine R. R. Wyvern R. Bristol	B B I I B	M,N I,J,Q M,N F*,G,K,L,N,S L
1548 1548 1548 1548 1557	Capital R. R. City R. Forth R. Hallam Hereward R.	I I I I I	G,H,I,J,L M J N H,J,M,N
1557 1557 1557 1584 1584	R. Lancashire Northants 96 Ocean Sound R. Nottingham R. Shropshire	B I I B B	M F* F*,G,H,I,L,Q*,S H,J,M,N G,P
1602	R. Kent	B	G,H,I,J

English from Alger, Algeria on 981 at 1900 — **Darren Taplin** also logged their signal in Tunbridge Wells and noted SINPO 44444 in his log at 1932. Darren uses a Realistic DX-150A receiver with a 25m wire antenna and has also been hearing Madrid, Spain 585 at 2000; Radio Bremen, W. Germany 936 at 2100; Radio Prague, Czechoslovakia 1287 at 2315 and Rome, Italy 846 at 2346.

Using a Sony ICF-7600D with a 0.5m square loop, Alexander Little logged UAE Radio Dubai on 1481 as SINPO 22432 at 2007 — seldom mentioned, this station may well be one to add to your DX list. In Bristol, **Tim Shirley** has been hearing some interesting stations too — using a DX400 receiver plus a home made loop antenna he logged Oulu, Finland 540 at 2000; Rostock, E. Germany 558 at 0015; Burg, E. Germany 657 at 1915; Viseu, Portugal 693 at 0300; Radio Malta 756 at 0030; Odessa, Ukraine 765 at 2130; Cacares, Spain 774 at 1800;

Rostov on Don, USSR 945 at 0245 and Tallinn, USSR 711 at 0030.

Taking a receiver with you on holiday is often worthwhile, especially when you are visiting another country. **Michael Banbrook** took his to New York and says, "MW reception over there is quite amazing. I found that after dark 'talk stations' (e.g. like ILR LBC in London cover the dial. Station strengths out there are good considering the distance that they travel — on one night I heard the announcer say the station name and then talk about events in ... San Francisco! There are too many stations covering the dial in the States for the average m.w. DXer to report on."

Alex Mackow found reception in Poland interesting too — during the day the m.w. band was practically dead in Warsaw, with only two Polish and one Russian station audible, however at night things livened up and the BBC Polish service on 1296 came in well. BBC Radio 2 on 693 was

rather weak, as were BBC Radio 1 and 3. Alex says "... there seemed to be a lot more Russian stations around than we get here."

Writing from Stoke-on-Trent, **Daniel Masterson** says he remembered to take his m.w. portable with him on holiday to Aberystwyth, Wales. He listened mainly at night to Marnach, Luxembourg 1440 — SIO 444 at 1925; Monte-Carlo, Monaco 1467 — 343 at 2140; RTE-2 Athlone, S. Ireland 612 — 333 at 2202 and RSI Solvesborg, Sweden 1179 — 444 at 2220. The special *Swedish Calling DXers* programme, broadcast by RSI on Tuesdays at 2100, has been attracting the attention of **Alan Curry** in Stockton-on-Tees — surely a must for all keen DXers.

MW Local Radio DX

In sending along his first log for the chart from Brighton, **John Nash** says, "I was pleasantly surprised to hear Radios Jersey and Guernsey. Guernsey with only 0.5KW had a stronger signal than

Note:

Entries marked * were logged during darkness.

All other entries were logged during daylight.

DXers

- (A) Jack Cairns, Newmarket.
- (B) Alan Curry, Stockton-on-Tees.
- (C) Glen Glen-Davison, Newcastle upon Tyne.
- (D) Peter Hall, Chichester.
- (E) Pat Kearvell, Norwich.
- (F) Bill Kelly, Belfast.
- (G) George Millmore, Wootton, I.O.W.
- (H) George Morley, Redhill.
- (I) John Nash, Brighton.
- (J) Martin Newell, Great Missenden.
- (K) Paul O'Connor, Birmingham.
- (L) Shane Pope, Freshwater I.O.W.
- (M) Philip Rambaut, Macclesfield.
- (N) John Sheridan, Mapperley.
- (O) Tim Shirley, Bristol.
- (P) Anthony Smith, Chesterfield.
- (Q) Darran Taplin, Tunbridge Wells.
- (R) Robert Taylor, Edinburgh.
- (S) Jim Willett, Grimsby.

Jersey with 1KW". John used a new Matsui MR4099 portable to compile his list (reviewed *SWM* September '87) and says "I've tried the new receiver out against the Sony ICF-7600D and find that

SEEN & HEARD

Freq MHz	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	2015	C
2.310	Yunnan	China	2142	C
2.325	ABC Tennant	Australia	2010	C
2.460	Yunnan	China	2145	C
2.485	ABC Katherine	Australia	2015	C
2.560	Xinjiang	China	2206	C
3.210	R. Federacion	Ecuador	0320	D
3.210	R. Mozambique	Mozambique	1825	L
3.215	R. Oranje	S Africa	0440	D
3.220	R. Togo, Lome	Togo	2157	F
3.230	ELWA Monrovia	Liberia	2210	F
3.230	R. RSA	S Africa	0320	D
3.250	R. Luz Y Vida	Honduras	0250	P
3.320	R. Suid Afrika	S Africa	2230	P
3.365	GBC Radio 2	Ghana	2223	F,P
3.905	AIR Delhi	India	1815	D
3.915	BBC Kranji	Singapore	2330	P
3.950	PBS Qinghai, Xining	China	2155	C
3.960	FBS	Falklands	0120	P
3.965	RFI Paris	France	2145	N
3.985	SRI Berne	Switzerland	1937	N,Q
3.995	DW Cologne	W Germany	2145	A,N
4.045	R. Moscow	USSR	1943	Q
4.220	Xinjiang	China	2200	C
4.422	R. Reyes	Bolivia	0145	L
4.450	R. Afghanistan	via USSR	2000	P
4.500	Xinjiang	China	2200	C,K,P
4.545	Alma Ata	USSR	0300	P
4.635	R. Dushanbe, Tadzshik	USSR	2332	C
4.730	La Voz de Bolivar	Ecuador	0405	D
4.735	Xinjiang	China	2230	B,C,P
4.740	R. Afghanistan	via USSR	1900	H
4.755	R. Maranhao	Brazil	0006	B,K
4.760	ELWA Monrovia	Liberia	1922	B,H,P
4.765	R. Moscow	Via Cuba	0520	D,K
4.770	FRCN, Kaduna	Nigeria	2032	B,H,J,P
4.775	R. Gabon, Libreville	Gabon	2205	D,F
4.785	R. Baku	USSR	0205	D,K
4.785	R. Mali, Bamako	Mali	2045	B,F,H,K,P
4.790	R. Atlantida	Peru	0029	C
4.795	R. Nuev America	Bolivia	0250	P
4.795	R. Douala	Cameroun	1840	D,F,H,I
4.800	LNBS Lesotho	Maseru	1918	C,L,P
4.805	R. Mac. Amazonas	Brazil	0010	B,D,K,L,P
4.810	R. Yerevan	USSR	0247	K,Q
4.815	R. diff TV Burkina	Burkina Faso	1956	B,H,P
4.820	R. Botswana	Botswana	1945	B,D,P
4.830	Africa No. 1	Gabon	1855	C,D,H,M,O,P,Q
4.830	R. Reloj	Costa Rica	0300	C,D,E,P
4.830	R. Tachira	Venezuela	0223	K,M
4.835	RTM Bamako	Mali	1850	C,F,H,O,P,Q
4.845	R. Nacional, Manaus	Brazil	0045	C,K,P

Freq MHz	Station	Country	UTC	DXer
4.845	ORTM Nouakchott	Mauritania	1950	B,H,P
4.850	R. Luz & Vida	Ecuador	0150	P
4.850	R. Yaounde	Cameroun	1956	A,B,D,F,H,J,M,Q
4.850	R. Capital, Caracas	Venezuela	0315	D,E,K
4.860	AIR New Delhi	India	0035	C
4.865	PBS Lanzhou	China	2053	A,C,H,J,Q
4.870	R. Cotonou	Benin	1922	C,H,O,P,Q
4.880	SABC Radio 5	S. Africa	1850	B,C,D,H,K,L,P
4.885	R. Beijing	China	2225	Q
4.885	R. Clube do Para	Brazil	2300	F
4.885	R. Huancavelica	Peru	0515	I
4.895	Ashkhabad	USSR	2110	B
4.900	R. diff Nat. Conakry	Guinea	2105	B,H,P
4.905	N'djamena	Chad	2045	H,P
4.910	R. Tawantinsuyo	Peru	0130	L
4.915	R. Ghana, Accra	Ghana	2030	B,C,F,H
4.920	R. Quito	Ecuador	0210	D,P
4.925	R. Nacional, Bata	Eq. Guinea	2045	H
4.930	Ashkhabad	USSR	2140	B
4.935	R. Tropical	Peru	0345	I
4.940	R. Abidjan	Ivory Coast	2240	C,F
4.940	Kiev	USSR	0351	K
4.940	R. Yakutsk	USSR	0245	D
4.945	R. Moderna	Peru	0230	L
4.950	R. Mac. Luanda	Angola	0530	P
4.955	R. Baku	USSR	0255	D
4.955	R. Clube Rondonopolis	Brazil	0235	D
4.958	Azerbaijan	USSR	2020	B
4.960	R. Baku	USSR	0150	D
4.975	R. Uganda	Uganda	1915	B,D,H
4.980	PBS Xinjiang	China	2200	F
4.980	Ecos del Torbes	Venezuela	0209	C,D,K,M,P
4.985	R. Brazil Central	Brazil	0150	B,D
4.990	AIR New Delhi	India	0003	B
4.990	FRCN, Lagos	Nigeria	2202	F,G,L
4.990	Radio RSA	S. Africa	0500	D
4.995	R. Ulan Bator	Mongolia	2230	P
5.005	R. Nacional, Bata	Eq. Guinea	2045	H
5.010	R. Garoua	Cameroun	1955	H,P,Q
5.010	R. Eco Iquitos	Peru	0330	L
5.020	ORTN Niamey	Niger	2342	L
5.025	R. Borborema	Brazil	0045	B
5.025	R. Rebelde, Habana	Cuba	0040	D,K
5.025	R. Uganda, Kampala	Uganda	2027	H
5.035	Alma Ata	USSR	1935	D,H,K
5.035	R. Bangui	C. Africa	2105	F,H,J,P
5.045	R. Togo, Lome	Togo	1915	F,H
5.057	Gjirokaster	Albania	2105	H
5.075	R. Beijing	China	2137	J
5.095	R. Sutatenza, Bogota	Columbia	0106	D,K,P
5.290	R. Kransnoyarsk	USSR	2154	F

it performs better in most respects. The narrow band facility is very useful and the BFO/SSB is far better. It seems to be more susceptible to local interference from TV, etc., especially if the built in antenna is used'.

A new Lowe HF-125 receiver enabled **Jack Cairns** of Newmarket to compile his first list for the chart. Most of the stations were received during the morning because distant thunderstorms caused bad atmospheric conditions from 1330. Jack used the active rod antenna supplied with the receiver, but he intends to construct a loop antenna with a differential amplifier in the near future. A loop antenna was used with a Uniden CR2021 receiver by **Martin Newell** in Great Missenden to log a number of distant stations during daylight — see chart.

Good valve communications receivers are popular with m.w. DXers because they can easily handle the relatively high signal levels from nearby stations without overload and at the same

time resolve the low level signals. An ex-Royal Navy Marconi Atlanta valve receiver plus a 20m wire antenna and home made a.t.u. was used by **Shane Pope** in Freshwater, IOW. However he intends to construct a m.w. "Sooper Loop" in the near future. (*Practical Wireless*, July '86) because of the difficulty in separating the stations which share the same frequency. **Peter Hall** also used a valve communications receiver in Chichester — an Eddystone 840C, plus a Royal Blue antenna.

One of the most famous of all valve communication receivers, the RCA AR88D, is often used by **John Sheridan** while DXing in Mapperley. Jim Willett has a slightly older RCA receiver — a trusty AR77, which can no doubt out-perform many modern receivers!

Short Wave DX

Although we are now on the upward slope of the next solar sunspot cycle, broadcasters know

that it is still unlikely they would be able to establish a reliable service on the **25MHz (11m)** band to any target area just now, so there are no scheduled broadcasts and the band remains silent.

In contrast, several broadcasters make good use of the **21MHz (13m)** band to reach their listeners during daylight. The reception conditions prevailing on this band are generally unstable, but some good days have been noted recently.

Most of the broadcasts audible in the UK at some time during the day stem from southerly locations. Some of them were noted in a report from **Howard Newell** in Great Missenden — Riyadh, Saudi Arabia 21.495 at 0937 (The Holy Quran in Arabic and Arabic/Indonesian to SE Asia 0700-1155); UAE Radio Dubai 21.605 at 1030 (Arabic/English to N. Africa 0615-1500; Radio RSA in Johannesburg, S. Africa 21.590 at 1300 (English to Europe and W. Africa 1300-1556); Radio Japan

- A Alan Curry, Stockton-on-Tees.
- B Neil Dove, Lockerbie.
- C David Edwardson, Wallsend.
- D Bill Kelly, Belfast.
- E Alexander Little, Glasgow.
- F George Morley, Redhill.
- G John Nash, Brighton.
- H Fred Pallant, Storrington.
- I Ron Proudfoot, Newcastle upon Tyne.
- J Philip Rambaut, Macclesfield.
- K John Sheridan, Mapperley.
- L Tim Shirley, Bristol.
- M Darran Taplin, Tunbridge Wells.
- N Philip Townsend, London.
- O Keith Wakelin, Hull.
- P Jim Willett, Grimsby.
- Q Bob Wilson, Nottingham.

relayed via Moyabi, Gabon 21.700 at 1500 (English/Japanese 1500-1700).

In an interesting report from George, S. Africa, **Dick Moon** mentions that some of the broadcasts from stations in northern areas have been received well there too! During the day he logged Radio Prague, Czechoslovakia 21.705 at 0850 (English/Czech to SE Asia 0730-0930); Radio Budapest,

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AR2002 RECEIVER
 Frequency range of the AR2002 is from 25 to 550 and from 800 to 1300 MHz. Modes of operation are wide band FM, narrow band FM and AM. The receiver has 20 memories, memory scan and a search mode which checks frequencies between user designated limits. The receiver has a push button keypad for easy frequency entry and operation. A front panel knob allows the listener to quickly step up or down in either 5, 12.5 or 25 kHz steps from the frequency initially chosen. The AR2002 has a front panel LED bar "S" meter. There is a front panel 3.5mm jack socket for headphone use. A socket for the optional RS232 interface (RC PACK) is provided on the rear panel. The RC PACK consists of an 8 bit CPU with its own ROM and RAM and with your own computer acting as a dumb terminal many additional operating facilities become available. Of course, if you want to write your own programs using the RC PACK as an interface then "the sky's the limit".

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SEEN & HEARD

Hungary 21.525 at 0935 (Hungarian/English to Australia 0900-0955); RSI Sweden 21.695 at 1102 (Swedish/English to the Middle East 1000-1130); UAE Radio Dubai 21.605 at 1230 (Arabic/English to N. Africa 0615-1500); Radio Jamahiriya, Tripoli 21.645 at 1248 (Arabic to W Europe 1030-2145); Vatican Radio, Rome 21.725 at 1317 (Portuguese/Spanish to S.America 1300-1430); Radio Prague, Czechoslovakia 21.505 at 1450 (English/Czech to Africa 1430-1725); WYFR via Okeechobee, FL 21.525 at 1630 (Divers language to W Africa 1600-2100) and BRT Brussels, Belgium 21.810 at 1653 (Dutch/English 1600-1655).

Most of the broadcasts from countries in the northern hemisphere are intended for listeners in other continents. However, when suitable conditions exist they may also be audible in the UK. using a Toshiba RF-F11L portable with just its build-in whip antenna, **Robert Taylor** logged several of them in Edinburgh — Radio Prague, Czechoslovakia 21.705 at 0745 (English/Czech to SE Asia 0730-0930); RFI Berlin via Nauen, GDR 21.540 at 0915 (English/German to E Asia 0715-0930); RFI Paris via Allouis, France 21.620 at 1120 (French/English to E Africa 0800-1600) and Radio DW Cologne via Wertachtal, W Germany 21.600 at 1530 (Swahili/French to E Africa 1500-1750).

Although the ground wave signals from the UK based BBC s.w. transmitting stations at Wooferton, Daventry and Rampisham are rapidly attenuated by the surrounding terrain, it is often possible to hear their transmissions in the UK via "back scatter" from the ionosphere. Their Wooferton station beams the BBC World Service to listeners in E Africa from 0900 until 1030 on 21.470, but at 1030 their Daventry station takes over the broadcast until 1615. Daventry also beams programmes in French and Hausa to listeners in W Africa on 21.640 between 1200 and 1415. Their Rampisham station beams the BBC World Service to listeners in Africa on 21.715 from 1100 until 1615.

Some interesting broadcasts from several continents can usually be received at some time during the day on the **17MHz (16m)** band. The reception conditions however, are generally unstable and recent ionospheric disturbances have affected the reception of some of the more distant signals.

There are no scheduled broadcasts from Radio Australia to Europe on 16m, but when suitable conditions exist it is



possible for their transmissions to SE Asia on 17.715 (0100-0850) to travel on across the Pacific and reach Europe via the "long path". Using an Eddystone 940 receiver with a folded dipole antenna, **George Hewlett** monitors this transmission on the daily basis in Torquay from 0400 and has noted generally poor reception at that time, but it usually improves by 0545 and often reaches a peak around 0630.

Another broadcast which is not intended for listeners in Europe, but can nevertheless be received here, stems from FEBA Radio in the Seychelles — they beam programmes in English to listeners in the Middle East from 0600 until 0700 on 17.855. Writing from Morden, **Sheila Hughes** says she especially enjoys their magazine programme called **Mosaic**. Sheila uses her Vega 206 portable to receive their broadcast and quotes their signal as SINPO 34333 at 0600. The broadcasts from KYOI in Saipan, N.Mariana Islands to E.Asia on 17.780 (0400-0800) have also been reaching the UK well recently — SINPO 44344 was the rating John Nash noted while testing out his new Matsui MR4099 portable receiver.

During the day there are a number of broadcasts intended for listeners in Europe, but not all of them are in English. The programmes from Radio RSA Johannesburg, S.Africa on 17.780 are in Afrikaans from 0830 until 0856; those from Radio Pakistan, Islamabad on 17.660 are in Urdu from 0715 until 1100. However, there is a segment in English from 1100 until 1120 which includes a special dictation speed bulletin of news. **Julian Wood** has been monitoring their transmissions on a daily basis in Buckle and says reception is generally good.

Arabic is the main language used by UAE Radio Dubai during their broadcast to Europe on 17.775 and 17.865 from 0615 until 1500, however there are some items in English. David Edwardson rated their signal as

SINPO 34543 while listening to a bulletin of news in English at 1030. A talk in English entitled *An appreciation of Arab music* attracted the attention of Robert Taylor to their transmission 17.775 at 1350 — their signal was SIO 434.

In Worcester, **Edward Broadsmith** has been listening to the broadcast in Dutch and English from Radio Surinam International at 1700 — it reaches Europe via an RNB transmitter in Brazil, S. America on 17.755. Using a DX400 receiver in Northwich, **John Parry** picked up VOA via Bethany, USA on 17.785 at 1810 — although their transmission in English from 1600 until 2300 is really intended for listeners in W.Africa it was SINPO 44554. John also heard RCI Montreal, Canada on 17.875 and rated their signal as SINPO 45554 at 1910 — they broadcast to Europe in Polish, French, English and Russian via Sackville, E. Canada from 1800 until 2100.

There has been a marked improvement in the reception conditions prevailing on the **15MHz (19m)** band and some interesting signals have been noted by DXers. Howard Newell logged the transmission to SE Asia from Radio Australia via Shepperton, SE Australia on 15.240 as SINPO 33233 at 0720. According to the latest report from George Hewlett, their 15.240 transmission reaches a peak of SIO 434 around 0530. Robert Taylor noted their transmission to S Asia via Carnarvon, W Australia on 15.415 as SIO 333 at 0900.

Listening in Middlesbrough, **Christopher Dane** picked up a bulletin of news in English from the voice of Vietnam, Hanoi on 15.010 at 1330 — he uses a Grundig Satellit receiver and is pictured in Fig. 1 Christopher was one of several DXers to mention the broadcasts from the Voice of America (VOA) in his report — he picked up their broadcast to W.Africa via Greenville, E USA on 15.410 at 1930. John Parry

heard their Tinang, Philippines relay on 15.425 at 1410, noting SINPO 34553 in his log. Their Tangier, Morocco relay on 15.205 was noted as SIO 444 at 1830 by Robert Taylor. In Lockerbie, **Neil Dove** logged their relay in Monrovia, Liberia on 15.445 as SINPO 25442 at 1805.

Some of the other stations logged by Neil during the day include UAE Radio Dubai 15.435 at 1345 — SINPO 43533 (Arabic and English to Europe 1000-1500); WYFR via Taipei, Taiwan 15.055 at 1335 — 25432 (English to S.Asia 1302-1502); Radio Kuwait 15.505 at 1755 — 55555 (Arabic to Europe 0700-2215); WINB Red Lion, USA 15.295 at 1945 - 34443 (English and Hebrew to N. Africa 1602-2000); RAE Argentina 15.345 at 2005-34443 (English, German, French and Italian to Europe 1730-2155) and Radio Korea, Seoul S.Korea 15.575 at 2030 — 34443 (English, Spanish and German 1930-2200).

Edward Broadsmith has been listening to the programmes in English and German beamed to Europe by RNB Brasilia, Brazil on 15.265 from 1800 until 1950.

Ron Pearce has been getting good reception at 2050 of Africa No. 1, Gabon 15.475 on his one valve (955) receiver in Bungay. Using a Sony ICF-7600D portable, Alexander Little has been hearing AWR Costa Rica on 15.460, noting SINPO 25422 at 2200 (French/English/Spanish to C.America 1400-2200). Three stations in the USA were logged by **John Berridge** in Cardiff — WINB Red Lion, PA 15,145 noted as SIO 444 at 2300; WCSN Boston, MA 15.300 at 2300 and WYFR via Okeechobee, FL 15.440 at 2200.

Radio Moscow continues to dominate the **13MHz (22m)** band throughout the day — the comments from John Nash are very apt "I have just QSLed Radio Moscow, but they have so many frequencies it is a problem to know where to begin!" John decided to log their broadcasts at 0820 on 13.690, noted as SINPO 45333 (World Service to Middle East 0730-1200) and 13.710, noted as 45343 (World Service/German to Europe 0630-1400).

Some of the other stations using 22m include Radio Nederlands 13.770, noted by Howard Newell as SINPO 43333 at 1430 (English to S Asia 1430-1525); the Voice of Israel, Jerusalem, logged by Neil Dove at 1900 on 13.725 as SINPO 45444 (Hebrew / Russian / English / French to W Europe 1730-2155) and on 13.750 as 55444 (Hebrew to W Europe 1645-2215). Several more were noted by **Philip Rambaut** in Macclesfield, namely Radio Baghdad, Iraq 13.680 — noted as

SIO 111 at 0743; Radio Korea, Seoul 13.670 — 212 at 0821; Radio Prague, Czechoslovakia 13.715 — 333 at 1431 and Radio Baghdad, Iraq 13.650 — 434 at 1951.

The reception conditions prevailing on the **11MHz (25m)** band have been generally more reliable than on the higher frequency bands and many interesting stations have been logged by DXers. The broadcasts from Radio Australia on 11.910 from 0400 until 630 are intended for listeners in the S. Pacific area, but they are nevertheless being received quite well in the UK — most mornings George Hewlett logs them as SIO 433 at 0400, fading to 322 around 0530, but peaking up again to 433 at 0615.

KNLS Anchor Point, Alaska broadcast in English to S.E. Asia on 11.820 from 0900-1000 and on 11.930 from 1000-1100 — since both transmissions may be heard in the UK just now, you may be able to add their QSL to your collection! **Ron Proudfoot** picked up their broadcast on 11.820 at 0900 and says he enjoyed their programme of **Blue Grass** country music. Tim Shirley logged their transmission on 11.930 as SIO 343 at 1000.

Some of the direct broadcasts to Europe during the morning include REE via Noblejas, Spain 11.920 (Spanish 0930-2145); the Voice of Israel, Jerusalem 12.075 (English/French 1000-1100); SRI Berne, Switzerland 12.030 (French/German/Italian/English 1000-1230) — all were logged by John Nash; Radio Bangladesh, Dhaka 12.030 (English 1230-1300) — Tim Shirley listened to their news bulletin at 1236. A number of relay stations are also involved — two of them were mentioned in the report from George Morley, namely BBC Ascension Island, S. Atlantic 11.860, noted as SIO 434 at 0805 (World Service to Africa 0600-0915) and BBC Limassol, Cyprus 11.760, noted as 222 at 0845 (World Service to Middle East 0545-1345).

Listening in Corsham during the evening, Colin Diffell logged Radio Kuwait 11.675 at 1842 (English to Europe/N.America 1800-2100); Radio Moscow, USSR 11.705 at 1900 (Russian to Europe 0630-2000) also 11.720 at 1916 (French/Russian to N. Africa 1600-2130) and RHC Havana, Cuba 11.725 at 1929 (Spanish to C. America 1100-2050). Howard Newell has been listening to the broadcast in English from RAI Roime, Italy on 11.800 between 1935 and 1955. All India Radio beam direct to Europe on 11.620 from 1845 until 2230 — Howard logged their signal as SINPO 32323 at 1950.

Peter Hall picked up the Voice of Israel, Jerusalem broadcasting

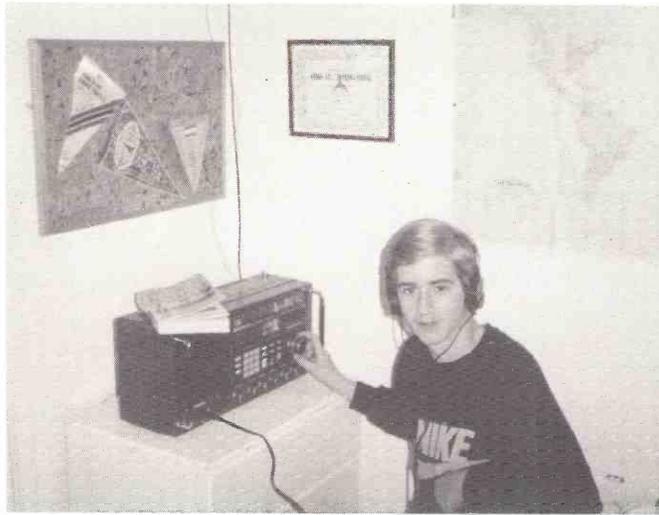


Fig 1: Christopher Dane

to listeners W Europe at 1900 in Hebrew on 11.585 and in English/French on 11.655; Radio Beijing, China 11.500 — SIO 443 at 1915 (German/English to Europe 1800-1255) and RBI Berlin via Nauen, GDR 11.785 — 433 at 2200 (German/English to Europe 1800-1255) and RBI Berlin via Nauen, GDR 11.785 — 433 at 2200 (German/Portuguese/Spanish to S America 2130-0230). Radio Japan, Tokyo broadcast to listeners in Europe from 2200 until 0000 via a relay in Moyabi, Gabon on 11.800 — their signal was noted by Darran Taplin as SINPO 33433 at 2300.

Radio Clarin, Dominican Republic is one of the less frequently mentioned stations — Alexander Little heard their broadcast to C America in Spanish on 11.700 at 2100 and noted SINPO 32322 in his log. He also heard Radio Globo in Rio, Brazil broadcasting in Portuguese on 11.805, noting 33333 at 2048. Another station that is seldom mentioned by DXers was logged by Darran Taplin, namely Radio Marti — they broadcast in Spanish to C. America and the Caribbean via Greenville, E USA on 11.930 at 2207.

There are many broadcasters in all continents using the **9MHz (31m)** band at some time during the day or night. Radio Australia broadcast direct to Europe on 9.655 via their Shepparton station in SE Australia from 0700 until 1030. The reception of this transmission is generally very good in the UK just now — the SIO

444 noted by George Morley at 0845 being a typical rating! Their *Talk back* programme and *DXers Corner* on Sunday mornings have been attracting the attention of **Keith Wakelin** in Hull — he says, "I like Radio Australia for its great programmes which I really enjoy". Radio Australia's broadcasts to the Pacific area on 9.580 and to SE Asia on 9.770 have been monitored in Torquay on a daily basis by George Hewlett, noting 9.580 as SIO 434 at 0800 and 9.770 as 434 at 1000.

The broadcasts from Radio HCJB Quito, Ecuador on 9.845 from 0700 until 0830 are popular with many listeners — **Leslie Lyon** noted their signal as SIO 444 in Scarborough and says he enjoys their *Happiness Is* series which follows their world and local news bulletin. Using a Realistic DX-360 receiver in Sheffield, **Cyril Kellam** has been keeping up to date with events in Iran by listening to VOIRI, Tehran 9.022 at 1930. In Bishops Stortford, **John Sadler** logged several more of the broadcasts to Europe during the evening — Radio Sophia, Bulgaria 9.700 at 2030; REE via Araganda, Spain 9.765 at 2030; Radio Cairo, Egypt 9.670 at 2100; Radio Bucharest, Rumania 9.690 at 2100; Radio Beijing, China 9.850 at 2100; VOFC Taipei via Okeechobee, Florida 9.455 at 2200 and Vatican Radio, Rome 9.615 at 2205.

Reception on the **7MHz (41m)** band is often marred by adjacent and co-channel interference caused by overcrowding. Some of

the early morning broadcasts received from the USA include WYER via Okeechobee, Florida 7.355, logged by **Ian Curry** as SINPO 54444 at 0741 in Stockton-on-Tees and WHRI South Bend, Pa 7.335, noted as SINPO 35343 at 0953 by **Bob Wilson** in Newcastle-upon-Tyne.

There are many broadcasts to Europe during the day. TWR Monte-Carlo, Monaco 7.105, logged by Robert Taylor as SIO 433 at 0815, may be heard from 0625 until 1000. Radio Australia broadcast direct to Europe on 7.205 from 1530, but adjacent channel interference often makes reception poor until later — Neil Dove noted SINPO 44544 at 1810. Some of those noted during the evening include Radio Beijing, China 7.820 (Russian, Bulgarian and Hungarian 1800-2155) — logged as SIO 434 by Philip Rambaut; Radio Korea, Seoul, S. Korea 7.550 (Arabic/German/English 1800-2030) — noted as SINPO 33453 at 1905 by John Parry; All India Radio 7.410 (English 1845-2330) — noted as SINPO 54443 by Neil Dove at 2100.

There are many interesting stations using the **6MHz (49m)** band throughout the day and night. Bob Wilson says he considers his best catches this month were two Labanese stations, namely King of Hope, S. Lebanon 6.280, noted as SINPO 22232 at 2100 (Arabic/English/Russian to Middle East 0300-2300) and Voice of Lebanon, Beirut 6.548, noted as 34343 at 2237 (Arabic/French/English to Middle East 0315-2230).

Radio Australia beam their programmes to Europe on 6.035 via Carnarvon W. Australia from 1530 until 2040 and George Hewlett says their signal often peaks SIO 433 around 1600. While listening to their programmes in Cardiff, John Berridge has been experiencing adjacent channel interference from VOA via Woolferton, UK on 6.040 between 1700 and 2100 and this has also been noted in some other areas of the UK too.

Station Addresses

BBC Radio Guernsey, Commerce House, Les Banques, St. Peter Port, Guernsey, Channel Islands.

ILR Saxon Radio, Long Brackland, Bury St. Edmunds, Suffolk, IP33 1JY.

Radio Kuwait, Ministry of Information, P.O. Box 397, Safat, State of Kuwait.

World International Broadcasters WINB, P.O. Box 88, Red Lion, PA. 17356, USA.

Radio TV Togolaise, Boite Postale 434, Lome, Togo.

Zimbabwe Broadcasting Corp., P.O. Box HG 444, Highlands, Harare, Zimbabwe.



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WHAT RECEIVER

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Communications Receiver



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- **MODES:** f.m. wide/f.m. narrow/a.m. upper/s.s.b. lower.
- **SENSITIVITY:** f.m., $0.5\mu\text{V}$ for 12dB SINAD; f.m. narrow, $0.5\mu\text{V}$ for 12dB SINAD; f.m. wide, $1.0\mu\text{V}$ for 12dB SINAD; s.s.b., $0.3\mu\text{V}$ for 10dB SINAD; a.m., $1.0\mu\text{V}$ for 10dB SINAD.
- **RESOLUTION:** 0.1, 1, 5, 10, 12.5 and 25kHz.
- **SELECTIVITY:** f.m. narrow, 6kHz at -6dB; f.m./a.m., 15kHz at -6dB; f.m. wide, 150kHz at -6dB; s.s.b., 2.8kHz at -6dB.
- **IMAGE REJECTION:** >60dB.
- **IF REJECTION:** >60dB.
- **SPURIOUS REJECTION:** >60dB.
- **FREQUENCY STABILITY:** ± 5 p.p.m. at 0°C to +50°C.
- **AUDIO OUTPUT:** 2.5W at 8Ω at 10% distortion.
- **IF FREQUENCY:** Multiple i.f.s. between 455kHz and 9MHz depending on mode.
- **FEATURES:** dual-colour fluorescent display, dial lock, noise blanker, attenuator, display dimmer, S-meter.
- **PRICE:** about £960.

KENWOOD R-2000
Communications Receiver



- **COVERAGE:** 150kHz to 30MHz.
- **MODES:** a.m./f.m./c.w./s.s.b.(u.s.b., l.s.b.).
- **SENSITIVITY:** 150kHz to 2MHz s.s.b./c.w., $2\mu\text{V}$; 2MHz to 30MHz a.m., $4\mu\text{V}$.
- **RESOLUTION:** 50Hz, 500Hz, 5kHz.
- **SELECTIVITY:** a.m. wide, 6kHz at -6dB, 18kHz at -50dB; s.s.b./c.w., 2.7kHz at -6dB, 5kHz at -50dB.
- **IMAGE REJECTION:** >70dB.
- **IF REJECTION:** >70dB.
- **SPURIOUS REJECTION:** >60dB.
- **FREQUENCY STABILITY:** ± 300 Hz for first hour, ± 50 Hz after.
- **AUDIO OUTPUT:** 1.5W at 8Ω and 10% distortion.
- **IF FREQUENCY:** Triple conversion: 48.85MHz, 9.85MHz and 455kHz.
- **FEATURES:** 50Hz step digital v.f.o., 10 memory freqs., memory scan, programmable band scan, lithium battery memory backup, fluorescent digital display, dual 24hr quartz clocks, 3 built-in i.f. filters, all-mode squelch circuit, noise blanker, r.f. step attenuator, S-meter.
- **PRICE:** about £640.

YAESU FRG-8800
General Coverage Receiver



- **COVERAGE:** 150kHz to 29.999MHz.
- **MODES:** a.m./c.w./s.s.b.(u.s.b., l.s.b.)/f.m. narrow.
- **SENSITIVITY:** 150kHz to 1.6MHz a.m., 30μV/50Ω; 1.6 to 29.999MHz s.s.b./c.w., 0.4μV/50Ω.
- **RESOLUTION:** 100Hz
- **SELECTIVITY:** a.m., 6kHz at -6dB, 15kHz at -50dB; s.s.b./c.w., 2.7kHz at -6dB
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** ± 300 Hz during first ½hr, 50Hz during any 30min period after warm-up.
- **AUDIO OUTPUT:** 1.4W at 8Ω and 10% distortion.
- **IF FREQUENCY:**
- **FEATURES:** 8-bit c.p.u. keypad for digital freq. entry, 12 internal memories, multi-function scanner, noise blanking, dual 24hr clocks, all-mode squelch, tone and attenuation.
- **PRICE:** about £640.

ICOM IC-R71E
General Coverage Receiver



- **COVERAGE:** 0.1MHz to 30MHz.
- **MODES:** a.m./c.w./u.s.b./l.s.b./RTTY.
- **SENSITIVITY:** s.s.b./c.w./RTTY, $0.15\mu\text{V}$ for 10dB s+n/n; a.m., $0.5\mu\text{V}$; f.m. (optional), $0.3\mu\text{V}$ for 12dB SINAD.
- **RESOLUTION:** 10Hz, 50Hz, 1kHz.
- **SELECTIVITY:** s.s.b./c.w./RTTY, 2.3kHz at -6dB, 4.2kHz at -60dB; c.w. narrow/RTTY narrow, 500Hz at -6dB, 1.5kHz at -60dB; a.m., 6kHz at -6dB, 15kHz at -50dB; f.m. (optional), 15kHz at -6dB, 25kHz at -60dB.
- **IMAGE REJECTION:** >60dB.
- **IF REJECTION:** >60dB.
- **SPURIOUS REJECTION:** >60dB.
- **FREQUENCY STABILITY:** 200Hz after switch-on to 60min., 30Hz after 1hr.
- **AUDIO OUTPUT:** >2W.
- **IF FREQUENCY:** Multiple i.f.s. depending on mode. 70.45MHz, 9MHz and 455kHz.
- **FEATURES:** f.m. (optional).
- **PRICE:** about £825.

KENWOOD R-5000
Communications Receiver



- **COVERAGE:** 100kHz to 30MHz
- **MODES:** c.w./s.s.b./a.m./f.m./f.s.k.
- **SENSITIVITY:** 1.8 to 30MHz s.s.b./c.w./f.s.k., $0.25\mu\text{V}$; 500kHz to 1.8MHz a.m. (30% mod.), $32\mu\text{V}$.
- **RESOLUTION:** 10Hz
- **SELECTIVITY:** s.s.b./c.w./f.s.k., 2.4kHz at -6dB, 4.4kHz at -60dB; a.m., 6kHz at -6dB; f.m., 25kHz at -50dB.
- **IMAGE REJECTION:** 1.8 to 30MHz, >80dB.
- **IF REJECTION:** 1.8 to 30MHz, >70dB.
- **SPURIOUS REJECTION:** >80dB.
- **FREQUENCY STABILITY:** ± 10 p.p.m. or better.
- **AUDIO OUTPUT:** 1.5W at 8Ω and 10% distortion.
- **IF FREQUENCY:** Double conversion: 58.1125 and 8.83MHz. Triple conversion on f.m.: 455kHz.
- **FEATURES:** 10Hz step dual digital v.f.o.s, micro controlled digital p.l.l., 100 memory channels, memory scroll, memory and programmable band scan, selectable i.f. filters, noise blanker, dual 24hr quartz clocks, r.f. attenuator, lithium battery memory backup, keyboard freq. selection.
- **PRICE:** about £895.

JRC NRD-525
General Coverage Receiver



- **COVERAGE:** 90kHz to 34MHz (optionally to 456MHz in steps).
- **MODES:** RTTY/FAX/c.w./s.s.b.(u.s.b., l.s.b.)/a.m./f.m.
- **SENSITIVITY:** 1.6 to 34MHz c.w., 0.5μV; 1.6 to 34MHz a.m., 2μV.
- **RESOLUTION:** 10Hz, 1kHz, 10kHz, 20kHz.
- **SELECTIVITY:** wide bandwidth >4kHz at -6dB, 10kHz at -60dB.
- **IMAGE REJECTION:** >76dB.
- **IF REJECTION:** >76dB.
- **SPURIOUS REJECTION:** >76dB.
- **FREQUENCY STABILITY:** ± 3 p.p.m.
- **AUDIO OUTPUT:** >0.5W at 4Ω and 10% distortion.
- **IF FREQUENCY:** IF2 - 455kHz.
- **FEATURES:** scan and sweep, electronic tuning (via main control or key pad), noise blanker, S-meter, sidetone input, mute input, transmission monitor, squelch, dimmer, tone control, clock, timer, i.f. notch filter, passband shift.
- **PRICE:** about £1195.

LOWE HF-125
General Coverage Receiver



- **COVERAGE:** 30kHz to 30MHz continuous, optional 150kHz to 26.1MHz restricted coverage.
- **MODES:** a.m./c.w./s.s.b.(u.s.b., l.s.b.). optional D-125 board adds n.b.f.m. and sync. a.m.
- **SENSITIVITY:** s.s.b., $0.3\mu\text{V}$ for 10dB s/n; a.m., $0.7\mu\text{V}$ for 10dB s/n at 70% mod.
- **RESOLUTION:** 1kHz.
- **SELECTIVITY:** At -6dB: 400Hz, 2.5kHz, 4kHz, 7kHz, 10kHz.
- **IMAGE REJECTION:** >89dB.
- **IF REJECTION:** >78dB.

- **SPURIOUS REJECTION:** >75dB.
- **FREQUENCY STABILITY:** +55kHz in first 15 mins., +25kHz in next hour.
- **AUDIO OUTPUT:** 0.75W into int. speaker, 1.25W into ext. 4Ω speaker.
- **IF FREQUENCY:** IF1- 45MHz, IF2 - 455kHz.
- **FEATURES:** tuning step size increases with faster knob rotation, permanent in-circuit noise blanker.
- **PRICE:** HF-125, £375; D-125, £59.50; K-125, £59.50; P-125 Portable Pack (internal NiCads, charger and active whip antenna), £69.50.

WHAT RECEIVER

PANASONIC RF- B60 Portable Receiver



- **COVERAGE:** l.w. — 155-519kHz, m.w. — 522-1611kHz, s.w. — 1.615-29.999MHz, f.m. — 87.5-108MHz
- **MODES:** a.m. and f.m.
- **SENSITIVITY:** +21dBµV at 3MHz
- **RESOLUTION:** 5kHz steps on s.w., 9kHz on m.w. and l.w., 100kHz steps on v.h.f. f.m.
- **SELECTIVITY:** 6dB at ±3.1kHz, 60dB at ±6.35kHz
- **IMAGE REJECTION:** l.w. 50dB (66dB); m.w. 50dB (55dB); s.w. 60dBµ (68dBµ); f.m. 35dBµ (44dBµ)
- **IF REJECTION:** l.w. 60dB (71dB); m.w. 60dB (68dB) s.w. 60dBµ (69dBµ); f.m. 80dBµ (110dBµ)
- **SPURIOUS REJECTION:** l.w. 70dB (72dB); m.w. 70dB (73dB); s.w. 70dBµ (74dBµ); f.m. 60dBµ (64dBµ). (measured figures in brackets)
- **FREQUENCY STABILITY:** l.w. 0-40°C ± 2kHz; m.w. 0-42°C ± 2kHz; s.w. 0-40°C ± 2kHz; f.m. 0-40°C ± 5kHz
- **AUDIO OUTPUT:** 550mW
- **IF FREQUENCY:** 450kHz, 10.7MHz
- **FEATURES:** S-meter, telescopic antenna, 36 memory channels, digital display, scanning, dual-time clock and alarm, timer, external antenna socket, headphones socket.
- **PRICE:** £170.00

SONY ICF-7600DA Portable Receiver



- **COVERAGE:** f.m. — 87.5-108MHz, l.w. — 150-285kHz, m.w. — 531-1602kHz, s.w.1 — 3.050-3.565MHz, s.w.2 — 3.7-4.215MHz, s.w.3 — 4.65-5.165MHz, s.w.4 — 5.8-6.315MHz, s.w.5 — 6.95-7.465MHz, s.w.6 — 9.375-10.010MHz, s.w.7 — 11.525-12.16MHz, s.w.8 — 13.375-14.010MHz, s.w.9 — 14.975-15.61MHz, s.w.10 — 17.475-18.11MHz, s.w.11 — 21.325 — 21.96MHz, s.w.12 — 25.475-26.1MHz
- **MODES:** a.m., f.m.
- **SENSITIVITY:** +28dBµV at 11.5MHz
- **RESOLUTION:** 5kHz on s.w., 3kHz on l.w., 3kHz on m.w., 50kHz on f.m.
- **SELECTIVITY:** -20dB at ±5kHz, -87dB at ±10kHz
- **IMAGE REJECTION:** 63.5dB on s.w. and m.w. 44.5dB on l.w.
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:**
- **AUDIO OUTPUT:** 400mW
- **IF FREQUENCY:** 10.7MHz
- **FEATURES:** digital and analogue display, clock and alarm, 15 memories, telescope antenna.
- **PRICE:** £159.95

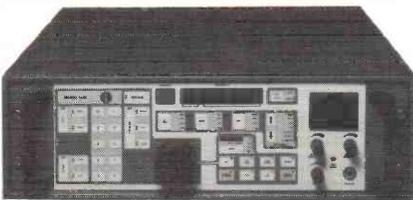
REALISTIC DX-360 Portable Receiver



- **COVERAGE:** l.w. — 150-265kHz, m.w. — 520kHz-1620kHz, s.w.1. — 4.5-5.5MHz, s.w.2 — 5.8-7.5MHz, s.w.3 — 8.2-10MHz, s.w.4 — 11.4-14MHz, s.w.5 — 14.6-18.2MHz, s.w.6 — 21-26.1MHz.
- **MODES:** a.m., f.m.
- **SENSITIVITY:** At -6dB: 600kHz, 250µV; 1000kHz, 250µV; 1400kHz, 250µV.
- **RESOLUTION:**
- **SELECTIVITY:** At 600kHz: 28dB normal 20dB limit; at 1MHz: 30dB normal 24dB limit; at 1.4MHz: 38dB normal 30dB limit.
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:**
- **AUDIO OUTPUT:** 660mW
- **IF FREQUENCY:** 10.7MHz
- **FEATURES:** telescopic antenna, low battery indicator, wrist strap.
- **PRICE:** £59.95

**LOOK OUT FOR WHAT SCANNER
COMING SOON IN SWM**

EDDYSTONE Model 1650 Communications Receiver



- **COVERAGE:** 10kHz to 30MHz in synthesised steps of 5Hz.
- **MODES:** (1650/1) a.m./c.w./u.s.b.; (1650/2) a.m./c.w./u.s.b./l.s.b.; (1650/3) a.m./c.w./u.s.b./l.s.b./i.s.b.
- **SENSITIVITY:** 12dB s/n on s.s.b. for 1µV input.
- **RESOLUTION:** 5Hz.
- **SELECTIVITY:** At -6dB: 400Hz, 1kHz, 2.4kHz, 3kHz, 8kHz, 14kHz.
- **IMAGE REJECTION:** typically 100dB.
- **IF REJECTION:** typically 100dB.

- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** 10 p.p.m. above 1MHz.
- **AUDIO OUTPUT:** line (600Ω), 10mW pre-set; loudspeaker, 1W max. low/medium impedance.
- **IF FREQUENCY:** 1.4MHz.
- **FEATURES:** remotely controllable, variable speed tuning, built-in r.f. front end pre-selector option, scan and sweep facility, 99 programmable memories.
- **PRICE:** On application to Lowe Electronics Ltd.

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3. All letters asking for advice must be accompanied by a stamped, self-addressed envelope (for envelope plus International Reply Coupons for overseas readers).

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LISTEN OUT FOR

GB8EAR: This station will be on the air on October 24 from Hove and is part of the El Alamein Reunion being held at the Great Hove Town Hall, Hove. The station will be using 144MHz.

G2DHV
QTHR

GB8AER: This Special Event Station will be operational from the Winter Gardens, Blackpool to commemorate the British 8th Army at El Alamein. The dates to look out for this station are October 24 to 26 and October 30 to November 1. Apologies for the confusion last month with GB8EAR which also commemorates El Alamein, but from Hove on October 24. GB8AER is organised on behalf of the Royal Signals Amateur Radio Society who would like to work other RSARS/RAFARS and RNARS members.

G2DHV
QTHR

ON4CLM: This station will be on the air from October 26 to November 3 from the "Radioschack Eastcoast" in Knokke, Belgium and is part of the celebration of the Canadian Liberation Movement which resulted in Knokke being liberated, at great cost of Canadian life, on 1 November 1944. Each year the Canadians are remembered with ceremonies, festivities and a "Canadian Liberation March" over a distance of 37km. The station will be using 144.475MHz f.m.; 3.515, 7.012, 14.020, 21.020, 28.020 and 144.020MHz c.w. and 3.685, 7.045, 14.145, 21.245, 28.545 and 144.250 s.s.b.

**Have you Got a
Special Event Station
we should know about?
If so, write and tell us**

As well as the Special Event Station, a magnificent six-colour award is available for all contacts with ON4CLM, and this year's award features the "Queen's Own Rifles of Canada". Each successive year honours one of the nine Canadian regiments that

participated in the liberation of Knokke. The award costs £2.00, \$5.00, 10 IRCs or equivalent, with all proceeds going towards a welfare fund which maintains memorials, displays, etc.

Limited quantities of the '83, '84, '85 and '86 awards are still available for those wanting to collect the entire series. For QSLs, awards or additional information write to:

Radio ON4CLM
PO Box 140
8300 Knokke
Belgium

1944 1987

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REMEMBER  1 NOVEMBER



RALLIES

★ SWM will be in attendance.

★ **October 23/24:** The Leicester Amateur Radio Show is being held in the Granby Halls, Leicester.

Frank Elliott G4PDZ
Leicester 553293

★ **November 1:** Computercations '87 is being staged by the Torbay Computer Association and the South Devon Radio Club at Brixham Community College, Higher Ranscombe Road, Brixham. Admission will be 50p for adults and 25p for children OAPs and UB40s. There will be demonstrations on Satellite communications/weather satellites/UoSat, etc as well as amateur radio, packet, AMTOR, RTTY and ATV.

Ian Chipperfield
Brixham 59224

November 1: The Carmarthen ARS Exhibition and Rally is being held in the Leisure Centre, Johnstown, Carmarthen. Doors open at 10.30am. Attractions include trade stands, flea market as well as a cafe and bar.

GW3GUE
Tel: 026 783 460

★ **November 7/8:** The North Wales Radio Rally will be held at the Aberconwy Conference Centre, Llandudno, Gwynedd.

Derrick Watts
Colwyn Bay 530041

November 7: The Seventh North Devon Radio rally is to be held in Bradworthy Memorial Hall, near Holsworthy, Devon. Doors will be open from 10.30 a.m. to 5.00 p.m. All the usual attractions including a bring & buy stand. Talk-in will be provided on S22.

K. J. Nichols G8MXI
QTHR

November 15: The Bridgend & District RC are holding their rally at the Bridgend Recreation Centre, Angel Street, Bridgend. Doors open at 11am (10.30am for the disabled). Free parking, a bring and buy, Morse tests (pre-booked with RSGB), bar facilities and talk-in on S22.

Dave George GW10UP
0656 723508

★ **November 22:** The West Manchester RC Winter Rally takes place in the Pembroke Halls, Walkden. Doors open at 10.30am. They say all the usual traders and features will be there. Talk-in will be provided on S22.

G1100
Tel 0204 24104

★ **December 6:** The Verulam Christmas Rally will be held at St Albans City Hall. Doors open 11 am.

S. C. B. Dunning
0923 52959

March 20 1988: The Tiverton SW Radio Club are holding The Mid Devon Rally at the Pannier Market, Tiverton. There is easy access from junction 27 of the M5 and excellent parking facilities on site. There will be two halls of trade stands, a bring and buy and a mobile snack bar. Talk-in will be on S22.

G4TSW
Mid Devon Rally
PO Box 3
Tiverton

July 15-17: The RSGB 75th Anniversary National Convention will take place at the National Exhibition Centre, Birmingham. RSGB HQ can give you more details.

July 28-31: The AMSAT-UK Colloquium will again be held in the University of Surrey, Guildford.

G3AAJ
Tel: 01-989 6741

August 14: The 1988 Derby Mobile Rally will take place at their usual venue of Lower Bemrose School, St Albans. Doors open at 11am and more details will be available as the day draws closer.

G3KQT
QTHR

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Hello, what's this then? The new Sony Shortwave radio.

Not exactly imposing, is it?

What happened to all the knobs and dials...serried ranks of

valves, throbbing into the night...dirty great drums of copper wire humming away like there's no tomorrow - it hasn't even got a cats whisker!

Oh, well...better have a look at the old instruction book. 'The Sony Computerised World Band Receiver.' There's never a computer in there!

What else has

it got...dual display panel, yes, yes, get on with it...oh, a 15 station memory. Wonder if it remembers where I left me mother-of-pearl cuff-links?

Now then. 'First switch on.' Oh, very droll I'm sure...time for a fag while it warms up...hello, it's going already...

How peculiar. Right, a quick whizz round the dial for a basin full of the old hum and whistle, just to set the mood.

"Good Evening, this is Radio New Zealand."

Get off the line you great Antipodean fool!

I haven't had a good crackle yet.

"Sayonara, and welcome to Japan Today."

Oh, this is hopeless. I ask you. Where's the romance, the adventure? Switch on, tune in and bang, you've got

the Kenyan Top 40, clear as a bell.

Where's the fun there?

You can keep your phased loop lock, your crystal clear reception and easy

tuning.

No, no,

no, sorry Sony. Give me a room full of watts, a coat-hanger aerial and a set hot enough to cook your breakfast on. I don't know...oh dear, oh dear...



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