

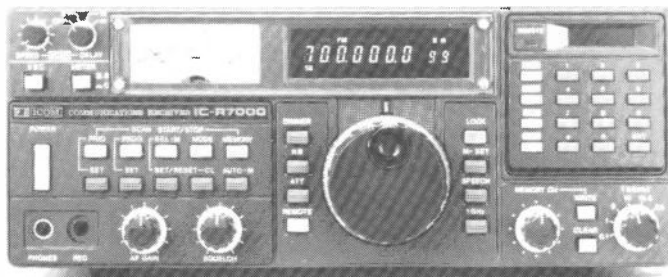
ICOM

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 HP1 headphones.



Other features include dial-lock, noise blanker, attenuator, display dimmer and S meter and optional RC-12 infra-red remote controller, voice synthesizer and HP1 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 1400-17 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

I141 Conference Report



Cover This year the European DX Council's annual conference was held in Helsinki, capital city of Finland. Our cover depicts some of the colourful stickers Simon Spanswick collected at the conference.

Unfortunately Chas. E. Miller's article "Another Mystery Marconi Receiver" has had to be held over through lack of space.

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Short Wave Magazine

SWM Review (Datong Active Antenna)	10	<i>Ken Michaelson G3RDG</i>
EDXC Conference Report	14	<i>Simon Spanswick</i>
Trombone Antenna Tuner	20	<i>A. H. Robson</i>
Antennas for Scanners	22	<i>Alec Wood BSc G8WHR</i>
Introduction to DXTV Part 1	26	<i>Keith Hamer & Garry Smith</i>
SWM Review (Sony ICF 7600DA Receiver)	28	<i>Peter Shore</i>
New Russian Satellites	33	<i>Pat Gowen G3IOR</i>
Special Event Station GBONBB	52	<i>D. F. Kitchen</i>

REGULARS

First Word	2	<i>Editorial</i>
A Word in Edgeways	2	<i>Your Letters</i>
What's New	3	<i>Latest News & Products</i>
Bookcase	6	<i>Reviews</i>
Grassroots	8	<i>Club News</i>
Rallies	12	<i>Where to Go</i>
Bandscan	18	<i>Broadcast Station News</i>
Coming Shortly	21	<i>Next Month's SWM</i>
Airband	31	<i>Aeronautical Radio News</i>
Starting Out	35	<i>For the Beginner</i>
Book Service	50	<i>Order Your Technical Books</i>
Listen Out For	52	<i>Special Event Stations</i>

SEEN & HEARD

Amateur Bands Round-Up	37	<i>Justin Cooper</i>
Decode	38	<i>Mike Richards G4WNC</i>
Info in Orbit	39	<i>Pat Gowen G3IOR</i>
Band III DX	41	<i>Ron Ham</i>
Television	42	<i>Ron Ham</i>
Long Medium & Short	45	<i>Brian Oddy G3FEX</i>

FIRST WORD

In this issue we have a wide variety of interesting articles for you. Alec Wood discusses the types of wide band antennas designed for use with scanners and gives details of a simple design of discone easily constructed from readily available materials such as card and kitchen foil. Although only suitable for indoor use it should prove to be a useful project for the scanner user.

The trombone tuner is one of the simplest forms of antenna tuning unit and again can be easily built from surplus material. The design described in A. W. Robson's article is unusual in its approach



to obtaining a smooth, fine tuning control.

DX-TV is a rapidly growing part of the listening hobby and Keith Hamer and Garry Smith start their series aimed at the newcomer who wants to find out more about this fascinating topic.

If you are one of the many readers who find the airbands fascinating listening then you will be pleased to read Godfrey Manning's new column dealing with this subject. "Airband" will be a regular feature, as long as Godfrey receives the necessary feedback from you. So, if you really want this subject to be covered on a regular basis, get the letters in the post.

DICK GANDERTON

A WORD IN EDGEWAYS

Sir

I read the letter from Gary Marshall concerning pirate broadcasting and sincerely hope that SWM will not be tempted to give any publicity by mentioning the broadcasts from clandestine left wing stations. I find it abhorrent for him to suggest that anyone should listen to the likes of the Sinn Fein station, for example, dedicated as that organisation is to violent revolution.

As you commented in effect, anyone can listen to anything in the privacy of their own home. If they want to listen to the kind of station mentioned by Mr Marshall, bully for them. However SWM is a radio hobby magazine and I do not think it should even mention any broadcasts by any group dedicated to violence, whether to the left or right of the political spectrum.

In my long experience of writing for amateur radio orientated publications, the vast majority of readers very quickly get upset if you start getting even mildly "political". Appreciating the fact that this country is very approximately divided 50/50 conservative/socialist, the moment you start mentioning one side, you will alienate half your readers, some all too ready for an excuse to cancel their subscriptions. For my part, having been a reader of Wireless World since 1944, I finally cancelled my order when some little Hitler in the editorial office started to preach to electronics engineers that they should have nothing to do with "the bomb" and kindred matters.

An increasing number of

countries seem to have thrown in the towel regarding administration of the radio/TV spectrum. Deregulation is the name of the game, this country not excluded. Consequently pirate stations are springing up all over using poor equipment and putting out "sprogs" all over the spectrum.

You may know that our 50MHz band is under grave threat from the French who are establishing a whole new network of private TV stations using Channel E-2. Called "Cannel Plus" these broadcast up to 21 hours a day and from late evening the menu is hard porn, according to a reliable informant. I trust that this sort of broadcasting will not get a mention in SWM? The only saving grace is that these transmissions are encoded.

NORMAN FITCH G3FPK
PURLEY

Sir

With reference to your request for readers' views on the reporting of clandestine/irate broadcast stations, I would like to make the following comments.

Pedantically, there is surely no difference between reporting readers' activities monitoring such transmissions and the reports, freely carried, of monitoring aircraft and weather satellites; all are in breach of the authorisation to listen to "authorised broadcast stations and licensed radio amateurs". When an acquaintance of mine wished to monitor, I think aircraft

transmissions as part of the preparation of a thesis on v.h.f. propagation he was issued with a special licence, (albeit free of charge), to listen to them. Admittedly that was about twenty years ago, but I believe the situation still obtains.

Turning to the clandestine aspect in particular, I personally do not see the attraction in what smacks of voyeurism; maybe having first become interested in radio between the wars produced an unhealthy tendency to obey the rules, archaic though they may be.

J. W. BARKER
RUGBY

Sir

With reference to Gary Marshall's letter in "A Word in Edgeways", July '87 issue. In my opinion there should be no place under any heading in Short Wave Magazine for the regular reporting of pirate activity, under whatever name, as suggested by Mr Marshall.

I wonder what the thousands of pirate "side-banders" would think of a published list giving QTH, etc., would they "be amazed"?

EDWARD SIRAM
EASTBOURNE

Gary Marshall's letter on the subject of the reporting of clandestine, rebel and pirate broadcast stations obviously got a lot of you reaching for your pens. So far nobody has written agreeing with Gary,

but it is interesting that most of the arguments against SWM carrying such items seem to be based on moral, rather than the legal, issues.

I, personally, think that there are differences between the clandestine and pirate stations and some other forms of broadcasts which are popularly listened to. The difference being that you will never be able to obtain permission, in the UK certainly, to listen to the pirates, whereas you could, possibly, obtain such permission for receiving news, aircraft, weather, Russian satellite TV, etc. It might take you a lot of hassle, letter writing and string pulling, but it can, and has been, done.

What you do in the privacy of your own home is of no consequence to anyone else, just as long as you do not offend other people by disclosing your foibles. SWM is not interested in the politics or moral issues behind any broadcast station, but obviously they exist and readers know they exist. In many cases it is difficult to get away from them and, depending on where you originate from, a station will either be acceptable or unacceptable. Perhaps if you come from some parts of the Middle East you might find the American religious stations obnoxious. It would never do to alienate a large section of readership to keep a small minority happy.

Keep your letters coming, a lively letters section helps to keep a magazine interesting to its readers. ED

A WORD IN EDGEWAYS

Sir
Having just finished reading "The Grey-line DX Path" article in the June '87 issue of SWM I would like to make the following observations.

Although GW3YDX gives a few references he omits 80m DXing, a book by ON4UN, which contains the formulae he uses. In this book reflections are also quoted as being from the "E" layer, and GW3DX repeats this, but a few calculations give rise to the feeling that it must surely be "F" layer reflections. The "E" layer is just too low to support the distances often covered, and dissipates too quickly to be of much use.

No mention is made of how to calculate "a", the inclination of the earth. May I suggest the following formula: $a = 22.5 \sin(360f - 90)$ where f is the number of days into the year, from Jan 1, divided by 365.25 and the value of "a" is in degrees.

The formulae used in the article are very approximate, giving errors of up to ± 20 minutes at some latitudes. The trap is that checking them at UK latitudes gives quite precise answers and it is only when they are checked with other stations that the limitations are seen. These accuracy limits effectively preclude the formula being

used for anything as precise as the G - ZL path on 160m. I used these formulae in an article published in SWM Oct. '82, but pointed out the limits and also gave a program listing which gave the duration of any "dark" paths, plus long/short path indication. A line-by-line explanation of the text mode program was given, and several s.w.l.s. reported ease of conversion to other makes of computer.

Incidentally, if values of latitude above 67 degrees are entered into the simple formula shown in the article the program will crash — above these latitudes there are occasions when the sun never

sets!

More precise formulae can be found in the following:

Amateur Radio March 1986
Byte June 1981
Astronomy April 1984
NAO Technical Note 46
(Royal Greenwich Observatory)

It may seem that this letter is somewhat scathing of GW3YDX, although it is not intended to be. His article remains a good foundation course on the technique, especially given its undoubted simplicity, but readers should be aware of the limitations of such a simplistic approach.

DAVID J REYNOLDS G3ZPF
KINSWINFORD

WHAT'S NEW

News from Friedrichshafen

The recent Ham Radio exhibition in Friedrichshafen, W. Germany, yielded some interesting news for the short wave listener. The trend for ham radio gear to include general coverage receivers has meant that more hams, especially in the product industry, are aware of s.w.l.'s needs, reported Peter Laughton on his return.

Sony launched their new PRO-80 hand-held portable receiver. This is a follow-up to their AIR-7 "walkie-talkie" style portable, but with far more features. This covers 150kHz to 108MHz continuously with modes s.s.b., a.m. Wide, a.m. Narrow, f.m. and n.b.f.m. By fitting a separate battery operated converter on top of the antenna socket, the coverage extends further to 220MHz, again continuously. A switch inside the PRO-80 allows you to compensate for the frequency shift of the converter. The correct frequency is therefore displayed on the l.c.d. digital readout. The s.s.b., and a.m. modes work throughout the coverage range. m.b.f.m. and f.m. modes are offered on selected sections only, though there is overlap. Provision is made for the connection of an external antenna, though the unit we purchased performs adequately on the telescopic whip. Short wave performance is similar to the ICF2001D, but there is no provision for synchronous detection. There are 40 channels arranged in 4 banks of 10, and three useful scanning modes. Curiously though, there is no signal strength meter. The small internal speaker provides surprisingly good fidelity, though quality through the headphones is better for f.m. The PRO-80 is currently retailing in the UK for £349.95.

One West German company has specialised in making converters for the Icom ICR7000 and Yaesu FRG-9600 receivers. The units plug into the antenna socket, and extend the coverage of these scanner receivers down to 150kHz. The cost is in the region of £110.

There was little new in the antenna front except news that a firm in Darmstadt is busy with a special magnetic loop antenna for the s.w.l. The idea of building something to detect the magnetic component of a radio wave,

rather than the electrical part is not new. Designs were first built at the start of the century. Currently quite a few military and some civil listening stations make use of the magnetic loop, though prices begin around £12,000. The Kaerlein company has made and marketed magnetic loops for the ham radio market for the last 6 years, and is now enjoying some success. But since the loops need to be large to cope with the transmitting power put into them, the price is beyond the range of the s.w.l. Later this year the company plans to market a magnetic loop covering 3 to 30MHz. It offers an extremely high Q, and as a result, strong signals from nearby broadcast bands do not swamp the input circuits of the receiver. If the product available later this year meets the standard of the demonstration in Friedrichshafen, we'll run a more detailed, independent test in SWM.

Perhaps the most handy unit for someone with a communications receiver was a double notch filter from G. Kierker of Dissen, West Germany. The unit plugs into a communications receiver's loudspeaker output. An extra loudspeaker or headphones is also needed. The double audio notch makes it possible to filter out radio-teletype signals from a weak 60 metre broadcast station catch, something which is quite common when DXing. On the other hand, you can also use the unit to peak c.w. or RTTY signals for utility monitoring, thereby improving the copy quality. The unit we purchased and tested worked very well, though it is quite expensive — DM299 including the built-in power supply. The filter covers a bandwidth of 100 to 4500Hz, an improvement for the broadcast listener. Most commercial notch filters only offer a single notch and restricted bandwidth coverage, usually up to 2.7kHz.

Ten thousand visitors went to the Ham-Fest, often combining the trip to the fair with a family holiday on Lake Constance. The weather proved disastrous this year, but the meeting was a great success. The quality of the display stands, and the professional approach to what is both a hobby and a service was a pleasant surprise. Short wave broadcast listeners can only benefit from a healthy consumer electronics industry.



Radio Australia

Mr G. E. W. Hewlett is an official monitor to Telecom Australia's Broadcasting Directorate and has sent us some very interesting snippets.

The photograph shows Barry Seeber, one of Radio Australia's announcers and broadcasters. He is also co-presenter of the stations short wave listeners corner. *Talkback* each weekend. He also does a late-night stint at the microphone during the week.

The recommended frequencies to hear the ionospheric conditions and its effect on short wave reception report are:-

17.715MHz at 0100 - 0900UTC
11.910MHz at 0400 - 0630UTC
9.995MHz at 0700 - 1030UTC
7.205MHz at 1430 - 2030UTC
6.035MHz at 1430 - 2030UTC

The reports are broadcast Mondays to Saturdays at 0425, 0825, 1225, 1625 and 2025UTC.

Currys Enter SW Radio Market

Currys, the well-known High Street electrical retail chain, are to enter the short wave radio market with a keenly priced, attractively specified receiver, to be marketed under their own brand — Matsui.

The MR4099 is billed as a "World Radio Receiver" and offers a.m. coverage continuously from 150kHz to 30MHz, f.m. from 87.5 to 108MHz, l.w. from 150 to 281kHz, m.w. from 520 to 1620kHz and twelve s.w. broadcast bands. A b.f.o. is provided as well as an r.f. gain control so that s.s.b. and c.w. signals can be resolved. The f.m. broadcast section is fitted with stereo if required — to the headphone socket, of course, not the single speaker! For a.m. use the filters can be switched between wide and narrow.

Tuning can be either from the keypad or the rotary knob on the side of the set and scanning facilities are also provided. Nine memories are available for storing stations and in addition the last station tuned is also stored.

The liquid crystal display shows the frequency tuned, together with other details such as mode and band. It reverts to displaying time after a set period. The clock can also be used as a timer or alarm.

The set is powered by internal batteries — six IEC R20 cells for main power and two IEC R6 cells for m.p.u. and memory back-up. Alternatively a 9V d.c. mains power supply can be used to save on batteries.

The launch date is set for August 1 and the price is to be £129.99. *Short Wave Magazine* has been supplied with a pre-launch set and this will be reviewed in the September issue.

Currys Ltd
46-50 Uxbridge Road
London
W5 2SU

ILA

The International Listener's Association have sent us some copies of their Newsletter, which have made interesting reading.

In the June 1987 issue they announced their 200th members. The Association was formed to create a link between listeners throughout the world, regardless of affiliations or special interests. The idea is to foster a free exchange of ideas, techniques and general information between its members.

The Newsletter is published quarterly and contains items of general interest, news of forthcoming events, new memberships and submitted items. Information sheets on specialist subjects within the hobby are usually issued with the Newsletter.

The awards they issue are regarded as a means of improving listening techniques.

The membership fees are intended to cover the costs involved in producing the Newsletter and no administration costs are involved.

Trevor Morgan GW4OXB
1 Jersey Street
Hafod
Swansea
Wales
SA1 2HF

Antenna for Scanners

Waters and Stanton are introducing a wide-band antenna suitable for both listening and transmitting in the v.h.f./u.h.f. spectrum.

Covering the frequency range 105 to 1300MHz, it is a 19-element log-periodic beam capable of handling 500 watts of r.f. with a gain of 11 to 13 dBi.

The front-to-back ratio is 15dB and beamwidth is 60 degrees. Nominal impedance is 50 ohms with a 2:1 v.s.w.r. Boom length is 1.4m, while the longest element is also 1.4m. Weight is 3kg.

The price has yet to be announced, but limited supplies should be available in July.

Waters & Stanton Electronics
18-20 Main Road

Hockley
Essex
SS5 4QS
Tel: (0702) 206835

G3PGA Memorial Trophy

The winner of the Wimbledon & District ARS 1987 Constructors' Contest was G4ZXO for his conversion of p.m.r. equipment to operate on 144MHz using his own design of logic control circuits.

The G3PGA Memorial Trophy, donated by the old South London Mobile Club, was presented to G4ZXO by Susan Dowdeswell, daughter of the late Eric Dowdeswell G4AR. Readers will remember Eric as a regular columnist in *Practical Wireless*, and very well-known, active amateur.



ISWL

The International Short Wave League '87, which commenced operation on 1 January 1987, currently offers to its membership twelve differing DX awards. They are available free to members and are applicable to amateur and broadcast band interests.

The latest issue of the monthly journal *Monitor*, 42 pages plus covers, includes Transmitting Topics, Amateur Bands, Review, a series on Amateur Radio Satellites, TV DXing, Broadcast Bands DXing, Broadcast Scene and Cathy Quest — all about Chinese regional broadcast transmitters.

Each month Broadcast Band members survey a set band, duly reporting results together with other logs, whilst Amateur Band members may submit a Maxilog when endeavouring to gain the DXer of the Month title.

The ISWL '87 I.s.b. net operates every Saturday morning at 1030Z on, or near 3.685MHz. A c.w. net is in process of formation.

Services available to members are a QSL Bureau, Tape Section, Contests and IBIS (ISWL '87 Broadcast Band Identification Service). A range of League supplies may be obtained from HQ.

A membership certificate is issued to all who become members, details available post free (sample copy of *Monitor* 60p) from:

The Hon. Secretary
10 Clyde Crescent
Wharton
Winsford
Cheshire
CW7 3LA

New Sony Short Wave Receivers

Sony have sent details of their latest short wave receivers to hit the market.

The ICF 7600DA is reviewed elsewhere in this issue, but briefly is a 15-band receiver with digital readout, dial pointer and fifteen pre-set stations. It is intended to be a sister to the ICF 7600D but offering the analogue tuning option for those who prefer it. Price is £159.95.

The ICF PRO80 is styled after the well-known AIR-7 airband receiver and offers continuous coverage from 115kHz to 108MHz, (223MHz with the add-on converter), 40 memories, keypad and six-way scan tuning. An auto/manual squelch control is fitted. It can operate on s.s.b., a.m. wide and a.m. narrow on the full coverage with f.m. and n.b.f.m. on selected parts, so it should prove to be a very useful set. Price for this set is £349.95.

The WA 8800 is a short wave radio cassette unit with a ten-band tuner for f.m., m.w. and eight s.w. bands. It is fitted with an l.c.d. alarm clock and auto-reverse stereo cassette deck and two built-in speakers.

According to Yoshi Nagayama, Sony Portable Products Manager, short wave radios are an important part of Sony's business, not least in that the innovations in quality are often translated through the rest of the Sony Range.

Sony (UK) Ltd
Sony House
South Street
Staines
Middlesex
TW18 4PF
Tel: (0784) 67000

WHAT'S NEW

Code Decoder

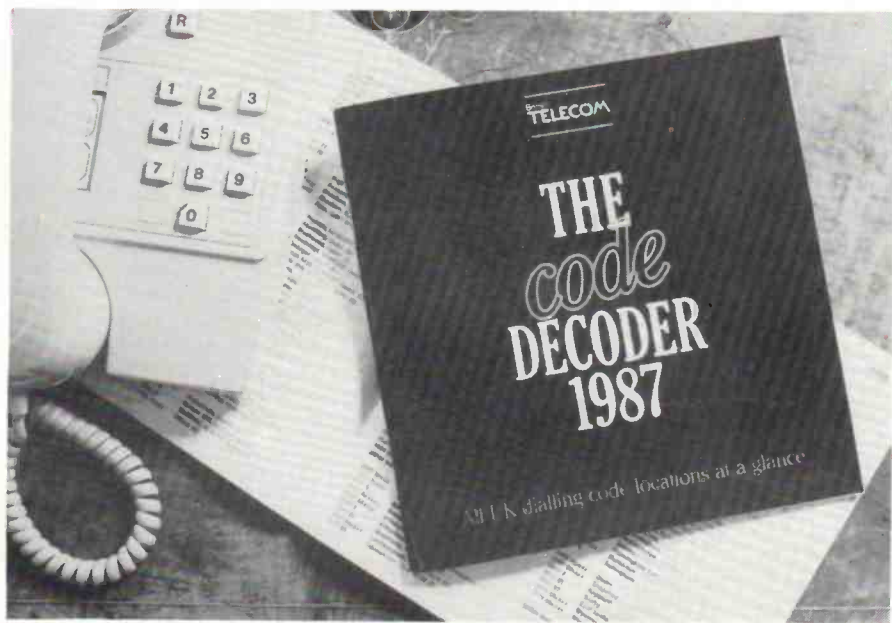
The Code Decoder Book isn't a spy novel, nothing like in fact. It's the 3rd edition of British Telecom's very useful book which saves valuable time in locating the whereabouts of a telephone number.

Very often in advertisements you see an STD code and telephone number but no address. Is it worth ringing up the advertisers, are they too far away? These are all questions that are not very easy to answer, but it could be simple now.

This 72-page book lists the geographical locations of over 300 dialling codes in the UK in numerical order. So you can easily see that 0202 is some where in this part of Dorset, but 0203 is Warwickshire or the West Midlands.

The booklet costs £4.50 including post and packing from:

British Telecom
Cheapside House
138 Cheapside
London
EC2V 6JH



Howes Kits Have Moved

Due to the continued expansion of their product range, they have run out of space at the previous location. The new address is:

C. M. Howes Communications
Eydon
Daventry
Northants
NN11 6PT
Tel: 0327 60178

Media Network

July 23: ANARC Report. From Bali, Indonesia, they fly to Toronto, Canada. Media Network host, Jonathan Marks, will be representing Radio Netherlands at this year's Association of North American Radio Clubs convention in Montreal. The full report on the convention, the personalities and the topics discussed.

July 30: News Update. Reviews include Asian media news with Victor Goonetilleke, who has recently upgraded his listening post in Sri Lanka, they'll also be taking a look at the media bookshelf.

August 6: The Bells of Breda. After some delays (due to the windy weather) the new interval signal is finally digitally recorded and on the air. We look at how the tune was recorded — in fact eight hours of hoisting cables up the church steeple. Why do you need four microphones instead of just a portable recorder on ground level. We also include media news from Arthur Cushen in New Zealand.

August 13: Off-Shore Radio: Past or Present. On the eve of the 20th anniversary of the British Marine Broadcasting Offences Act, they look back at more than 20 years of broadcasting in the North Sea. Is it really filling a gap in 1987? Is it profitable? What makes the enthusiast clubs in Holland, France, Ireland and the UK alive? Media news also from Richard Ginbey in Southern Africa.

August 20: News Update. Including Media News from the WRTH editorial office in Amsterdam.

August 27: Berlin Special. The International Audio and Video Fair opens this week in Berlin, also celebrating its 750th anniversary. They look at what's being shown at the largest consumer electronics show in Europe. There's also media news from Victor Goonetilleke.

RSI

Radio Sweden International broadcasts to Europe on medium wave, to the world on short wave and provides tapes and a telephone service to hundreds of radio stations all over the globe.

On Tuesdays, it's their international telecommunications magazine, *Sweden Calling DXers*. This is the world's oldest DX program still going strong, but right up-to-date with everything from short wave to satellites.

They also produce *The DXers Guide to Computing*. Edition 3.0 covers all aspects of using computers in the radio shack including the latest on packet radio, s.w.l. bulletin boards and computer-controlled receivers in 34 pages. Updates 3.1, 3.2 and 3.3. have also been issued and Update 3.4 is expected to be ready soon. The updates are included with new orders, and are available free of charge to those who already have the guide.

The guide is available for US\$3, £2, DM6, FF20 or 7 IRCs.

Radio Sweden International S-105 10 Stockholm Sweden

Radio Sweden International programmes are broadcast over	
HÖRBY (Mb SW)	two 500 kW transmitters two rotatable log-periodic antennas six curtain antenna arrays
KARLSBORG (Kb SW)	one 500 kW transmitter one rotatable log-periodic antenna
VARBERG (Vb SSB)	one 100 kW transmitter one rotatable log-periodic antenna
SÖLVESBORG (Sb MW)	one 600 kW transmitter on 1179 kHz two antenna towers height 135 m
STOCKHOLM (Sb FM)	one 0.9 kW ERP transmitter on 88.6 MHz covering the Stockholm area

The installations are owned and operated by
SWEDISH TELECOM RADIO
 Broadcasting
 S-123 86 FARSTA
 Sweden

RSI radio sweden
 INTERNATIONAL

New ILR Station

The IBA has been testing a new v.h.f./f.m. radio station for the Shrewsbury and Telford area. From July 14 they have been transmitting the programme service of Beacon Radio, and listeners have been able to hear these programmes together with a service of locally produced programmes, news and information.

Programmes will be broadcast in stereo on 103.1MHz from the existing television transmitting station sited on The Wrekin.

The BBC Radio Show

We have received details of the BBC Radio Show to be held at Earls Court Exhibition Centre, London SW5. The dates are **30 September to 9 October 1988**, so plenty of time to plan your visit.

One feature that will be there is an exhibition "The Story of Radio". This will include the history of broadcasting in general and the BBC in particular. It should also show the future thoughts and plans for each of the networks, including local radio.

Some radio programmes will be transmitted from the site too. Keep a look out on these pages for more information as time goes on.

DXAGB

I have just received the May and June copies of *DXAGB News*, the journal of the DX Association of Great Britain.

The annual subscription to this organisation is £10, but senior citizens can apply for a reduction on producing a photocopy of the cover of their pension book and by filling in an OAP Status Form. This form can be obtained from the Club Secretary.

The newsletters contain all sorts of information, news and views, loggings of broadcast stations, articles of interest (e.g. Free Radio and Getting Started), amongst other things.

For more information you should write to:

Alf Brimming
43 Atwood Drive
Bristol
BS 11 0SR

VHF/UHF AIRBAND FREQUENCY GUIDE

by Bill Laver

Published by Waters & Stanton

Available from Short Wave Magazine Book Service

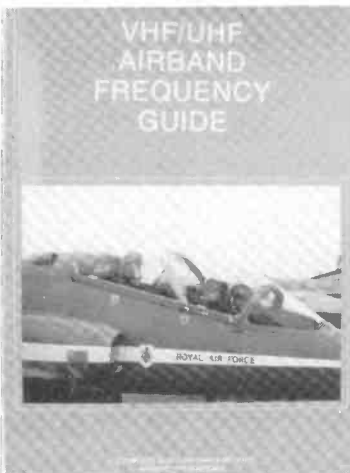
74 pages, 210 x 297mm. £5.95 plus 75p P&P (paperback)

Following the extremely popular series on aeronautical radio, this book will be of great interest to those who enjoy this part of the frequency spectrum.

The book starts by explaining the type of receiver and antenna you need for listening (by the way the writing in this book is larger than normal making reading so much easier). It then goes on to explain all about the frequencies and services you will be able to hear.

The rest of the book is devoted to listings of the aeronautical stations. The chart has columns for the station, the approach frequency, the radar frequency, tower frequency and ground frequency. All the sort of stuff you need to know.

Also included are lots of other



information that is useful when listening around on the aircraft bands.

THE COMPLETE VHF/UHF FREQUENCY GUIDE

by Bill Laver

Published by Waters & Stanton

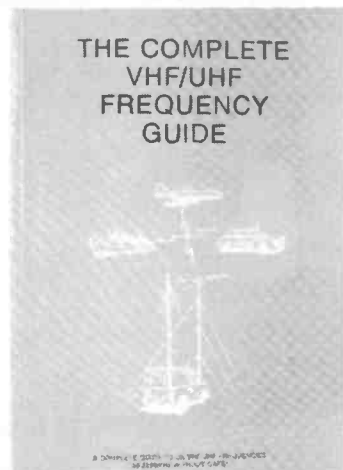
Available from Short Wave Magazine Book Service

210 x 297mm, 60 pages. £4.95 plus 75p P&P (paperback)

This is a complete guide to UK v.h.f./u.h.f. (26-2250MHz) without gaps! Or so the front cover writing exclaims.

In actual fact the book covers much more. It is divided into 11 chapters and chapters 4 to 10 deal with the frequencies. The first three look at the equipment requirements, how this book works and the future of v.h.f./u.h.f. communications.

The seven chapters about the v.h.f./u.h.f. range of the spectrum are dealt with group by group. Most are defined by the users e.g. marine band, aeronautical band, etc., where this is not so easy the book gives a frequency guide. Wherever possible the book gives the frequency and duplex frequency if appropriate and then the user station or service. There are even some interesting American frequencies given in the last chapter.



If you have a scanning receiver then this book could open up a whole world you didn't know existed and could help identify some of the stations you have already heard.

NEWNES COMPUTER ENGINEER'S POCKET BOOK

By Michael Tooley

Published by William Heinemann Ltd

Available from Short Wave Magazine Book Service

94 x 196mm, 203 pages, £8.95 plus 75p P&P (hardback)

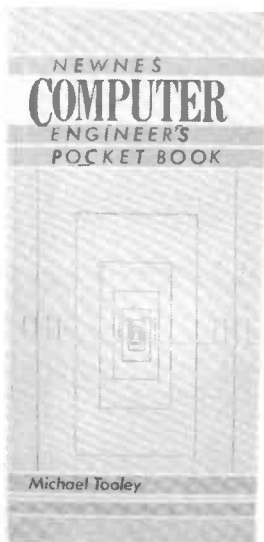
ISBN 0 434 91967 5

Probably one of the biggest stumbling blocks for the newcomer into the world of computers and programming is the jargon. This book has the first section devoted to abbreviations and "jargon". The next section looks at integrated circuit technology, including a functional cross reference for the 7400, 4000 and 4500 series of logic i.c.s. It also includes the pin-out information of the common packages.

The book covers 8-bit and 16-bit c.p.u.s and has brief descriptions for the 6502, 6809, Z80, 8086 and 6800 devices.

Having covered the basic hardware, the next chapters deal with the software side of computing. A very useful section for those into software, is about the decimal/hexadecimal/octal/binary/ASCII conversion table. This is well laid out and easy to interpret, it covers the best part of five pages in the book.

The last section in the book, before the very comprehensive index, deals with high level languages. It even includes some examples of the more common



versions.

Again the book is presented in the standard "Pocket Book" format and is easily carried in the briefcase or pocket.

NEWNES ELECTRONICS POCKET BOOK 5th Edition

by E. A. Parr

Published by William Heinemann Ltd

Available from Short Wave Magazine Book Service

94 x 196mm, 315 pages. Price £8.95 plus 75p P&P (hardback)

ISBN 0 434 91519 X

This book has been in print now for over twenty years, and it has been continually updated over that time. The subjects covered have ranged from valves to semiconductor technology and transistors to microprocessors, in fact the complete sphere of electronics.

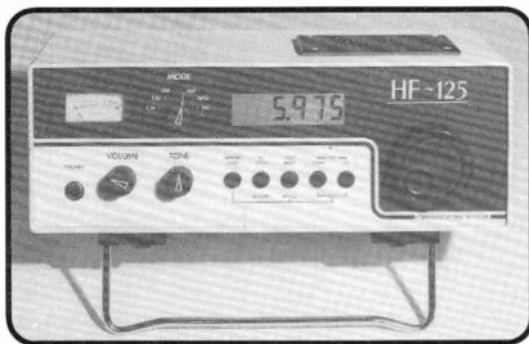
The 5th Edition has chapters on components, i.c.s, amplifiers, oscillators, digital circuits, transducers, power supplies as well as lots of reference data. Each chapter is sub divided into sections, each dealing with a different subject, and each of these subjects are listed in the comprehensive index for easy reference. All the illustrations are well labelled which helps when using the book for studying.

The main aim of the book is the presentation of all aspects of electronics in a readable and largely non-mathematical form for both the enthusiast and the professional engineer. All the information in the book is well

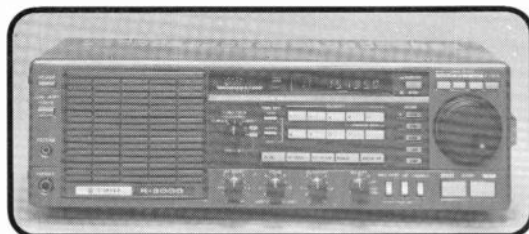


presented and easy to read, as are all the Pocket Book range.

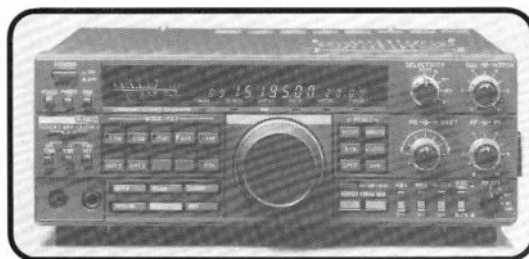
SHORT WAVE RECEIVERS



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R2000



R5000



NRD525

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VC10	VHF converter, adds 118 to 174 MHz	£170.76	£2.50
YG455C	500 Hz CW filter	£116.62	£1.00
R5000	KENWOOD general coverage receiver, 100 kHz to 30 MHz	£895.00	£7.00
Options			
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YK88C	500 Hz CW filter	£48.59	£1.00
YK88CN	270 Hz CW filter	£57.62	£1.00
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SP430	Matching speaker	£43.04	£2.50
VS1	Voice module	£34.02	£1.00
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Lorna Mower

More clubs mentioned again this month. If you do not already belong to a club why not try your nearest one — you will find it interesting and stimulating.

The **Mansfield ARS** have got two h.f./v.h.f. operating nights planned for August 7 and 18 and a talk and demo on microwaves on September 4. They meet on 1st and 3rd Fridays at 7.30pm in the Victoria Social Club, Mansfield. Keith Lawson G4AAH is their secretary and you can contact him on Mansfield 642719 for more details.

There are no formal meetings planned for August at the **Stevenage & District ARS**, but they do have a picnic planned for August 2 at the Woburn rally — let's hope the weather brightens up for them. September 1 is a talk and discussion on RAYNET. The club meet on the 1st and 3rd Tuesdays at 8pm at SITEC Ltd., Ridgmond Park, Telford Avenue, Stevenage. Peter Daly GOGTE on Stevenage 724991 can tell you more.

The **Aire Valley Repeater Society** meet on the 1st Tuesdays at the Victoria Hotel, Cavendish Street, Keighley at 8pm. More details about the group can be obtained from G6NFT on 0532 44597.

On Sunday August 2, the **Sheffield ARC** have a day trip to the RSGB rally at Woburn organised. August 17 is Test Equipment on a Shoestring by Tom Haddon G4KMA and the 24th is a fox hunt. Monday meetings start at 2000 in the Firth Park Pavilion, Sheffield. More details from Alan G8ZHG on Sheffield 398287.

Another club with no formal August meetings is the **Stourbridge ARS**. They meet 1st and 3rd Mondays, with the main lecture on the 3rd Monday. Derek Pearson on Kingswinford 288900 can tell you such details as where they meet.

The **Mid Sussex ARS** meet on Thursdays at Marle Place, Leylands Road, Burgess Hill at 1945. On July 23 and 30 the club shack is closed, then August 8 is a 144MHz low power contest, the 9th is a 432MHz low power contest and then the club shack is closed on August 13 and 20. Mike Mundy G0GNV on Burgess Hill 41407 can tell you more.

On August 10, the **Coulsdon ATS** have a talk on Antennas by Alan Bartle. They meet on the 2nd Mondays and last Thursdays at St Swithun's Church Hall, Grove-lands Road, Purley at 1945. For more details on the club programme contact Alan on 01 684 0610.

The **Southdown ARS** have a talk on Microwave Modules by Mike Senior G4EFO on August 3. They meet on the 1st Mondays at the Chaseley Home for Disabled Ex-

Servicemen, Southcliff, Bolsover Road, Eastbourne at 7.30pm. Other meetings are held in the Clubrooms, Hailsham Leisure Centre, Vicarage Lane, Hailsham on Tuesdays and Fridays.

Weather Satellite, Propagation Study is the title of the lecture for the **Hastings E&RC** meeting on August 19. They meet on the 3rd Wednesdays at the West Hill Community Centre, contact Dave Shirley G4NVQ on Hastings 420608 for more details.

The **Yeovil ARS** have a full programme yet again this month, August 6 is A Peak Reading r.f. Voltmeter by G3MYM, the 13th is Polar Diagrams by G3MYM, the 20th is QRP TX Output Filters also by G3MYM and on the 27th he has a night off as it's a natter night. The club meets every Thursday at 7.30pm at the Recreation Centre, Chilton Grove, Yeovil. More details from David Bailey on 0935 79804.

The new date for the long awaited quiz against Coulsdon ATS is scheduled for August 21 for those attending the **Sutton & Cheam RS** meetings. Other interesting dates are August 23, a fox hunt and September 7 a natter night. They meet at the Downs Lawn Tennis Club, Holland Avenue, Cheam on the 3rd Fridays and in the Downs Bar on 1st Mondays. It looks like the club has a new secretary, John Puttock GOBWW, and he can be contacted at 53 Alexandra Avenue, Sutton.

The **Edgware & District RS** have no meeting planned for August 13 and an informal evening and s.s.b. field day briefing on August 27. They usually meet 2nd and 4th Thursdays at 8pm in the Watling Community Centre, 145 Orange Hill Road, Burnt Oak, Edgware. Ian Cope G4IUZ on Hatfield 65707 can tell you more.

EMC Filters is the topic for August 18 at the **Acton, Brentford & Chiswick ARC**. They meet in the Chiswick Town Hall, High Road, Chiswick W4 at 7.30pm. W. G. Dyer G3GEH on 01-992 3778 can tell you more.

The **Crystal Palace & District RC** have a meeting at 6pm on July 25. This is at the Lambeth County Show where the club is running a special event station on July 25/26. August 15 is an On the Air Evening and Test Equipment Review. The meetings are at All Saints Parish Rooms, Beulah Hill, London SE19 at 8pm. For more details contact Geoff Stone G3FZL at 11 Liphook Crescent, Forest Hill SE23.

August is obviously "shut-down" month as far as a lot of radio clubs go. The **Vale of Evesham RAC** have no official meetings that month, but members and visitors may care to drop in for a chat at the Gardener's Arms, Charlton on August 6. More

details from Mike Butler G4UXC on Evesham 831508.

The **East Kent RS** have a barbecue on July 25, a talk on Early-day Radio by Derek Bradford G3LCK on August 6 and a Natter Night at Bishopstone on August 20. Meetings are held on the 1st and 3rd Thursdays at 7.30pm in the Cabin Youth Centre, Kings Road, Herne Bay OR in the radio shack in the former coast guard look-out at Bishopstone. Contact Brian Didmon G4RIS on Whitstable 262042.

Mods to RXs for 160m Fox Hunting by G3ROO is scheduled for July 29 for the **South East Kent (YMCA) ARC**. On August 5 they have 160m fox hunt by G3ROO, the 12th is a Summer Night Out, the 19th is a meeting at the Folley and then the 26th is The Folley on the Air. The club meets at the Dover YMCA, Godwynhurst, Leybourne Road, Dover. More details from John Dobson on Dover 211638.

The summer edition of *Hamster* gives the program for the **Cheshunt & District ARC** through to the end of the year. On July 29 they have a Junk Sale, August 5 is a Natter Night, the 12th is Indoor Antennas, the 19th is a Natter Evening and the 26th is a Portable Evening on Baas Hill Common. Meetings are held every Wednesday at 8pm in the Church Room, Church Lane, Wormley. John Watkins on Dane End 250 can tell you more.

The **Verulam ARC** have an Activity Evening on August 11 and a Bring & Buy Sale on August 25. They meet at the RAF Association Headquarters, New Kent Road, off Marlborough Road, St. Albans on the 2nd and 4th Tuesdays. More information from Hilary G4JKS on St Albans 59318.

Hopefully the **Cheltenham ARA** have a visit to BBC Wood Norton on August 7. They usually meet in the Stanton Room. Charlton Kings Library, Cheltenham. More details from Tim Kirby on Cheltenham 36723.

Television Telecine by Max Pemberton G4ZMQ is the lecture at **Chelmsford ARS** on August 4. They usually meet at 7.30pm in the Marconi College, Arbour Lane, Chelmsford. For more details you should contact Roy G3PMX on 0245 353221 ext 3815.

The **Cornish RC** have a lecture entitled Valves for the Not-so-Old by Don G1AJB on August 6, the concluding part — Transistors for the Not-so-Young — will be on October 1. They usually meet in the Church Hall, Treleigh on the Old Redruth bypass. You can get more details on the club's activities by talking to N. Pascoe on Redruth 212314.

There is a full month of events listed for the **Warrington ARC**.

August 4 is and **RSGB** film on junction transistors, the 11th is a Quiz, the 18th is an Open Forum and the 25th is The Myths of i.c.s. by Norman Shelley G4JYP. The Grappenhall Community Centre, Bellhouse Lane, Grappenhall is where the club meets at 8pm. Paul Forster on Warrington 814005 can always tell you more.



July 26 will be a d.f. hunt on 160 and 2m for the **Dunstable Downs RC**. On August 4 they will be making radio contact with their twin town of Wolfsburg in Germany and the 22nd is the club summer barbecue. They meet every Friday at 8pm in Chews House, High Street South, Dunstable. Tony G0COQ, the club secretary, can tell you any other details on 0592 508259.

The **Itchen Valley RC** meet at the Netley Marsh Steam Rally on July 24, not their usual meeting place, during August they have no meetings. I'm sure that M. E. Cheeseman G1IPQ on Southampton 736784 can tell you more about the club.

The **Reading & District ARC** have their annual club boat trip on July 28, so if you contact them quickly you may find they have a spare seat or two. On August 4 they meet the RSGB with Joan Heathershaw G4CHH, David Evans G3OUF and Jullian Gannaway G3YGF, this meeting will be in the Kennet Room of the Civic centre starting at 8pm sharp. August 18 is a discussion of the September contest and the horse trial. They usually meet at the White Horse, but I know not where that is. Stephen Coleman G4YFB on Reading 867820 can tell you all you need to know.

The four meetings scheduled for August are informal evenings for the **Radio Society of Harrow**. All meetings are held in the Roxeth Room in the Harrow Arts Centre, High Road, Harrow Weald and the club meets every Friday. The club's publicity officer has yet to be announced so you could contact the chairman Bob Pickles on 0895 673287.

The **Farnborough & District RS** have a Beer and Skittles Evening on July 31, then on the 12th it is a demonstration of Coherent c.w. by G3XVR. On August 26 they have a lecture on Propagation by Ray Flavell G3LTP. M.C. Graffius at The Paddock, Diamond Ridge, Camberley, can tell you all the other details.

August 3 brings a natter night to the **Todmorden & District ARS**, then on the 17th they have a talk

on 10m f.m. by Roy Benbow G4YDI. They meet at the Queen Hotel, Todmorden at 8pm on the 1st and 3rd Mondays. If you need more details contact G1GZB on 070681 7572.

The **Wimbeldon & District ARS** have a General Activity Evening planned for July 31. Between August 1 and 9 they will be away at their Annual Camp at Barwell Estate, August 14 is The RSGB by Robin Sykes G3NFV (he is the Region 7 Rep) and August 28 is another General Activity Evening. All **W&DARS** meetings are held on the 2nd and last Fridays at 7.30pm in St Andrews Church Hall, Herbert Road, Wimbeldon SW19. George Cripps G3DWW on 01 540 2180 has all the news about the club.

From their calendar it seems that the first meeting in the month is informal for the **Keighley ARS**, the second meeting of the month seems to be the formal lecture. In August they meet on the 11th informally and then on the 25th the evening is called "Everything Comes to a Stop" Visit to Mintex by Don Cleckheaton. All meetings start at 8pm in the Victoria Hotel, Cavendish Street, Keighley. For any further details, please contact Kathy G1IGH on Bradford 496222.

The **Dorking & District Radio Society** have a 2m and 70cm portable evening with a Bring-Your-Own Barbecue on July 28 at Devils Dyke in Brighton. August 11 brings an Informal Evening in the Falkland Arms and the 25th is an Informal Evening in the Anchor at Pyrford. Meetings are usually held on the 2nd and 4th Tuesdays at 8pm, but you can contact John G3AEZ on 030677 236 for any other details you need.

After the Committee meeting on August 4, **Chester & District RS** have no meetings until August 25 when it is a Pre-SSB Field Day Meeting. They usually meet at the Chester Rugby Union Football Club, Hare Lane, Vicars Cross at 8pm. Further details from Dave Hicks G6IFA on Chester 336639.

Bury RS meets every Tuesday at the Mosses Centre, Cecil Street, Bury. Main meetings and events are held on the 2nd Tuesday, all other meetings are informal. August 12 is a d.f. Foxhunt, but you can get more details from M. L. Jamil G1VQE at 29 Harrow Close, Blackford Bridge, Bury.

Those going to the August 21 meeting at the **Coventry ARS** will have a Treasure Hunt and Barbecue awaiting them. Robin Tew G4JDO on Coventry 73999 will be able to tell you more details.

Yet another club with no formal meetings during August, the **Loughton & District ARS** will be meeting at the Wheatsheaf about

8pm instead. More details from David Thorpe G4FKI on 0525 714591.

The **Trowbridge & District ARC** have a picnic arranged at the White Horse on August 5 and a Natter Night on August 19. Further details from the club secretary GOGRI on 0380 6656.

The **Northampton RC** usually meet at Kingsthorpe Community Centre, Kingsthorpe at 8pm on Thursdays. August 16 is the Tulip Rally and Barbecue and if you want more details then contact Peter Saul on Towcester 51 716.

The lecture awaiting the **Welwyn Hatfield ARC** on August 3 is called EMC. This lecture, their main meeting, will be held at Lemsford Village Hall, Brocket Road, Lemsford. Their informal meetings, held on 3rd Mondays, are in the 9th Welwyn Garden Scout HQ, Knightsfield, Welwyn Garden City. Kevin Dunwell G4WLG on 0707 335162 can tell you anything else you need to know about the club.

Maltby ARS have an Activity Night planned for August 7 and then they have their Annual Weekend at Spitewinter near Matlock on August 28. Meetings are usually held at the Community Centre, Clifford Road, Hellaby starting at 7.30pm. Keith Johnson G1PQW is their secretary, and you can contact him on 0709 814135.

On August 20, the **Eden Valley RS** have a Fox Hunt, I think it starts from The Crown Hotel, Eamont Bridge. Meetings start at 1930 and are normally held at the Ullswater Centre, Penrith or the Crown Hotel, Eamont Bridge. For further information, ring the secretary Martin G4FUI on Penrith 66728.

The **Winchester ARC** have no meetings planned during August, the autumn session starts with a junk sale on September 18. They usually meet every 3rd Friday at Durngate House, Eastgate Street, Winchester. Dick Murray can tell you more on Winchester 880605.

Rally Preparation at Lower Bemrose School is the topic for **Derby & District ARS** on August 5. All meetings are at 7.30pm at 119 Green Lane, Derby. Further information about the Society is available from the Honorary Secretary, Jack Anchovy G3KQF, on Derby 772361.

The **Bredhurst R&TS** aren't taking any time off over the summer. On July 20 they have a Construction/Natter Night, August 6 is The Return of Louis Varney G5RV (one of the most interesting people I have ever met), the 13th is a Construction/Natter Night, the 20th is Crystals by Erwin David G4LQI and the 27th is a Construction/Natter Night. I'm not actually sure where

they meet, but Kelvin GOAMZ on 0634 376991 can help on that matter.

A month full of Activity Nights awaits the Lincoln **SWC**, most evenings seem to include construction somewhere along the line. These construction evenings are open to both the experienced and non-experienced. Advice and help can also be sought for any of your construction and repair problems, although a solution cannot be promised on every problem! says Pam Rose, their secretary. The club meet at the City Engineers Club, Central Depot, Waterside South, Lincoln every Wednesday, and that's where you can contact Pam for more details.

The **Wyre ARS** meet at the Breck Sports & Social Club, Breck Road, Poulton on the 2nd and 4th Wednesdays at 8pm. On August 5 they have a visit to Hutton Police, but as only 20 members can go you'd better check if there's any room left. Then, on the 12th they have a Social Night and the 26th is Satellites by G1JCW. For more details you should contact Dave Westby on Thornton Cleveleys 854745.

On August 27, the **Ripon & District ARS** have an Evening Fox Hunt organised by Jack G8TDC. They hold their meetings every Thursday at 7.30pm in the Old Air Raid Shelter (behind Ripon Town Hall). If you would like to know more, contact Liz Bulman, The Lodge, Lister House, Sharlow, Ripon.

The **Exmouth ARC** meet fortnightly at the 6th Exmouth Scout Hut, Marpool Hill, Exmouth. The meetings schedules for August are a Woodbury Common Field Night on August 12 and Micro-waves by GOGHO on the 26th. If you would like more details contact Michael Newport G1GZG at 30 Maristow Avenue, Exmouth.

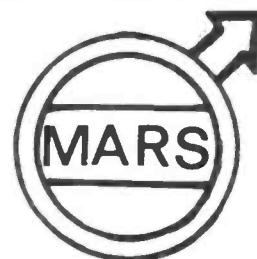
Colchester Radio Amateurs meet at the Social Club, Severalls Hospital, Mile End, Colchester from 7.30pm on Thursdays. August 6 and 20 are informal meetings. Further information from the Secretary, F. R. Howe G3FIJ, on Colchester 0206 851189.

The **Rugby ATS** provides a meeting point for all radio amateurs and short wave listeners in the Rugby area. Within the club there are people with a wide range of interests and experience in all fields of amateur radio. On July 28 they have a Home-brew Evening where you should bring along your latest project and August 11 is a d.f. Competition. Further information from Kevin Marriot on Rugby 77986.

In **QSU**, the newsletter of the **Wakefield & District RS**, there are

details for a Car Treasure Hunt scheduled for August 4. If you would like more details, it's best to contact John Bryan G4VRY on Leeds 820198.

The lecture for August 3 at the **Braintree & District ARS** sounds interesting, Operating/OE/Piste by Melvin GOEMK. The 17th is Meters & Indicators - Principles and Practice by Dave G3PEN. The club normally meets every 1st and 3rd Monday at the Braintree Community Association Centre, Victoria Street. More details from Derek Brades on 0376 44908.



The **Midland ARS** have a visit to Droitwich planned for August 18, but as only 15 members can go it's probably full up by now. They meet at Henstead House, Henstead Street, Birmingham B5 but I know not when or what time. Norman Gutteridge G8BHE at 68 Max Road, Quinton, Birmingham is the club secretary so presumably he knows.

On July 29, the **Ipswich RC** have a 2m d.f. Hunt starting at the Rose & Crown from 7.30, this is followed by a planning meeting for Ipswich Carnival Demonstration Station. August 8 is the Ipswich Carnival, the 12th is a Satellite Television Demonstration in Conjunction with Martlesham RS, the 19th is Morse and the 22nd is a Barbecue at G4VSMs (ticket holders only). Jack Toothill G4IFF is the secretary and you can contact him on Ipswich 464047 for any other details.

South Bristol ARC have two "Teach-ins" in their programme, July 29 is Computing for Beginners by Chris G0FGZ and August 5 is Driving the Club h.f. Rig by Len G4RZY. Then on August 12 it is Preparations for the Bristol Rally, the 19th is a 10m Activity Evening and the 26th is Morse Key Rally by Muriel G4YZR. They meet every Wednesday at the Whitchurch Folk House, East Dundry Road, Whitchurch. Len Baker G4RZY on Whitchurch 834282 can tell you more.

M. P. Byles G6UWS, the secretary of **Nene Valley RC**, has written with the details for the programme. On July 29 they have an informal evening, but G6UWS can tell you more up-to-date information on 0933 71189. The club still meets at the Prince of Wales, Well Street, Finedon every Wednesday at 8pm. □

DATONG AD270 ACTIVE ANTENNA

Ken Michaelson G3RDG

The theory behind the active antenna is that as most receivers are sufficiently sensitive to incoming signals as to mask normal receiver noise, a short antenna is usually sufficient to receive all those signals that would normally be heard on a half-wave long dipole at the same height. As the frequency is lowered, the normal dipole is reduced in length, and the signal picked up by the active antenna, compared with the full size half-wave dipole becomes less. However, since the receiver noise is also less, effective results are still obtained.

But to connect a very short dipole directly to the normal 50ohm input of a receiver would result in a bad mismatch, and that is where the active head comes in. It acts as a transistorised impedance converter. The interface/amplifier at the receiver end is there to be used when, perhaps, an excessive length of feeder is required, or when listening to a very weak station under quiet conditions.

Datong produce two models of their active antenna. One, the AD370 for outdoor use, the other, the AD270, for indoor use only. The version reviewed here is the indoor model.

The both models the elements are only 1.5 metres long, giving a total length of just over three metres, and they can be arranged in any convenient direction, so that installation in an attic or loft is easy.

The AD270 is intended to be suspended by the ends of its dipole wires using string or plastics cord which is not supplied. The AD370, being intended for outdoor use, has a gasket sealed lid, a sealed exit for the coaxial cable, 8 metres of which is supplied, and elements which are made from stainless steel, whereas the AD270 has a standard lid and a Belling Lee TV type socket, only 4 metres of coaxial cable being supplied in this case. The dipole being just two lengths or wire with a loop at the outer ends.

Sensitivity

The manufacturers state that the sensitivity is constant from 200kHz to 30MHz, and I found that I could tune down to about 100kHz and still get readable signals. The output impedance for connection to a receiver is 50 ohms, and the gain of the interface at the receiver end is stated to be 0dB with the pre-amplifier out of circuit or 12dB with it in circuit. The power required is 11 to 14V d.c. at 140 mA, and the AD270 supplied for review came with the MPU mains power unit. This is a compact box which merely plugs into a standard 13amp mains socket. The wire supplying power to the unit being fitted with a 3.5mm jackplug to plug into the interface.

The antenna consists of a balanced dipole with an active head which matches into a length of 50 ohm coaxial feeder. The interface/pre-amplifier at the receiver end accepts the coaxial cable from the head and also feeds power to it. It also provides

An active antenna should be ideal for the short wave listener who lives in a flat or has a confined space for erecting any type of antenna. Ken Michaelson knows that any reasonable type of antenna needs space. He is not so badly off as some because he has a horizontal span of some 21m, but others do not. That is where the AD270 active antenna comes into it's own.

for additional gain should that be required. Both the active head and the interface unit are quite small, measuring 99 x 49 x 25mm and are housed in black plastics boxes with the necessary sockets mounted on the sides.

Mounting

I mounted the antenna in the loft space of my QTH, in a horizontal position. All dipoles have directional properties, and this one was no exception. As my QTH is aligned north — south it was only possible for me to mount the antenna running in that direction, as I could not get a reasonable 3m horizontal span across the loft in the other direction. If I could have mounted the antenna in a vertical position it would have responded equally in all directions horizontally with minimum pick-up from above and below.

The comparison antenna used for this review was a 3.5MHz dipole, also running north — south, and which is normally used with my transceiver. This antenna has a 21m horizontal span with either end, (4.6m) dropping down towards the fence. It is fed with 4.6m of 300 ohm ribbon feeder from the centre, continuing

with 50 ohm coaxial feeder into the shack at the front of the house.

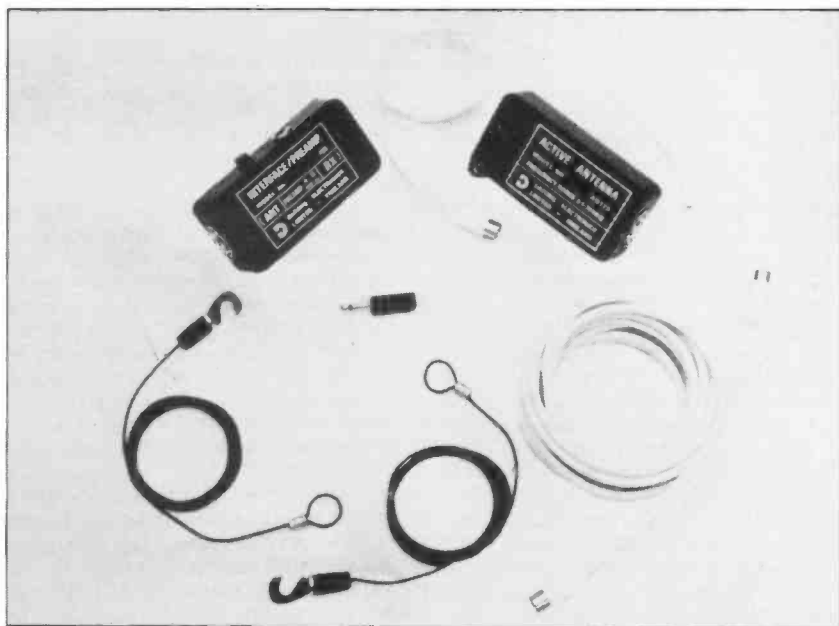
Performance

The AD270 was suspended in the loft more or less immediately above the shack, which is on the first floor, and the 50 ohm coaxial cable was passed through a hole in the ceiling down to the interface. An Icom IC-R71E general coverage receiver was used for the tests. I found that at the lower end, about 1.9MHz, the AD270 was superior, but as I tuned higher in frequency my own antenna gave a slightly better result, up to about 10MHz. Above that it seemed to me that the AD2709 gained, although there was more background noise from it than from my dipole. Doubtless this was because of the loft mounting of the AD270.

At the higher frequencies, 21 to 28MHz, there was no doubt which was the better — a dipole cut for 3.5MHz does not perform well at 28MHz! At the other end of the scale, it was almost impossible to receive the Offenbach Meteo station on 134.2kHz on my dipole, but a good signal was tuned in using the AD270. This was sufficiently strong to enable me to resolve the FAX weather maps transmitted from there.

In conclusion I must say that I was impressed with the performance of this active antenna. It does not require a tuning unit and, as a general purpose antenna it would seem to be ideal for the short wave listener with restricted space. The unit came with instructions and hints on mounting, but no circuit details. You will have to pay out, £51.75 inc. VAT for AD270 and £69.00 inc. VAT for the AD370. Both models are supplied with the mains power unit.

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





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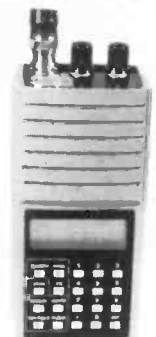
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RALLIES

★ SWM will be in attendance.

August 2: The Rolls Royce ARC are holding their rally at the Rolls Royce S&SC, Barnoldswick. Doors open at 11am and talk-in will be available as well as trade stands, refreshments and other attractions.

L. Logan G4ILG
19 Fenton Avenue
Barnoldswick

★ **August 2:** The RSGB rally will be held at Woburn Abbey, Woburn.

Robin Hewes G3TDR
0784 56513

August 9: The Essex Area Group of the 934 Club UK are holding their 3rd annual Mobile Rally at Brentwood Halfway House, which is at the junction of the A127 and A128. The rally is open from 10am to 6pm. Both amateur and 934MHz stations will be in operation. Admission is free.

Frank Glendinning
5 Danescroft Close
Leigh on Sea

★ **August 9:** The Flight Refuelling ARS rally called Hamfest '87 will be held at FR S&SC, Merley Park Road, Merley, Wimborne, Dorset. Doors open between 10am and 5pm. There will be a bring and buy, craft fair, childrens' entertainments and creche. There is free parking and entrance is 30p (children free).

Ashley Hulme GOCDY
0202 872503

August 9: The Pontefract & District ARS are holding a Summer Fayre at the Carleton Community Centre. They have applied for a special event callsign and it will also be an open day at the Radio Club and the West Riding Astronomy Society Observatory. There will be a junk stall there too as well as a bring and buy.

★ **August 15:** The famous Lowe's Open Day returns this year, by popular request. Obviously to be held at Lowe Electronics HQ at Chesterfield Road, Matlock, Derbys.

Lowe Electronics
0629 2430

August 15: The Wight Wireless Rally will be held at the Wireless Museum, Arretton Manor, near Newport. The rally opens at 11am and closes at 5pm. Talk-in on S22 and GB3IW. All the usual trade stands will be there.

Douglas Byrne G3KPO
0983 67665

★ **August 16:** The West Manchester RC are holding the Red Rose Rally at the Bolton Exhibition Centre, Silverwell Street, Bolton. All the usual refinements. Doors open at 11am. Admission 50p.

Dave G1100
0204 24104

August 23: The Newbury & District ARS are holding a radio car boot sale at The Acland Hall and Recreation Ground, Cold Ash, Newbury. Gates open from 10am to 5pm. Pitches are £5 or £4 if pre-booked, inside tables are £10 (limited supply).

Mike Fereday G3VQW
0635 43048

August 30: The annual rally of the British Amateur Radio Teleprinter Group is being held at Sandown Park Racecourse. This year the exhibitors' hall has been modernised and enlarged so more trade stands, the catering and bar facilities are in an annex off the main hall for visitors' comfort, there will be a car boot sale, ample free car parking. Doors open between 10.30am and 5pm.

Peter Nicol G8VXY
021-453 2627

August 30: The Galashiels & District ARS are holding an open day at the Focus Centre, Livingstone Place, Galashiels. There will be trade stands, bring & buy as well as all the usual activities. They also hope to have Morse testing.

John G. Campbell G4OAMB
Tel: 0896 55569

August 31: The Doncaster & District RAYNET Group are holding their rally at Bircotes Sports Centre, Bircotes. Doors open 11am (10.30 for the disabled). Admission 50p.

September 6: The South Bristol ARC are holding the 1987 Bristol Rally at Hareclive Youth and Hartcliffe Community Centres, Hareclive Road, Hartcliffe. Doors are open between 10am and 5pm. There will be the usual bring and buy and general traders in the Community Centre and radio dealers in the Youth Centre. Admission 50p.

Len Baker G4RZY
0272 834282

September 6: The West Kent AR Rally is being held in the Angel Centre, Tonbridge, Kent. Doors open between 10.30am and 4pm. There will be talk-in on S22, SU8 and 29.5MHz f.m. using the callign GB0WKS. There is free parking, a bring and buy, club stands, many trade stands and a stamp fair.

Nigel Peacock G4KIU
0892 515678

September 6: The Preston ARS 20th Annual Rally will be held at Lancaster University. The rally open as at 11am, with early entry for the disabled. The University entrance is in the A6 trunk road (leave M6 at junction 33). Talk-in on S22. The usual trade stands, bring and buy, RSGB bookstall, licensed bar as well as snacks will be there. Morse tests available (pre-booked with RSGB).

Godfrey Lancefield G3DWQ
0772 53810

September 13: Dunstable Downs Radio Club are holding The National Amateur Radio Car Boot Sale at the Shuttleworth Collection, Old Warden Aerodrome. Open from 10am to 5pm. Admission 50p.

Phill Morris G6EES
0582 607623

★ **September 13:** The Lincoln Hamfest Mobile Rally will be held at the Lincolnshire Showground on the A15. The rally usually opens at 10.30am. This year's attractions include helicopter rides, model car racing, model aircraft displays, the police, fire brigade and much more.

Pam Rose G4STO
Gainsborough 788356

30th ANNIVERSARY



The sun shone on the morning of June 28, heralding the start of this year's Longleat Rally. It seems they always have good weather on the day, or perhaps we only remember those years?

Every rally seems to be better than the last, and this was no exception. The view as you drove down through the Longleat estate was very impressive — large marquees, hundreds

of cars and thousands of people.

It was good to meet old friends, and make some new ones, on the *Short Wave Magazine* and *Practical Wireless* stand. We really enjoy meeting readers and try to have a chat with each and every one. This year the stand was busier than ever, and so was the rest of the rally if reports we heard were any thing to go on. The famous bring and buy tent

was permanently full of people browsing and buying.

The arena entertainment was also up to the usual high standard, how the marching band stood up to the heat so well is a mystery. Hopefully all the entrants in the colouring competition enjoyed it too!

Look forward to meeting you all again next year.

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Please note that the **AMTOR** section only receives ARQ mode (mode A) but this is the most common mode and covers a lot of commercial TOR stations, also.

Previously, people have paid over £30 for separate RTTY, CW and SSTV programs which do not have the performance, facilities and convenience of RX-4. We are offering this amazing software for the low price of only £25 on tape, £27 on BBC or CBM64 disc.

BBC-B, **CBM64** and **VIC20** need our **TIF1** interface. This has isolation between computer and radio to reduce computer noise and switchable filters, giving much improved copy. Kit £15 (assembled PCB + cables and connectors) or ready-made, boxed with all connections £25. For **SPECTRUM** we have two versions. One needs no hardware at all, the other used the TIF1 via an interface adapter board SIA-1 for improved performance. Tape + SIA-1 £40.

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The microprocessor-controlled POCOM AFR-1000 CW-RTTY Decoder automatically processes radio teletype signals in accordance with Baudot No. 1 and No. 2, ASCII, ARQ/FEC (SITOR/SPECTOR/AMTOR) and CW (Morse telegraphy) standards and corresponds to the latest state of the art. The AFR-1000 Automatic Decoder is remarkable for its value for money. Its moderate price makes it particularly suitable for the cost-conscious RTTY beginner. Unlike the other models in the AFR series, however, it cannot be upgraded for special codes.

FEATURES

- Fully automatic recognition of CW, ARQ-FEC and BAUDOT No. 1 and No. 2 teletype signals with automatic decoding, independently of the shift position.
- Baud rate analysis in the range from approx. 30 to 250 bauds.
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The POCOM AFR-1000 is extremely easy to use and very simple to operate. The AFR-1000 is simply connected to the loudspeaker outlet on the shortwave receiver. Operation is confined merely to choosing the mode required. No tiresome testing of the baud rate and shift position. Two LED's indicate the active operation states in each case.

The baud modulation rate measurement facility is a complete new innovation in a unit in this price range. Knowledge of the baud rate permits reference to special codes, specific radio services, etc., and makes it possible to shed light upon a radio teletype signal. The display is provided on the screen or printer linked to it to 1/1000 baud (e.g. 96.245 bauds) with quartz accuracy and within a measuring range of approx. 30 to 250 bauds.

AFR-2010 All Mode CW/RTTY Decoder



AFR-2000 All Mode RTTY Decoder



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1987 European DX Council Conference

Following lunch, the EDXC Forum, the annual exhibition, opened with information and promotional material available from stations and clubs. There was much interest in the Voice of Free China exhibit, with the piles of QSL cards and multifarious stickers disappearing remarkably quickly. The EDXC Forum always proves to be one of the most popular parts of the whole Conference, with so much information available which is usually sent out by broadcasters in drips and drabs. Consideration is being given to making the exhibition last for the whole duration of the Conference, as is the case at ANARC Conventions, so that delegates will have more time to select the material they want, and to talk in greater depth with station and club representatives.

Also during the afternoon, those wishing to improve their knowledge of the DX hobby could attend a DX Guidance session, where several experienced DXers were on hand to answer questions about listening, equipment, reporting and every other facet of the hobby. This was another first for the EDXC Conference, and is something which will be continued at future Conferences and EDXC exhibitions.

At the same time, with the Finns continuing regard for keeping the body fit, a volleyball contest was held in the outdoors. With typical English regard for not trying to keep fit, your author stayed on the sidelines . . .

At 1700, the delegates assembled to hear the results of the Working Groups (summarised previously), and then for a discussion on "What DXing used to be and What it is Today". This was a panel discussion with personal recollections of veteran DXers such as Bengt Dalhammar of Sweden, Jens Frost, Tor Henrik Ekblom and Simo Soinenen. They explained that they did not start DXing, but simply listened to the radio for entertainment, as their own domestic output was limited. The panel reminisced about the lack of overcrowding, and how pleasant it was to listen in the 1940s and 1950s, as no doubt many older readers of *SWM* will testify. Oh, for the halcyon days of the past with no jamming . . .

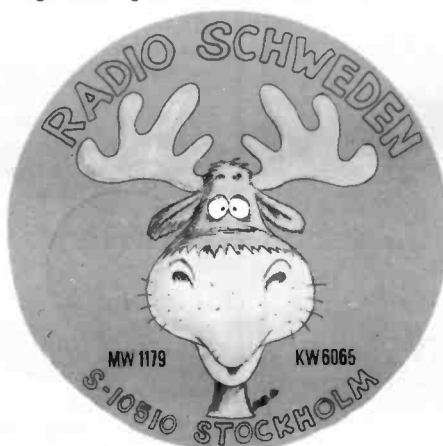
Meanwhile, upstairs in another conference room, things were slap up to date, as George Wood called up the CompuServe network in the United States on an Amstrad PC and carried on a computer conference with half-a-dozen DXers in the United States and one from Eire. George was able to describe the happenings at the EDXC Conference to the distant computers, and they in turn asked questions of George. This proved to be a most illuminating demonstration of how modern technology will shape everyone's lives in the future.

At 2030, the EDXC Banquet, another regular highlight of the EDXC Conference, started. We were treated to a buffet of food from around the world: there was a

Finnish fish table, a German sausage table and a Chinese table. Once everyone had dined well, some presentations were made by the Finnish DX Association to several stalwart members of their organisation in the form of DX pennants mounted on a marble stand. These delightful gifts were also presented to Jens Frost of the WRTH and to the European DX Council, two honours proudly received.

There followed the draw for the Lottery, for which tickets had been sold throughout the Conference. Prizes were many and varied, with top prizes of radios from Sony and Grundig: the first prize being the Satellite 650 receiver, worth more than £600. This eventually went to a young Finnish listener — well deserved in everyone's opinion. An Auction followed, with numerous items up for sale, including some wonderful gifts from the Voice of Free China: watches, jade wall-hangings and pen sets.

A marvellous evening's entertainment, right through until the small hours.



Onto Sunday morning, and those who could raised themselves in time for breakfast. At 1000, a Broadcasters' panel was held. Seven broadcasters from Europe and Asia took part and answered questions from listeners — and other broadcasters — on many aspects of broadcasting, and relationships with listeners. The subject of reception reports was discussed in detail, and it was suggested that a special two part form should be produced, with one half for comments on the technical aspects — SIO codes, etc — and the other half for constructive comments on the programme contents.

After this, George Wood talked about Computers in DXing, explaining to the Conference about databases and networks and the possibilities for connecting computers to receivers and so forth.

And then came the sightseeing tour, with lunch at the Technology Department of the Helsinki University. What a shock to be sitting down to lunch and to be assailed by the dulcet tones of Tony Blackburn hosting a Sky Channel Pop music programme. During the tour of the city, we visited a local radio station, Radio City. This is housed in a community workshop

building, and is run by young people with a 200 watt transmitter on 96.2MHz v.h.f.-f.m. The format is mainly rock music and I have to confess that it is the oddest radio station I have ever visited.

Back at the Conference Centre in the early evening, and at 2000, Mr P. P. Tang, President of the Broadcasting Corporation of China (BCC) which runs the Voice of Free China, gave a most interesting speech about the Chinese way of life in Taiwan, and about his station's role in international broadcasting. Somehow he managed to confuse his organisation with that of another known as the BBC. Can't imagine why.

There followed a talk about DXing Finnish style, with slides of DXpeditions into the far north, with icicles hanging down from the 1000 metre long wire antenna: thank goodness it was almost summer.

Following a panel discussion looking at the first twenty years of the European DX Council, delegates were able to sample the traditional Finnish Smoke Sauna (pronounced Sow-na), followed by a dip in the lake. All this at 2300? You cannot be serious!

Monday morning, and the final day of a packed EDXC Conference. At 0900, Juani Niinisto, Head of External Broadcasting at Finnish Radio talked about his station, its plans for the future now that new powerful transmitters for m.w. and s.w. have been installed, and how the organisation is financed and run.

There followed a talk by Englishman David Mawby, resident in Finland for several years. David works in commercial radio in Finland, and talked about the development during the past few years of this new departure for Finnish radio listeners, and of how it will shape up in the future.

And so almost to the end of the Conference: a few final words of thanks to the organisers from the Finnish DX Association, and with some Sibelius and a picture of the midnight sun, the event was almost over for another year.

Those delegates who did not have to rush away for planes and ships were able to take part in a visit to the headquarters of Radio Finland, to see the studios, control centres and, in fact, where "it all happens".

This report cannot possibly hope to capture the full weekend's worth of activity — as I have already said, one of the most successful EDXC Conference to date, and certainly the busiest.

And what will EDXC be doing in the next few months? We will be represented at the Association of North American Radio Clubs Convention in Toronto during July, and in October, we will be telling the 250 000 or so visitors to the 5th World Telecommunication Exhibition — TELCOM 87 — in Geneva about the fascinating world of short wave radio. Join us, if you can. □

1987 European DX Council Conference

by Simon Spanswick

As the name suggests, the Conference hotel was situated by a lake in a forest: ideal conditions for erecting short wave antennas (something at which the Finns are quite expert for reasons we shall discover later) which were connected to around 15 different short wave receivers for delegates to use. These included Grundig Satellits, a Yaesu FRG-8800, various Sony models and the new British Lowe HF-125 receiver.

As Conference Registration commenced on the Friday afternoon, it became clear that the 1987 European DX Council Conference was to be one of the best to date, having been organised most capably by Suomen DX-Liitto (the Finnish DX Association). Once delegates had registered, they were able to take advantage of several activities which had been organised, including a DX Exhibition which included comprehensive features on Peru — one of the great powers of short wave broadcasting, putting out

Each year on Whitsun weekend, the European DX Council Conference takes place in a European City. This year it was the turn of Helsinki to be the venue for this annual meeting of DXers, broadcasters and station engineers and more than 300 people from 18 countries gathered at the Forest Lake Hotel on 5 June a short distance from the Finnish capital. Simon Spanswick reports

medium wave! Antti Aaltonen of the Finnish DX Association described the basic principles of m.w. propagation, the effects of solar activity and the 11-year cycle, the 28-day cycle, changes in reception at different times of the year and the effects of interference from European stations.

Meanwhile in another Conference Room, Jyrki Nokkonen of the BBC's Finnish Section was talking about the Future of Shortwave Broadcasting. With increasing congestion on the h.f. bands, jamming problems and competition from other sources such as cable and DBS, will shortwave broadcasting continue? Despite all the problems, the BBC certainly believes in the future of h.f. broadcasting, although it would continue, said Jyrki, to look for means of improving the end product for the listener. Already, all BBC relay stations are fed from London by high-quality satellite links, and new transmitter sites in Hong Kong and the



many hundreds of hours of programming on the short wave bands, although almost all of this massive output is intended for domestic consumption. Dozens of verifications were on display, together with detailed presentations on individual stations, and examples of programming from stations throughout the country.

Other displays included "What I Got with the QSL" showing some verification packages received by Finnish DXers in recent years — it really is amazing what some stations send to listeners — vintage receivers, and QSLs from years gone by with some from stations now sadly no more.

Also on show was a whole range of microcomputers, showing how receivers such as the FRG-8800 can be controlled by computer, and what is available in the way of DX databases and bulletin boards.

A DX Library featured DX magazines and literature from around the world, together with DX recordings and a video showing listening-related programmes.

At 1800, by which time most delegates had arrived, there was a cocktail party on

the edge of the lake giving people the chance to renew old acquaintanceships and make new friends. By 1900 we were back indoors, with a choice of two talks, one on Medium Wave DXing, the other on the Future of Short Wave Broadcasting. At the beginning of this article I said that the Finns are quite expert at putting up antennas and indeed they seem to get quite remarkable results with the antennas they construct! Astonished delegates were told that when the Finns go north towards the Arctic Circle on DXpeditions, they construct unbelievably long antennas: perhaps over one kilometre in length, and tune in to the world. During 1986, Finnish DXers logged more than 1600 stations from all over the world — 630 from North America and Hawaii, 50 or so from Africa, 300 from Asia, 60 from Central America, 260 from South America and 20 from the Pacific. And all on

Seychelles would improve reception. A discussion ensued and the feeling amongst the delegates was most assuredly that short wave radio will continue for a very long time yet.

At 2000, delegates were able to discover more about Finnish DXing of North America when Hannu Niileksela explained about listening to stations from that continent during the last 30 years, and how DXpeditions changed the face of DXing in the early 1970s. Slides and recordings emphasised how Finns go about listening and what results they achieve. And at 2100, there was the world premiere of a film made by the Finnish DX Association, *Dxing Below Zero*. Shot during last winter, the film showed a real-life DXpedition to Finnish Lapland and graphically illustrated how people listen in the frozen north in superb reception conditions. One thing is for certain: you'll need your thermal undies!

The final presentation on Friday evening looked at Peru. Jyrki Talvitie described, with the aid of slides, the countryside of Peru from his own experiences when

1987 European DX Council Conference

visiting the country on several occasions. Jyrki talked in detail about the well known shortwave stations in Iquitos, and about Lima and Cuzco. For those not too tired after their journey to the Conference hotel and a busy session of lectures, there was the opportunity to sample the delights of the sauna before retiring for the night . . . your author declined the invitation on this occasion!

On to Saturday morning, and the Conference was officially opened at 0900 with an address by Jacob Soderman, the patron of the Conference, and Governor of the Province of Uusimaa, the area in which the Conference took place. This was followed by a speech of welcome by Tapani Laitinen, President of the Finnish DX Association, and then Michael Murray, the Secretary-General of the European DX Council, gave a brief presentation on the Council's work during the last twelve months and a look forward to other major plans during the coming months, including representation at the Association of North American Radio Clubs Convention in Toronto, Canada, and exhibiting at the 5th World Telecommunication Exhibition in Geneva during October.

Before the commencement of the Working Groups, the delegates assembled on the shore of the lake for a group photograph to be taken: regretfully, space does not permit its reproduction here, and indeed, because so many people were included in the picture, the camera was by necessity quite a way back from the crowd, resulting in the people appearing very small!

Nine Working Groups were formed, including two Finnish-speaking groups: these comprised

Computers in DXing; DX Accessories
DX Programmes: FM and TV DXing;
Eastern Hemisphere on the Tropical Bands;

The World Radio TV Handbook;
MW DXing in Scandinavia;

Each Group was chaired by a personality of some note in the particular field, and details of the discussions in every Group were presented to the Conference:

The Computers Group was led by George Wood, Editor of Radio Sweden International's *Sweden Calling DXers*, who has made a wide study of the application of computers in DXing and short wave listening. The group talked mainly about databases, discovering what current information libraries are available, and what they contain of relevance to DXing. It was explained how it was possible to access the individual databases, and how the systems could be developed in the future.

Meanwhile, the DX Accessories Group was chaired by Simo Soinenen, a Finnish DXer and authority on add-ons and modifications. This Group noted the need for audio and notch filters for serious

listening, commenting on the poor audio quality of many modern receivers. Whilst radios are becoming more complicated, they lack the features which would be of most use to the listener, such as filters and antenna switches. The Group talked about the various makes of "extras" which can be fitted to receivers, but came to the conclusion that overall, receivers should be made easier to use and the sound quality should be improved.

Bob Thomann, co-presenter of Swiss Radio International's *Merry Go Round* show, chaired the Working Group about DX Programmes. Those taking part included the producers of such shows, and a number of listeners, so both the makers and the customers were able to discuss each other's thoughts! The Group came up with a list of what an ideal DX programme should contain:

1) It should be a contact programme for the DXer and the broadcaster;

2) It should contain features — reports, reviews (of new receivers, programmes, etc.), news of events such as conferences, exhibitions; and details of what's new (radios, stations, etc.);

3) Hot DX tips should be carried, although it was recognised that this proves problematic since DX shows are generally produced for a global audience, and tips which are valid for Asian listeners would be of little use to those in South America;

4) Radio propagation forecasts should be incorporated as they are fundamental to the hobby;

5) Contests and quizzes are appreciated by listeners;

6) Frequency and time listings of different broadcasters are of some use;

7) Miscellaneous information with details of amateur news, utility stations, clandestines and pirates were also wanted by listeners, although it was noted that broadcasting information about the latter three is against the ITU Radio Regulations.

The Working Group on the Eastern Hemisphere on the Tropical Bands was chaired by Anker Petersen, an expert on Tropical Band DXing, and Editor of the Danish Shortwave Clubs International annual *Tropical Bands Survey* publication. This Group discussed the reception of stations, and reporting thereto, and the type of equipment needed. It was established that stations on the Tropical Bands present the most difficult catches, with the most problematic listening. It is often difficult to obtain QSL verifications from stations heard, although the stations welcome reports on new frequencies used. However, when a new frequency is introduced, the station, often with extremely limited resources, may become overwhelmed by reports and therefore will stop replying. Much discussion centred on conditions, and reception of Asian and Pacific stations. Low frequencies propagate best at night and are better

during the wintertime. It appears that the low sunspot number has less effect on the Tropical Bands than on the higher frequency bands. Conditions vary widely, with Papua New Guinea audible on 90 metres, but an All India Radio station on 60 metres unheard on one day, with the reverse true on the following day. It was felt that the best equipment included the Yaesu FRG-7700, the modified Icom IC-R71 and the Sony ICF-2001D. Active antennas and preselectors are also useful items. Long wire antennas of 80 or 100 metres are also of much use, and Finland provides an excellent spot for this type of listening!

Timo Leponiemi, a Finnish DXer, chaired the Working Group on f.m. and TV DXing. Examples of catches during Sporadic-E conditions were demonstrated, and the Group discussed the types of equipment needed [which varies widely]. FM Yagi antennas and filters are of benefit, and it is possible in Finland to receive stations from Israel, and a private station in Lebanon has also been heard although unconfirmed at present.

Medium Wave DXing was led by another Finn, Hannu Tikkanen. The Group looked at the history of Medium wave DXing, from a very limited start, with very few stations heard, to a high in the early 1970s, to the current moderate level. The Group looked at equipment, listening habits in Finland, propagation, including the Grey Line advantage (which lasts for around two hours and enables African stations to be well received) and times for listening. A tape presentation to the Group demonstrated some of the 1623 stations identified during 1986, which included more than 630 from North America and Hawaii, 50 from Africa, 60 from Central America, 260 from South America and 300 from Asia.

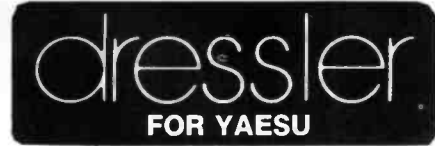
The final Group discussed the *World Radio TV Handbook* and at 80, had the largest number of participants of any Working Group. This was led by Tor Henrik Ekblom, a Swedish Co-Editor of the Handbook. The Group was told of the start of the Handbook in 1946 when just 96 pages made up the publication, and only 1,000 copies were sold. Jens Frost joined as Editor of the Handbook in 1949 and became in sole command in 1964, when there were 200 pages and 18000 copies were printed. Today there are more than 600 pages and 60000 copies sold. Perhaps this mirrors the explosion of broadcasting throughout the world, in particular in the Third World and, of course, on short-wave. Today, information is fairly readily available to the Editors, although the Peoples Republic of China refuses to supply any data because of the inclusion of Taiwan, Macao and Hong Kong as separate entries. It is planned to introduce guides on how to use the Handbook in Italian and Japanese as sales are increasing in areas of the world where these languages are widely spoken.



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with Peter Laughton

Coded Messages

Few listeners to the BBC's domestic radio service, Radio 4, on 200kHz long wave are aware that the same transmitter is used to send coded messages to electric time switches right across Britain. Data signals are added by phase modulating the main carrier of the transmitters. Small cheap long wave receivers are installed near to the electricity meter in the consumer's premises. When the correct code is broadcast by the transmitter, appliances such as storage radiators or water heaters can be switched on and off to take advantage of off-peak cheap electricity rates. This allows the Electricity Supply Industry more flexibility to smooth peak electricity demands. Queen Elizabeth recently gave an award to the BBC Engineering department who came up with the idea earlier this decade. Now the same department has begun test transmissions of the new European Radio Data System from an f.m. transmitter in Sutton Coldfield. Suitably equipped radios can then receive station name, programme, and possible traffic information displayed on the front of the set, or spoken by a voice-chip. The normal radio programme is received as usual and is not affected by the digital data. The system is also currently being tested on-air in Holland, Sweden and West Germany.

Swiss Swap with Chinese

With the overcrowded short wave spectrum, the nearer you can put your transmitter to the intended target area, the better the chances of success. In December last year a delegation from the Peoples Republic of China were invited to visit Berne, Switzerland, where they met representatives of Swiss Radio International. After the talks, it was agreed to co-operate on a technical level. It seems that this may lead to English programmes from Swiss Radio International being beamed to S.E. Asia for a few hours a day, in return for airtime on Swiss transmitters for Radio Beijing. Walter Fankhauser, SRI's press spokesman, says the final details still have to be worked out. But approval has been given by the two governments concerned. One, or possibly two transmitters will be used in both China and Switzerland for this exchange. It will involve satellite links between both radio stations. Radio Beijing is expected to get airtime on the omni-directional antennas for Europe between around 2100 and 2300UTC for programmes in German, English, Spanish and French.

A while back there was talk that Swiss Radio wanted to expand its transmitter site at home, namely the complex at Schwarzenburg. But these plans have been severely delayed by petitions from

local residents. Plans were originally drawn up in 1970, then revised in 1975 to blend the antennas a bit more into the surrounding countryside. Then someone posed the question as to whether the radiation from the transmitters might cause long term damage to the health of those nearby and/or the animals. It seems that after research by the Swiss PTT and foreign consultants, the conclusion has been reached that equipment on farms nearby might experience problems from the high levels of radio frequency energy. But there are NO indications that living in the vicinity of such a transmitter site is harmful to health. There are far greater health hazards from more high energy parts of the electromagnetic spectrum... like the ultraviolet light many of us deliberately try to soak up on the beach!



BBC on Satellite

The BBC has been using the Intelsat system to feed its relay stations overseas for some time. Just a couple of weeks ago the latest satellite link to their relay station in Lesotho was completed. But this feed is digitally encoded, and not easy to descramble without expensive equipment. However, on June 4, BBC TV began feeding a mixture of BBC1 and BBC2 to the Copenhagen cable system. This TV feed also gave the opportunity for two extra sound channels, a chance that the BBC External radio services decided they couldn't let slip by. The satellite in question, Intelsat, is a point-to-point communications service, not a broadcast service. It therefore requires equipment that's beyond most individuals, and the BBC stress that it is in an experimental stage. Still for the record, the new service is on the Intelsat 5 satellite, 27.5 degrees west, transponder 63, the centre frequency being 11.175GHz, that's the same as 11175MHz. Two channels are

running from 1330UTC onwards. One carries the English language "World Service", the other carries language streams including Finnish, Arabic, Polish, and German.

The use of Intelsat is not so attractive to European cable companies though. A short-term goal is to get two audio channels on the Eutelsat service, where the more popular satellite services operate from. Superchannel, BBC External Services and the Virgin record group have been discussing plans to broadcast some of the BBC External services programmes plus a new stereo pop channel across Europe, riding piggy-back and using spare capacity on the existing Superchannel network. How much money changes hands is said to be a stumbling block. There are no plans to scramble the new service. This doesn't mean the end to short wave broadcasting though. For one thing, satellites operating at this frequency can only transmit to a stable receiving dish. That makes reception in a car or on a simple portable radio inside an apartment virtually impossible.

Radio Netherlands Upgrades Bonaire

The Radio Netherlands Bonaire relay station will have a third transmitter by 1988, with a power of 250kW. However, there are no current plans to use all three transmitters simultaneously. The new transmitter is designed to replace one of the existing 300kW units, which will then be taken off the air to be used only as a standby sender. Although rated at slightly lower power, the new transmitter will in fact be far more efficient than the current equipment installed back in 1969. In addition, a new mixing table will shortly be installed at the continuity centre in Bonaire by September. This will considerably simplify the present facility which has gone through a number of alterations in the last 15 years, and continually been "patched up". The continuity desk will also introduce OPTIMOD to the Bonaire relay station. This processing system greatly enhances the intelligibility of the signal by ensuring the modulation of the transmitter is as high as possible without audible distortion.

Specialist Suggestions

The Danish Short Wave Clubs International have come out with updates to two of their specialist range of publications. Both are compiled by Finn Krone, well-known throughout Europe for his media news broadcast each Sunday via Adventist World Radio. They are both lists, and even though compiled in Denmark, everything is in English. One is

called "Home Service Stations Outside The Tropical Bands", in other words stations that are serving an audience in their own country via short wave. Starting at 5.900MHz, 23 pages later you arrive at 16.433MHz which is sometimes used by Radio Kiribati in the Pacific. Having bought quite a few guides of this kind recently, this one is clearly the best of its kind. The last check on the text was made in early May before it went to the printers. Home service stations are quite a challenge since the broadcasters usually have low power signals and are often drowned out by power international broadcasters. The price is eight International Reply Coupons (IRCs) airmail. The other booklet lists clandestine stations in both frequency and time order. Again it's extremely comprehensive, and the addresses in the back may be worth a try if you want to send reception reports to these often mysterious broadcasters. The list is now updated at least every six months. The price for the clandestine list is five IRCs, and the address for further information on the two publications is the Danish SW Clubs International, DK-2670 Greve Strand, Denmark.

Developing Countries Get More Critical

An interesting media conference in Harare, Zimbabwe, concluded recently. 80 ministers of information of the 101 member "Non-aligned Movement" met to discuss the decolonisation of the media, and the creation of a new world information order to reduce the influence of established news agencies. The ministers were urged to ban the use of their media facilities for hostile radio propaganda broadcasts by developed nations, according to the official Zimbabwean news agency ZIANA. Technological changes were affecting news interpretation to the disadvantage of developing nations, delegates said. Third

World countries should set up their own communication satellites to cut news transmission costs and increase information circulation. The Zimbabwean information minister, Nathan Shamuyarira, the new chairman of the ministers' conference, cancelled the press conference at the end of the meeting though, and briefed only local journalists. Several delegates complained of a campaign of silence by the foreign media, saying that there was a plot to black-out news coverage of the meeting.

In recent years some countries have become more critical as to who they allow to broadcast from their territory. But in most cases, country A doesn't simply buy a plot of land in country B and start broadcasting. Often country A does quite a lot in terms of training and development aid to make it equally beneficial for both sides. During the recent Costa Rican presidential delegation's visit to Spain, an agreement was signed by the foreign ministers of both countries to establish "Radio Internacional de Costa Rica". The Spanish equipment will be used to relay Spanish Foreign Radio's programmes to Central and South America, as well as broadcasting Costa Rica's own programmes.

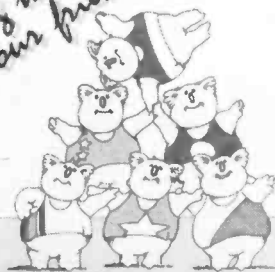
Australian Regionals Leave Airwaves

As the July issue of *SWM* went to press, the future of regional s.w. transmitters VLH and VLR, both based in Lyndhurst, Victoria, Australia, was being scrutinised. Since 1928, regional programmes have been broadcast from this site, and Radio Australia later used the same centre for external broadcasts. However, it was decided on June 5 to close down the domestic service transmitters, thus ending an era. Radio Australia's *Talkback* programme devoted an entire programme about the switch-off ceremony. All that remains is the time signal station VNG based there. This

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service is expected to be discontinued either next month or in October. Most of the scientific and maritime "customers" who used to use VNG time signals now have other sources. A recent survey showed that users were not prepared to contribute towards keeping the service on the air.

Desert Island DX

Two free tickets were offered as a raffle prize at this year's Association of North American Radio Clubs meeting in Toronto back on July 17. These tickets are for a short wave cruise in the Caribbean which starts from San Juan, Puerto Rico at 7.30 on Saturday evening October 10. The luxury cruise ship *Cunard Countess* takes you on a six-and-a-half day "multi-capital" tour of the Caribbean, arriving back where you started early the following Saturday morning.

Actually, the *Countess* is cruising the area all the time, but Gayety Travel Services Holidays of Brooklyn, New York have decided that the October 10 cruise should have a short wave seminar on board. Two North American short wave personalities have been invited to present a series of lectures on board the ship. Equipment manufacturers have been invited, and a target set for 150 people to take part. The price is a mere (!) US\$1295 per person, including airfare from the USA. If you have the urge to go from Europe, then it could work out even more! Personally I'd rather spend the money on a new top-of-the-range receiver or a holiday for the entire family. Nevertheless, I'm curious to see how this new form of publicising international broadcasting succeeds. □



Cunard Countess in the Caribbean.

ANTENNA TROMBONE TUNER

A. H. Robson

To achieve the smooth movement of the ferrite rod inside the coil some form of gearing is desirable. This can be achieved quite simply with a snail cam, cut from hardboard. The cam is mounted on the shaft of a standard volume control potentiometer which acts as the bearing.

Cam Profile

The profile of the cam should be fitted to the ferrite rod-coil combination to give the required total movement of the rod inside the coil. A suitable cam, giving a total rod movement of 80mm, is shown in Fig. 3, you can copy the appropriate shape onto plain paper which can be glued onto the hardboard for cutting out. A fine saw can be used for this operation, finishing the edge off with fine sandpaper before drilling the hole through the centre. The cam is pushed onto the potentiometer shaft followed by a suitable knob which is glued to the cam.

Coil Former

The coil former can be made from any suitable material, such as card rolled into a tube or even a suitable diameter plastics tube. The number of turns to be wound onto the former can be experimented with, thirty being a suitable starting point for the s.w. bands. Eighty to ninety could be tried for the m.w. bands. The actual

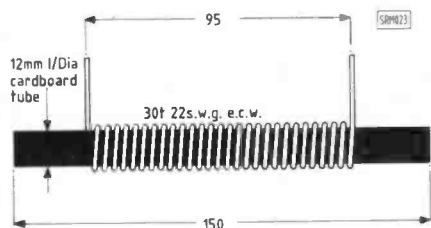
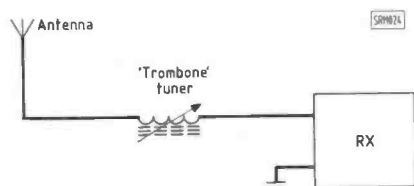


Fig. 1: The coil is wound on a suitable tube using enamelled copper wire. The dimensions are not critical.

Constructional details of the tuner can be seen in these two photographs. Scrap plywood can be used for the base, whilst the snail cam may be cut from hardboard. Gravity is used to ensure that the ferrite rod returns, by the simple expedient of tilting the tuner as shown in the upper photograph.

Fig. 2: The trombone tuner is connected in series between the antenna and the antenna socket of the receiver.



The ferrite rod "trombone" tuner is an ideal device for fine tuning an antenna, and is easy to construct from scrap material. However, it can be difficult to move the ferrite rod smoothly to give precise tuning. A. H. Robson's simple design overcomes this problem.

diameter of the enamelled copper wire being relatively unimportant as long as it is not too thin. Around 22 s.w.g. would seem to be about right.

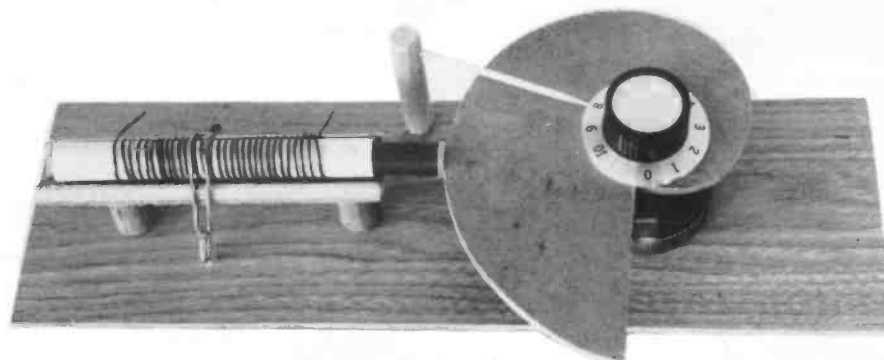
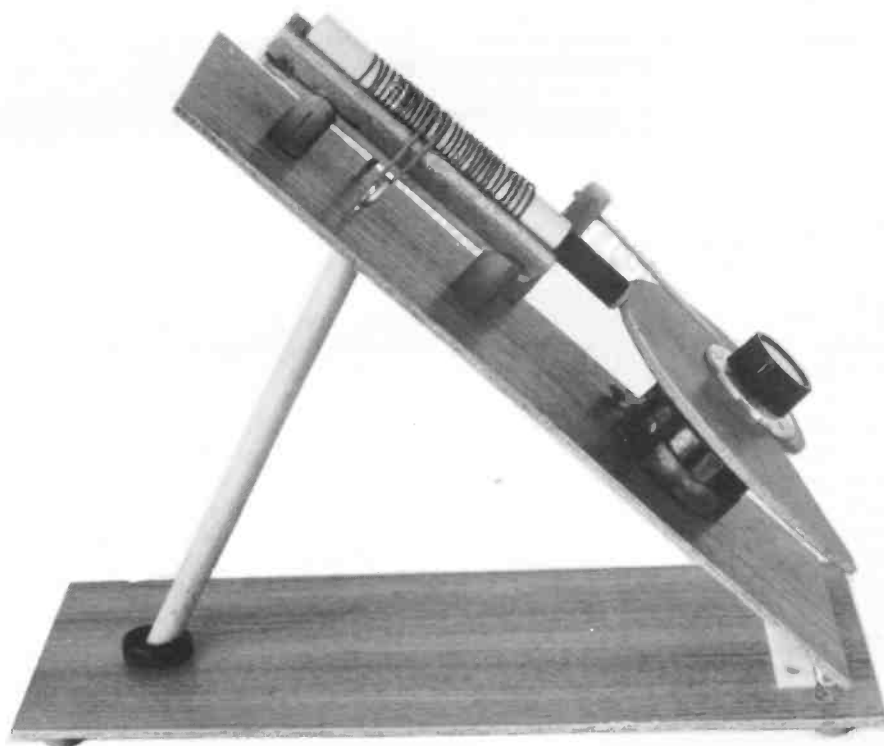
The baseplate and other parts of the assembly can be made from 4mm thick plywood as shown in the photographs. The coil is held in place by an elastic band and the pointer used in the prototype was

a cocktail stick fitted into a piece of dowel glued to the base. However, if the periphery of the cam is calibrated, remembering that it is angular movement that counts, the end of the piece of dowel which pushes the ferrite rod will act as the pointer.

This push-rod must obviously be kept in contact with the cam, and this is simply achieved by tilting the plywood base at an angle of about 45°. To support the base at this angle it is hinged to another piece of plywood and a length of dowel used as the prop. Two rubber grommets glued to each plywood section as shown prevent the prop from falling out.

Using the Trombone

The trombone tuner is wired in series with the antenna and the receiver as shown in Fig. 2. Rotating the knob will fine-tune the antenna to give maximum signal at the set's antenna socket. □



ANTENNA TROMBONE TUNER

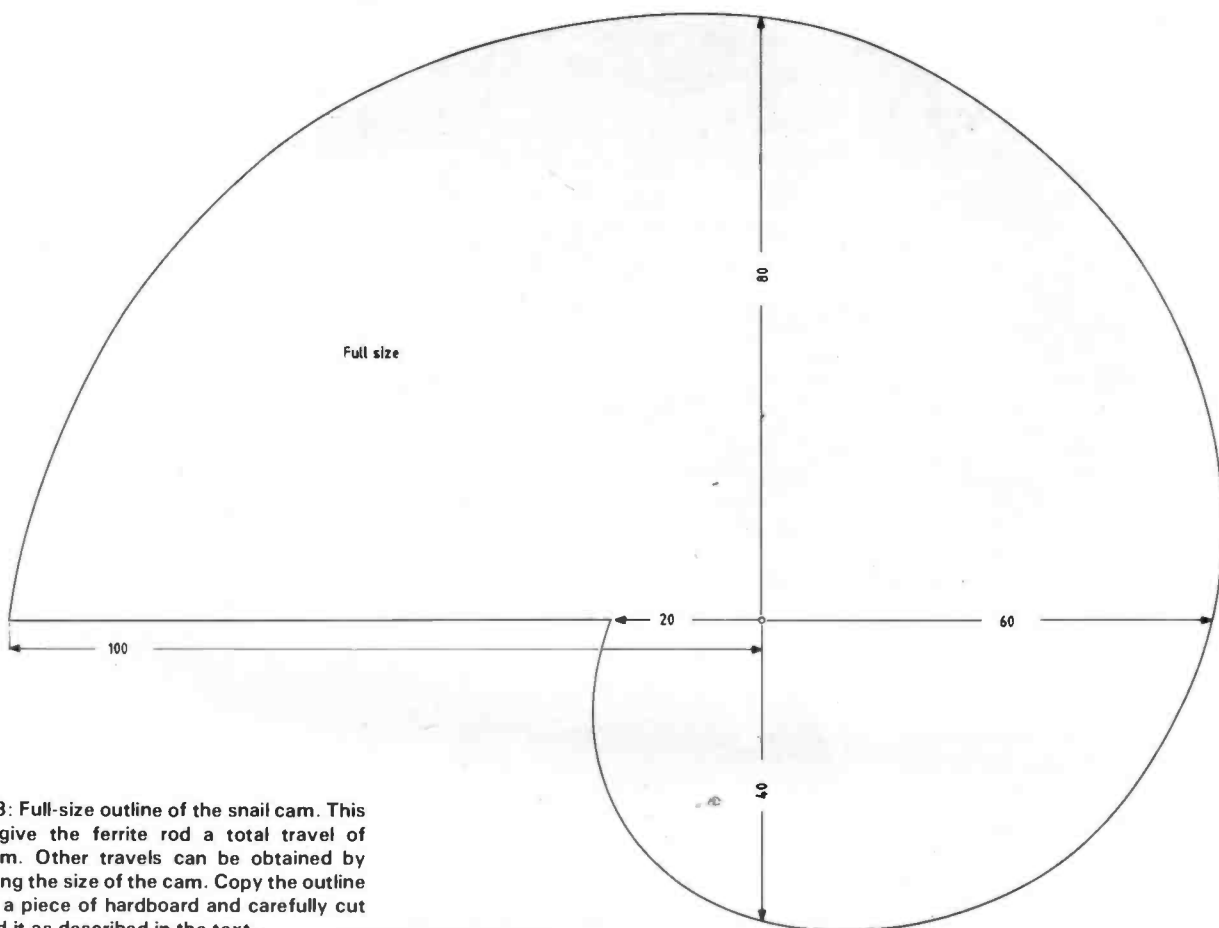


Fig. 3: Full-size outline of the snail cam. This will give the ferrite rod a total travel of 80mm. Other travels can be obtained by altering the size of the cam. Copy the outline onto a piece of hardboard and carefully cut round it as described in the text.

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ANTENNAS FOR SCANNERS

Alec Wood BSc G8WHR

There are now three mid-priced scanning receivers that cover almost the entire range of frequencies from 25 to 1300MHz, the AOR AR-2002 at £487, the Regency MX-8000 at £487 and the Realistic PRO-2004 at £330, all of which are provided with telescopic antennas. While these are adequate for the reception of strong local signals, an external antenna is required to get the best from the equipment. Also, to use the versatility of these scanners to the full, it is not convenient to have to keep changing antennas to cover different frequencies.

Challenge

The design of an antenna to cover such a broad frequency range is quite a challenge. In order to get the telescopic antenna supplied to perform adequately across such a wide frequency range its length has to be altered as the receiver scans different bands. For obvious reasons it is not practical or desirable to keep altering the length of a loft or roof mounted antenna.

Nest of Dipoles

Several designs which attempt to solve this problem are available commercially. The "nest of dipoles" design (Fig. 1) combines the signals from about six dipoles whose lengths are cut to cover six separate, adjacent or overlapping areas of the band. These antennas work very well within the ranges for which they are designed but they are expensive. The RADAC dipole nest covers 25 to 500MHz and costs £69.95.

Collinears

Another solution is a "stack" of different length antennas, known as a collinear antenna. This type of antenna again works well at certain frequencies across the band for which it is designed,

Modern scanning receivers place such demands on their antennas that it has become a challenge to design a broad-band antenna system to cope with the ever increasing frequency coverage of these sets. In this article, Alec Wood looks at different types of wide-band antenna systems and offers a practical design for the home constructor.



The Realistic PRO-2004 scanner is sold in the UK by Tandy.

but because it relies on the phase relationship of the received signal, with its separate parts reinforcing each other, it also has certain frequencies within the band where its performance is poor because the signals cancel each other. It is therefore not such a good choice for scanning receivers but is better suited to amateur radio reception where the frequency bands of interest bear a harmonic relationship to each other, 144, 432 and 1296MHz, etc. (Fig 2.)

Discone

A third type of very broad-band antenna well suited to scanner use is the "discone" (Fig 3). This type of antenna has very broad-band characteristics and can be used over a 10:1 frequency range. The Revcone covers 50 to 500MHz and is good value at £29.95. The Weltz-Diamond D130 claims to cover 25 to 1300MHz and costs £83. The lower frequencies are achieved by means of a loaded whip antenna mounted on the centre of the "disc" elements. However, analysis of the design shows that the discone elements are cut for a maximum frequency of about 700MHz and this is confirmed by the fact that it does not perform particularly well above this frequency.

So is there a single antenna suitable for use with a scanner that covers the enormous range from 25 to 1300MHz?

Compromise

The simple answer is no. Any antenna will offer a compromise over such a huge frequency range. If we examine the requirements of the scanner user we should be able to draw up criteria for the selection or design of the most suitable antenna.

As I have already said, the telescopic antenna provided with the scanner is fine for strong, local signals. However, an antenna placed higher up, in the loft or on the roof, will pick up more distant and

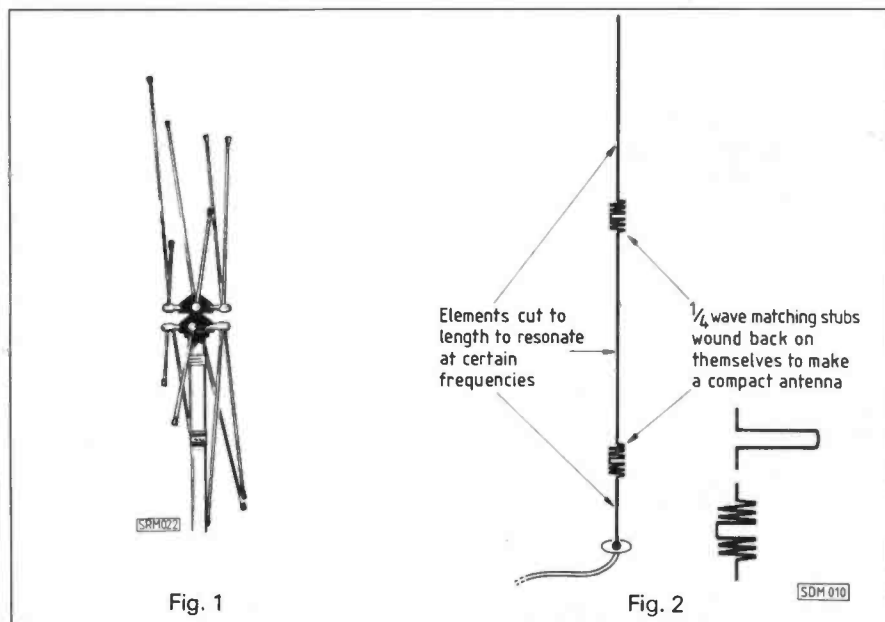


Fig. 1

Fig. 2

ANTENNAS FOR SCANNERS

weaker signals. There are two main reasons for this; the antenna is away from possible screening effects of internal walls and metalwork, and v.h.f. and u.h.f. reception is usually restricted to line of sight between transmitter and receiver.

The higher your antenna, the further away is the horizon that it can "see". So the first criteria is that our external antenna must perform as well on strong signals as the telescopic antenna provided with the receiver, and better on weak signals. One

might expect therefore that the higher the antenna the better.

To some extent this is true, the higher the antenna the greater the length of coaxial cable required to connect it to the receiver, and at u.h.f./microwave frequencies of 900MHz and above signals are very quickly attenuated by even moderate runs of coaxial cable. If the run is too long the losses can be so great that the simple telescopic antenna mounted directly on the back of the receiver can

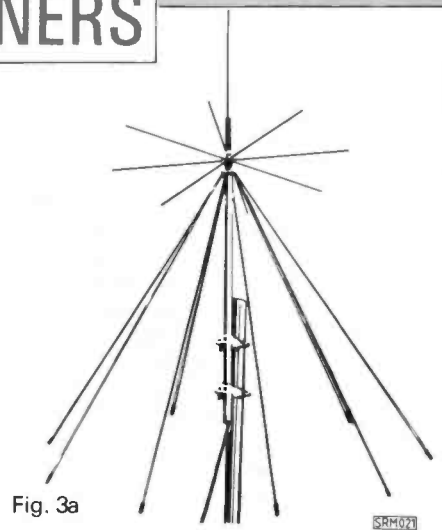


Fig. 3a

give a better performance on strong to medium strength signals.

The Loft

A loft antenna can sometimes offer performance at these frequencies as good as a chimney mounted roof antenna because of the considerably shorter coaxial cable runs required if the antenna is located in the loft directly over the receiver. The coaxial cable can then be run through a small hole in the ceiling direct to the receiver. A loft antenna also offers the advantage that as it does not have to stand up to the vagaries of the weather it can be constructed from inexpensive materials. It is also easier and far safer to install than a roof mounted antenna.

Another advantage of a loft antenna is that if you happen to place it in a null spot for one or more of your favourite stations it is easy to move it a little until reception is good.

It would therefore appear that a loft mounted broad-band antenna would be excellent for use with a scanner. This is in fact the case and a suitable design of discone mounted in the loft can give a good account of itself throughout the frequency range 25 to 1300MHz. A further advantage of a discone antenna is that it can be reasonably compact and will fit even the lowest of modern lofts.

Criteria

To summarise the criteria for a good scanning receiver antenna are:

1. It must perform well at every frequency within a very wide band. The scanner user is never sure where he is going to find an interesting transmission so antennas designed only for certain frequencies within the whole range are of less general use.
2. It must perform at least as well as the receiver's own directly connected telescopic antenna on strong signals.
3. It must be capable of easy mounting, high up, so as to give a good performance with weak and distant signals.
4. The coaxial cable run must be as short as possible to avoid excessive losses at u.h.f./microwave frequencies.
5. If possible it should be easy to alter the initial siting to find a spot where reception of all the user's favourite transmissions is strong.

D-130 Super Discone Antenna

*Number below each part name is a part number

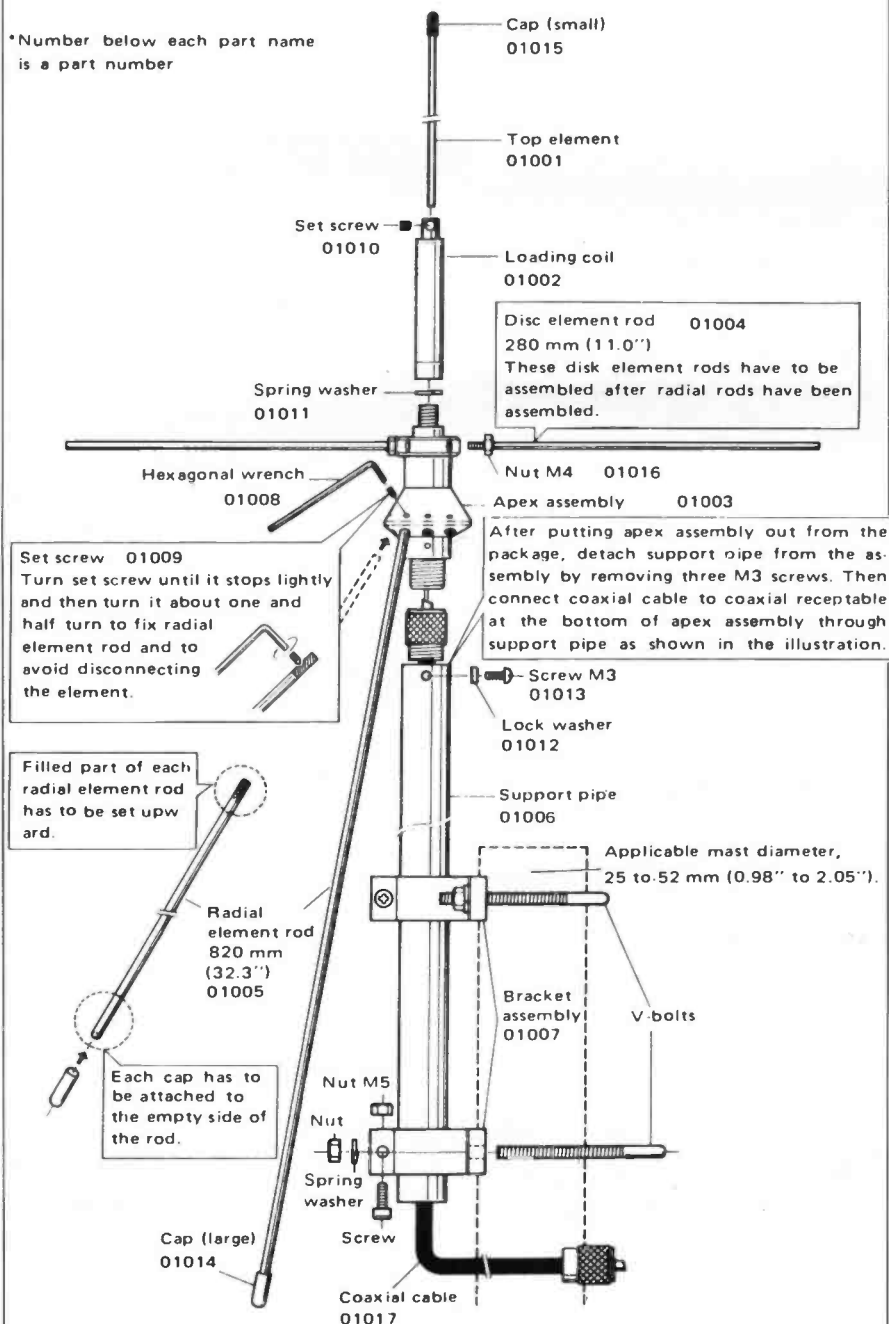


Fig. 3b: Details of the Weltz-Diamond D-130 Super Discone Antenna claimed to cover 25 to 1300MHz.

ANTENNAS FOR SCANNERS

Any design will be a compromise but the type of antenna best suited to all of these needs, and also offering a very compact and low-cost design suitable for loft mounting is the discone antenna. Discone antennas designed for outdoor use are usually constructed from eight or more disc "rods" with the same number of cone "rods" below them. (Fig. 4.) However, for indoor loft use we are not concerned with the "windage" of the antenna and a solid disc and cone can be used. (Fig. 5.) These can be constructed from sheet aluminium, from mesh or from cardboard, or plastics sheet, covered with aluminium kitchen foil. (The extra wide "turkey" foil is easy to use.) The supporting metal tube can be aluminium, copper or steel.

The discone looks a rather strange antenna but it can be thought of as a development of the $\lambda/4$ vertical whip with angled ground planes (Fig. 6). Although the vertical quarter-wave element has been replaced by a horizontal disc, the discone is, in fact, a vertically polarised antenna. It can also be compared to a conical antenna with the upper cone replaced by a flat ground plane. (Fig. 7.) A schematic drawing of a discone antenna is shown in Fig. 8. The distance A should be approximately equal to a free space quarter wavelength at the lowest operating frequency. The antenna will then perform well over a frequency range of at least 8:1. It can also give a good account of itself below this lower design frequency, allowing its use as a receiving antenna to be extended down to 25MHz.



The AOR AR-2002 scanning receiver.

Frequency range

Text books often quote the range of a discone as 10:1. This is true, but what many designers do not realise is that this range is from 20 per cent below the lowest design frequency to eight times the lowest design frequency.

Many commercial designs are therefore longer than they need to be and perform badly at the upper frequency limits.

An often quoted formula for the design of a discone is:- $A = 73/f_L$ m where f_L is the lowest design frequency in MHz.

If this formula is used then the discone can be expected to perform very well from

20 per cent below f_L up to 8 times f_L . A length "A" of 457mm will therefore perform very well from 128 to 1280MHz.

Experiment

In practice an antenna of these dimensions also gives a very adequate account of itself all the way down to 25MHz. However if you have the loft height you can always experiment by adding a loaded whip to the centre of the disc to improve the performance between 25 and 100MHz. In practice I find that at 27MHz this discone is only a couple of S-points down on a carefully tuned quarter-wave whip. Should you wish to design an antenna to cover a different range of

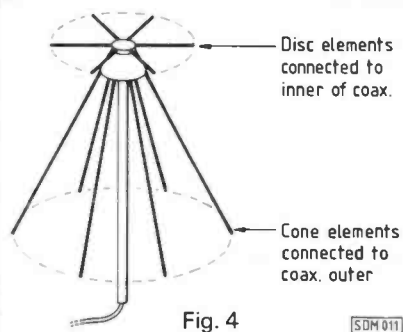


Fig. 4

SDM 011

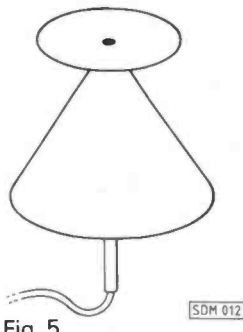


Fig. 5

SDM 012

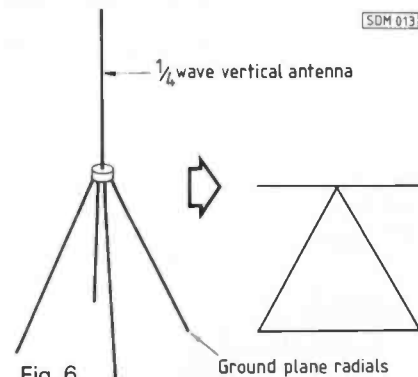


Fig. 6

Ground plane radials

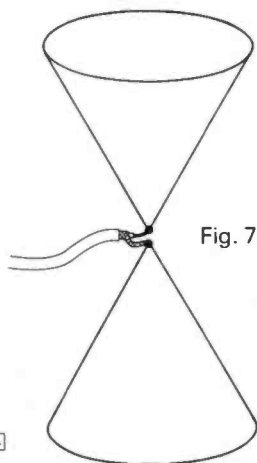


Fig. 7

SDM 014

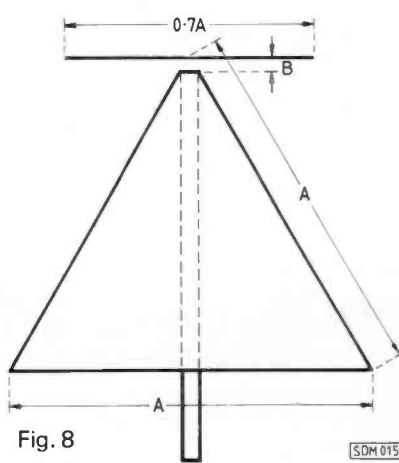


Fig. 8

SDM 015

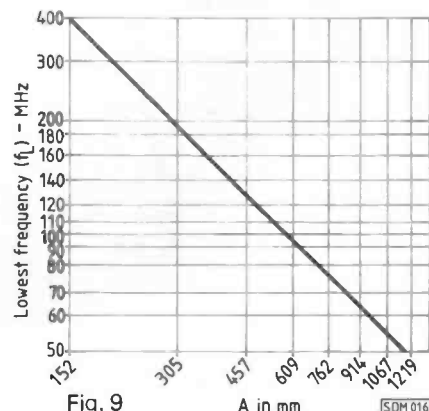
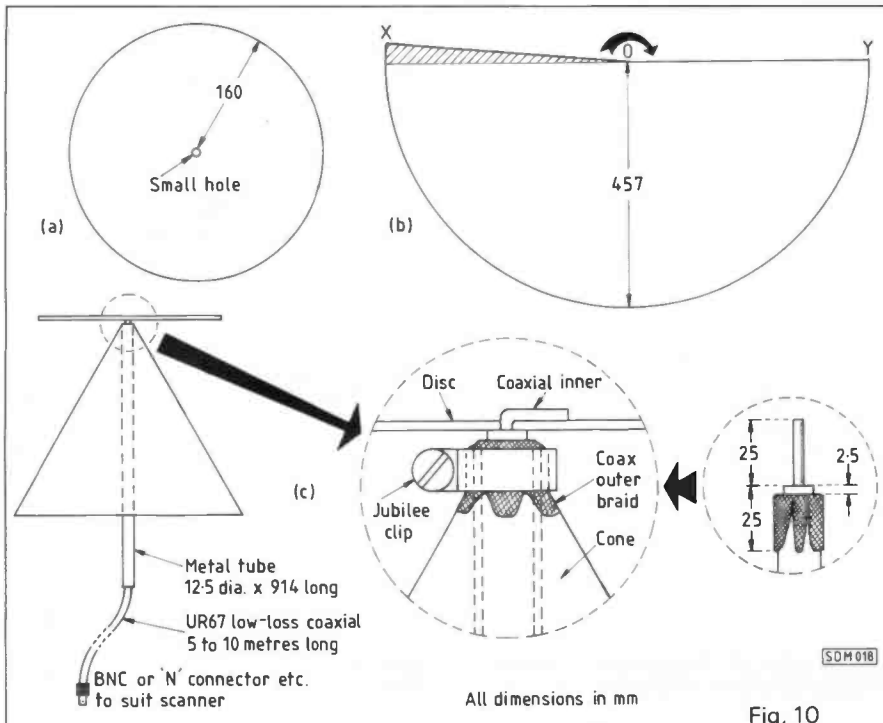


Fig. 9

SDM 016

ANTENNAS FOR SCANNERS



frequencies, the chart in Fig. 9 can be used. The antenna will then perform well over a frequency range f_1 to 10 times f_1 .

The characteristic impedance of a discone antenna built to the dimensions shown in Fig. 8 will be 50 ohms over the entire 10:1 frequency range. The distance B is quite critical and affects the impedance of the antenna. For 50 ohms it should be about 2.5mm.

To avoid excessive losses at high frequencies UR67 coaxial cable should be used. This also makes construction easier as it is capable of "supporting" the upper disc element. Fig. 10 shows the dimensions and constructional details of a simple discone that I have been using successfully for a while with my Realistic PRO-2004 scanner. Ensure that there is no electrical contact between the metal of the disc and the metal of the cone. The inner of the coaxial cable is held in contact with the disc by epoxy resin. You may need to glue the cable to the inside of the tube for rigidity. The cone angle affects the characteristic impedance of the antenna and should not be altered.

This article should have given sufficient information to allow the reader who is particularly interested in a different frequency coverage to experiment with different dimensions. □

Fig. 10: Details of the simple indoor discone antenna. The top disc and the cone can be made from thin aluminium sheet or card covered with kitchen foil. The cone is held together with tape, four slits are cut in the apex and it is slipped over the metal tube and held with a clip.

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INTRODUCTION TO DX-TV

Keith Hamer and Garry Smith

Part 1

Television signals radiated from transmitters located throughout Europe can be picked up hundreds of miles away from their intended service areas on an almost daily basis. We are not discussing satellite television transmissions but normal domestic broadcasts from terrestrial outlets.

As most readers will be aware, due to the curvature of the earth, signals tend to leave its surface at a tangent and continue to travel into space, only to be lost forever. However, some signals may be returned to earth by one or more modes of propagation, albeit on a random basis; reception is not reliable and an endless selection of extra programmes cannot be guaranteed – only satellite or cable television reception can provide that.

For many decades a growing number of enthusiasts have been tuning in to these random signals. In fact, it has become a recognised hobby, known as **DX-TV**. With increased publicity and the relative ease with which signals can be picked up, the number of enthusiasts has rapidly increased, especially over the past few years. Until recently, enthusiasts were given funny looks when describing their hobby to people. Nowadays, it is easy to draw an analogy with satellite TV and most people appear to understand what is being achieved.

Fascination

So what is the fascination of receiving such random transmissions? The main attraction of the hobby is the uncertainty and the surprise element of what may emerge from an otherwise snowy TV screen. With certain types of reception, signals can flood in virtually every day throughout the summer months. All of these signals arrive from transmitters operating almost anywhere in Europe, the Middle East and Africa. On rare occasions, reception from North and South America has been possible.

Ionisation

The type of reception referred to above is known as **Sporadic-E, Es** or **Sp-E** for short. During the summer months between early May and mid-September, intense ionisation occurs within the E-layer, which is located approximately 120km above the surface of the Earth. Signals are refracted back from this layer and consequently a **skip** distance is involved. This is typically 1120km, which means that countries such as Italy, Spain and Russia are frequently received in the UK whereas transmissions from Belgium or the Netherlands can be extremely difficult to capture via this type of propagation. Sometimes double or even multiple-hop reception is possible and it is not uncommon to find signals from Jordan mingling with ones from Yugoslavia.

This series will provide an insight into the fascinating hobby of long-distance television reception. Although receiving foreign TV transmissions may seem an odd pastime to the uninitiated, many enthusiasts openly admit that after experiencing their first "opening" with test cards and programmes, they were well and truly hooked. Ron Ham's regular DX-TV column certainly testifies to this!

The ionised E-layer is unstable thus making reception strength and quality continuously variable. This is a characteristic of Sporadic-E reception. Several stations may be fighting their way through on one channel over a period of a few minutes while on other occasions a single programme may occupy a channel and remain steady for long periods. **Openings**, as they are called, may be short and sweet lasting a minute or two with very little else around during the remainder of the day. At other times, openings may last round-the-clock from the crack of dawn until well after midnight. Sporadic-E reception can occur at any time of the day or night but bear in mind there are very few European stations operating after the witching hour. Sporadic-E reception can occur other times of the year but openings are relatively few and far between compared with the summer ones. A midwinter peak in activity is usually expected around the end of December.

Simple Antennas

The strength of signals propagated by Sporadic-E ionisation often amazes newcomers to the hobby. Beginners

usually imagine that an extremely elaborate antenna system in a good geographical location is a must when capturing such long-range signals. This couldn't be further from the truth. During intense openings, signal strengths often attain extremely high levels and the use of a simple loft-mounted dipole antenna is not unheard of. A dipole cut to approximately 1.27m per element is quite sufficient. In fact the author's used a 1 metre length of wire connected to the antenna sockets of their receivers in the early days of the hobby during the late sixties. This arrangement had the added benefit of being able to null-out the local BBC transmissions by altering the position of the wire.

Of course, mast-mounted multi-element arrays are used today. Results are far superior on the weaker signals and there is the added advantage that the antennas can be rotated for maximum pick-up of the wanted signal. It is interesting to note that height isn't of great importance with Sporadic-E propagation because signals arrive at an angle. Enthusiasts should aim for a minimum height of around 5 metres to avoid problems with local obstructions. The antenna must be mounted horizontally since most European stations favour this form of polarisation.

Where To Look

Unfortunately, with this type of reception it is no good twiddling the spare tuning buttons on your television in the hope that you will find DX signals. The reason for this is that the frequencies which will support Sporadic-E propagation lie well below the tuning range of a typical UK receiver which will only cover u.h.f. Bands IV and V. Most European countries use Bands I and III (as well as u.h.f. Bands IV and V) for broadcasting. Sporadic-E ionisation affects frequencies within Band I, although rare instances have been known

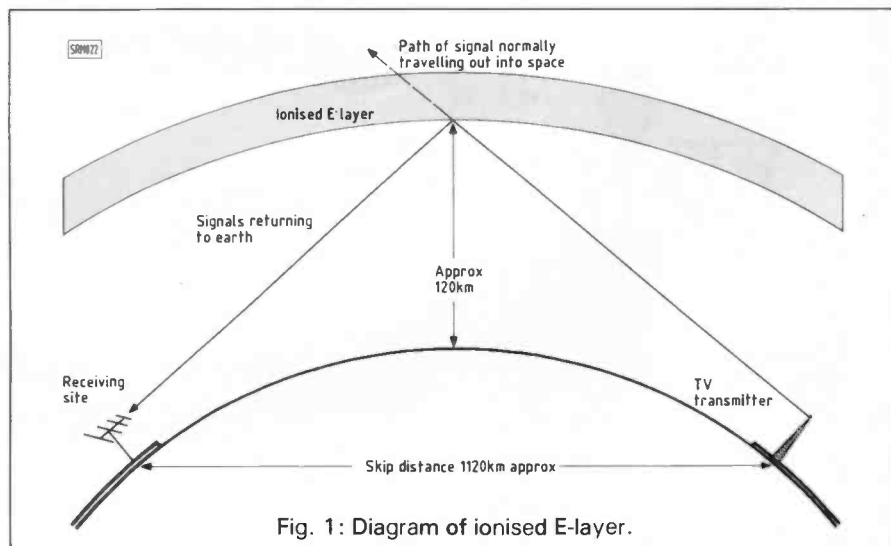


Fig. 1: Diagram of ionised E-layer.

INTRODUCTION TO DX-TV

where DX reception has occurred on the lower Band II channels.

There are various ways of receiving Band I transmissions. Perhaps the most obvious one is to substitute or add a Varicap tuner to the receiver. Inexpensive multi-band Varicap tuners are widely available from mail order companies such as Sendz Components.

Caution

Remember that modifying a receiver in this way demands a reasonable degree of skill. Very high voltages are present within a television receiver and there are the problems of isolation in receivers having a live chassis or one at half-mains potential. Bear this in mind if you propose adding extra tuning and bandswitching controls. If in doubt, leave well alone.

Some receivers have these extra bands fitted as standard, especially in the more up-market models. Look for clues around the tuning presets; there may be bandswitches present. Consulting the instruction manual may give an idea as to whether the extra bands are available.

Video Recorders

Some video cassette recorders have multi-band tuners fitted as standard. A few which spring to mind include the ever-faithful Sanyo 9300 Beta machine, certain Hitachi VT11 and Ferguson 3V35 models and more recently the Solavox/Alba 4000

model. The video cassette recorder can be used in the E-to-E mode, i.e. its built-in tuner can be used for receiving the DX signal.

Converters for DX-TV

The use of a device known as an up-converter can be used to translate v.h.f. channels in Bands I and III to u.h.f. channels. This type of arrangement was at one time popular with communal antenna distribution systems where u.h.f. channels were down-converted to reduce feeder cable losses. The up-converter would convert the relayed signals back to u.h.f. frequencies at the subscribers' premises. The main disadvantage of using such a device for DX purposes is the need for adjustment of the tuning presets of the receiver which can be fiddly as well as a hit and miss affair.

A relatively new type of converter system, known as the **D-100**, is now available which converts the incoming DX signal to a spare u.h.f. channel. The converter conveniently connects to the antenna socket on the receiver. One great advantage of this type of system is its switchable i.f. bandwidth. This improves selectivity which reduces the spread effects from adjacent DX channels. This effect can be a particular problem with certain channels where the vision carriers are only 1.5MHz apart. If a video recorder

or a receiver already possessing the extra channels were to be used, the result would be two or more pictures floating over one another. This is because the full i.f. bandwidth is being used. Reducing the i.f. bandwidth improves the selectivity and many DX-ers favour this mode of operation.

Equipment Suppliers

DX-TV converter systems, books and publications about DX-TV are available from *HS Publications, 17 Collingham Gardens, Derby DE3 4FS*. A 33-minute demonstration video is available (VHS or BETA) which shows examples of DX-TV reception by the main modes of propagation. The cassette, with programme notes, costs £14.50 including UK postage.

Antennas and associated hardware are obtainable from *Protel Limited, 285 Ballards Lane, London*.

Multi-band tuners are available from *Sendz Components, 63 Bishopsteignton, Shoeburyness, Essex SS3 8AF*.

Aerial Techniques, 11 Kent Road, Parkstone, Poole, Dorset BH12 2EH can also supply most of the DX-TV enthusiasts needs.

Please remember to include return postage when writing to any of these suppliers. □

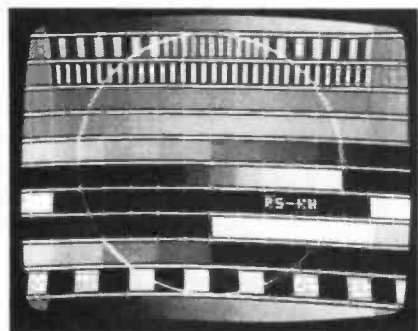


Fig. 2: Electronic test card transmitted by Czech TV and received via Es.



Fig. 3: Identification caption from the TV service in Rumania.

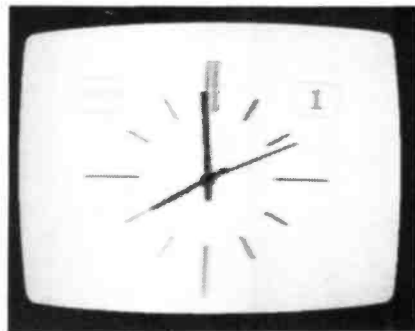


Fig. 4: Clock caption radiated by the first network in Hungary.

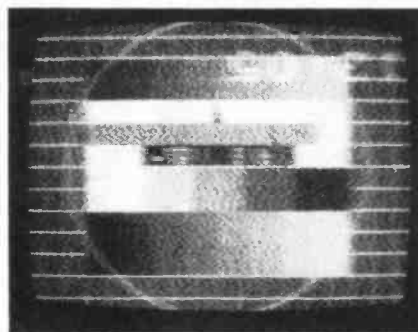


Fig. 5: Multi-hop Sporadic-E reception with the test card from Iran!



Fig. 6: News programme by Russian TV frequently received in the UK.

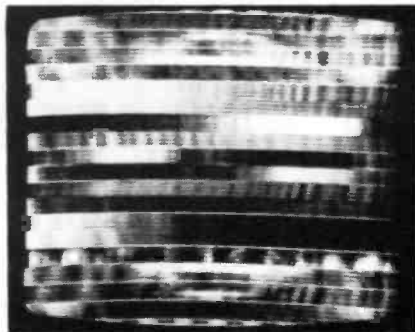


Fig. 7: Russian test card displaying multi-path distortion.

SONY ICF-7600DA RECEIVER

Peter Shore

The Sony ICF-7600DA (known as ICF-7700DA in North America) looks at first glance to be similar to many other sets available in the market place today. However, closer examination is warranted to reveal the full attributes of the receiver.

Facilities

The designation of the set, 7600DA, indicates that the set is both digital and analogue. On the front of the set, to the right of the loudspeaker, is a large window display which, when the radio is switched off, shows the time in digital format at the top of the display, alongside an area showing whether the main power is on or off. Beneath this is a large display showing each of the bands covered by the set [v.h.f.-f.m. 87.5-108MHz; l.w. 150-285kHz; m.w. 531kHz-1.602MHz; s.w. (in 12 broadcast bands) 3.050-26.100MHz]. Switching the set on reveals that this whole window is a liquid crystal display, measuring in all perhaps some 70 x 65mm. This is possibly the largest l.c.d. to be featured on a piece of equipment of this type, and by incorporating it into the set, the manufacturers have enabled some reasonably sophisticated operating features to be used.

Tuning

Once the set is switched on, the clock display changes to show the frequency to which the radio is tuned, in kHz on a.m. bands and MHz on f.m. An additional marker is displayed above the appropriate band (s.w. 1-12, l.w./m.w. or f.m.). Selection of the bands is by means of three

The Sony Corporation of Japan has been in the forefront of portable radio technology since the 1960s, and today is renowned for its range of digital and analogue short wave receivers. In the face of increasing competition, Sony is this year introducing new receivers, the first of which is the Sony ICF-7600DA, available in the UK from late June. Peter Shore had the opportunity to test the set in the UK and in Europe . . .

push-buttons beneath the display [f.m.; m.w./l.w.; s.w.], with the different short wave bands selected by a fourth rocker push-button. Tuning is by means of a rotary knob on the right-hand side of the set. When tuning, the frequency on short wave changes in 5kHz steps, on long wave in 3kHz steps, on m.w. 3kHz (although 5kHz may be selected for use in North America) and on f.m. 0.05MHz. Since the tuning dial is liquid crystal, there is no conventional metal pointer, and its place is taken by an l.c.d. line, which moves up and down the dial. On s.w. the pointer moves every 25kHz to give an approximate reading of current frequency. At first it

may seem strange to experienced listeners that Sony should think it necessary to include both an accurate digital frequency counter and a large dial, but it must be appreciated that the manufacturers are aiming this set not only at DXers and s.w.l.s, but also at a wider market of people on the move around the world, wishing to stay in touch with news on short wave: international businessmen and so forth. The added benefit for dedicated listeners in having the dial is that the limits of the short wave bands covered by the set is easily seen, for it should be stressed that the 7600DA does not have continuous coverage on short wave. All the recognised broadcast bands are covered, together with most conventional out-of-band frequencies (even the BBC World Service channel of 18.080MHz is covered).

Memories

A total of fifteen memory channels are provided, five on each of f.m., l.w./m.w. and s.w. To memorise a frequency, the radio is tuned to the appropriate channel, and the ENTER button is depressed simultaneously with the appropriate PRESET number key [1 to 5]. Recall of a memorised channel is equally as straightforward, with the PRESET number key depressed and the frequency is tuned in. The memory channel (if any) is displayed at the top of the digital window, against a turquoise background.



SONY ICF-7600DA RECEIVER

Digital Clock

The digital clock also serves as an alarm facility, and the user may select either the radio to be switched on, or for a buzzer to sound. A sleep facility may be selected which will automatically switch the radio off after around 65 minutes.

Using the Set

The operation of the set is uncomplicated. Useful features have been incorporated to make the use of the radio easier — for example, when tuning along a short wave band, and the upper limit is reached (say on band 6, the frequency of 10.010MHz) the set will change to the lowest frequency of the next band (band 7, 11.525MHz), enabling tuning to continue easily and without the need to select a fresh band manually. This feature is facilitated by the incorporation of an l.c.d. pointer — it would be impossible if a conventional pulley and thread system was used!

Safeguards

Two safeguard features are included: a main power switch which overrides the ON/OFF switch, ideal for travelling to save accidental switch on and the undesired draining of batteries. A further KEY PROTECT feature prevents tuning or memory recall when selected, useful for ensuring that no one changes a station when you are happily listening to a programme!

The ICF-7600DA does not have a fine tuning device, and this can prove somewhat problematical on short wave, especially when stations are close together, or are not on exact 5kHz channels (for example Teheran on 15.084MHz). No wide/narrow filter is included which can also be a disadvantage — whilst on test, a jammer was operational at around 0800 on 9.660MHz, rendering Radio Australia on 9.655MHz inaudible.

A two-position tone control (MUSIC/NEWS) is provided, and audio quality is fully acceptable on the 7600DA. An earpiece is provided in the pack and may be connected to the 3.5mm jack on the left side of the set. A similar jack for recording is also featured.

Antenna

A seven-piece telescopic whip antenna is situated on the top of the set, and is adequate for most purposes. No external socket is provided, but in the UK models, an accessory is included in the pack. This is Sony's AN-6 antenna: at first glance it looks rather like a steel tape measure, but in fact is a small plastics box about 35mm

square, containing several metres of wire and a coupler which slips over the whip antenna. This can be dangled out of a window, or perhaps around a window frame. Tests show that this can assist when listening to weaker signals, but is of little use at night in Europe on 49 metres when the set is likely to become overloaded. However, this is a nice touch by the manufacturers, and may encourage occasional users to listen more and to improve their listening.

Batteries

The set is powered by four AA size cells, or a 6V d.c. adaptor (not supplied) may be connected. A grumble at this point — why can Sony not make their radios so that only one adaptor is needed by someone with more than one of their products? The 2001D uses 4.5 volts, and so a separate mains transformer is needed . . .!

Performance

We tested the ICF-7600DA by feeding a test signal to the whip terminal, and measuring the a.f. output through the earpiece socket.

Selectivity

Tests suggest that this is very good, despite the comment in "Using the Set", and is similar to other Sony sets.

- 20dB at \pm 5kHz (adjacent channel)
- 87dB at \pm 10kHz (next but one channel)

SPECIFICATIONS

Price	£159.95
Frequency Range	FM 87.5 – 108MHz LW 150 – 285kHz MW 531 – 1602kHz SW1 3.050 – 3.565MHz SW2 3.700 – 4.215MHz SW3 4.650 – 5.165MHz SW4 5.800 – 6.315MHz SW5 6.950 – 7.465MHz SW6 9.375 – 10.010MHz SW7 11.525 – 12.160MHz SW8 13.375 – 14.010MHz SW9 14.975 – 15.610MHz SW10 17.475 – 18.110MHz SW11 21.325 – 21.960MHz SW12 25.475 – 26.100MHz
Power Source	Battery 6V (4xAA size cells) Optional 6V d.c. adaptor
Power Output	400mW
Dimensions Weight	191.5 x 117 x 31.5mm 607g including batteries

Image Response

Image response is about average for a receiver of this type:
> 63.5dB on all s.w. and m.w. bands.
> 44.5dB on l.w.

Sensitivity

Average for this sort of set on short wave. The r.f. level required to produce a S + N/N ratio of 15dB at output. Carrier modulated with 1kHz tone to depth of 30 per cent.

- SW + 25dB μ V at 3.05MHz
- + 25dB μ V at 5.8MHz
- + 28dB μ V at 11.5MHz
- + 30dB μ V at 17.5MHz
- + 31dB μ V at 21.3MHz

Battery Consumption

Battery consumption is somewhat heavy, giving a little over 3 hours on standard cells, 15 to 16 on alkaline batteries. When battery power is low, the audio will distort, and the digital display will fade. Unlike most other sets of this price range, with a clock and memory facility, there is no separate back-up battery, but when changing the cells, the current time and memories are retained for up to one minute.

Conclusions

The Sony ICF-7600DA is a very well designed and well made receiver, and is easy and pleasant to use for day-to-day listening. It is not intended for DX use, although since all the Tropical Bands are included, and sensitivity is fair, work on these parts of the h.f. spectrum is not precluded. The set is ideally portable for travel use and indeed fitted easily into this author's baggage when in Europe during the assessment period.

Suggestions

Improvements which could be warranted are the inclusion of a narrow filter. The lack of s.s.b. should not prove to be particularly troublesome at this point in time for broadcast station listening.

Overall, the ICF-7600DA is a worthy addition to the stable of Sony thoroughbreds.

Later during 1987, another new set will be introduced by Sony, the ICF-7600DS, an "up-market" version of the current 7600D (2002 in North America). SWM will carry the review of this, and of another new development by Sony, slightly away from conventional day-to-day short wave listening! Watch for details. . . .

My thanks to **Sony (UK) Limited, Sony House, South Street, Staines, Middlesex TW18 4PF. Tel: (0784) 6700 for the loan of the review set.** □

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V.H.F. SCANNING RECEIVERS	£	(c&p)
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Yaesu FT 209RH + FNB3 Handheld	309.00	(—)
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AIRBAND

Godfrey Manning

You will probably have read my series on "Aeronautical Radio" in the last three issues of *SWM* and I hope that you enjoyed them and found something of interest. Now it's over to **you**. This column will appear regularly only if you make it happen! It's your chance to find out more about something that you've noticed or read to do with aviation, or alternatively you too can tell the world just what you've found out by writing to me, care of the Editor. But, of course, no response means no column. Don't think that it's me that writes it — because all the ideas really come from you!

The great thing about aviation is that it really can be seen. It's right there above you; in the British Isles few people can live where aircraft never fly overhead, and looking at the sky costs nothing. Visit an airfield or airport, though, and you may be so overwhelmed as to not know where to direct your attention first! Just think how the poor air traffic controller must feel, trying to keep track of it all.

Lecture Offer

Thanks to those of you who wrote in after reading the first two parts of the series — as I write this, I haven't seen part 3 in print. **Dave Lawrence G6HXR** (Snodland, Kent) was once an aircraft electrician in the Fleet Air Arm and his principal interest is in air-traffic control; he offers any interested clubs a lecture on this subject, and I'll pass on any requests for such a lecture if you write to me care of the Editor. Dave seems to remember the "old days", when the Fairey Swordfish (a ship-borne bi-plane) was just about obsolete.

Database

D. P. M. Gummer (Cleckheaton, W. Yorkshire) is attempting to set up a computer database of frequencies taking the *Aerad Supplement* as his information source. A massive task, I'm sure, especially as there will be frequent small changes. I assume that you are using *Volume 1 (Communications)* of the guide? *Aerad* publications are sold to the public by British Airways. They are flight planning documents and include charts of large areas showing radio navigational aids and, sometimes, positions of airfields; also, individual aerodrome charts called let-down plates and which cover arrival and departure from major airports in some detail; and finally, the supplements.

As well as *Volume 1* there is also *Volume 2* which lists all airfields by country and summarises runway lengths and headings, plus other information. These supplements cover particular areas of the world so for local interest the Europe & Middle East edition is to be recommended. To find out the current prices, contact *Aerad* Customer Services on 01-562 0795 or write to them at P.O. Box 10, Heathrow Airport London, Hounslow, Middlesex

This is the first of what will be a regular column covering all aspects of aeronautical radio. Godfrey Manning has agreed to compile the column from letters and information which you will send in to the magazine. Please address your letters to Godfrey at Airband, Short Wave Magazine, Enefco House, The Quay, Poole, Dorset BH21 6PN or use Prestel Mbx. 202671191.

TW6 2JA. Sometimes you can buy new publications at airfields (e.g. the Air Touring Flight Shop at Elstree Aerodrome, Hertfordshire) and some hobby suppliers may have out-of-date charts. Minor changes do occur very frequently. There are also other chart suppliers including Jeppesen and the Civil Aviation Authority.

Museum

My recent series mentioned my own collection of aircraft equipment and you're welcome to visit. The photographs that accompanied the series show equipment exclusively from my little "museum". **Howard Drury G4HMD** (Northwood, Middlesex) would like to know how to arrange a visit. Simple, Howard: ring me on 01-958 5113 (weekday evenings, at a reasonable hour!). I'll be glad to meet you along with any other of your fellow members of the Edgware & District Radio Society or, for that matter, anyone else who is genuinely interested in aviation.

Squawk

"What is the origin of the word 'Squawk'?" asks **Christine Mlynec** (Aylesbury, Buckinghamshire). Well, Christine, the code-name for the wartime Identification Friend or Foe (i.f.f.) transponder was the "parrot" so someone suggested that its transmission be called a squawk! The secondary surveillance radar (s.s.r.) transponder in modern aircraft works in a similar way to i.f.f. and the name has just stuck.

Games

On the subject of s.s.r. I have seen the *Heathrow Air Traffic Control* game published by Hewson (56B, Milton Trading Estate, Milton, Abingdon, Oxfordshire, OX14 4RX or telephone (0235) 832939) running on the Amstrad PCW computer and, although it's obviously cut-down from the real thing it nevertheless strikes me as being quite realistic in many ways.

Get Out

So, do get out to some airfields and look around! But don't bring the hobby into disrepute; it's amazing what some people will do through lack of thought. Obviously, keep clear of aircraft manoeuvring areas and don't stand next to the runway to get a better view — even at a little airfield! Remember that helicopters land vertically, away from the runway, and that gliders can hardly be heard at all. Never smoke on the apron or in the hanger; smoking may normally shorten your life expectancy, but in this case the resulting explosion from burning fuel vapours could harm your health in a rather unexpected way!

Remember that listening to airband transmissions is, strictly speaking, illegal but is tolerated by the authorities, so long as it doesn't become an embarrassment, nuisance or danger. Don't allow others to hear the noise from your radio receiver, of whatever sort; an earphone is hardly an expensive accessory. And licenced amateurs and CB operators, etc., should refrain from transmitting because some navigational receivers are not so immune from the electromagnetic compatibility point of view.

For the same reason, never use any portable electronic equipment such as a radio receiver or transmitter whilst flying as a passenger (the a.d.f. as described in part 2 of my series is probably the most vulnerable equipment in this regard). A pair of binoculars, say 10x magnification and with a good wide field of view, will make your airport visit even more rewarding.

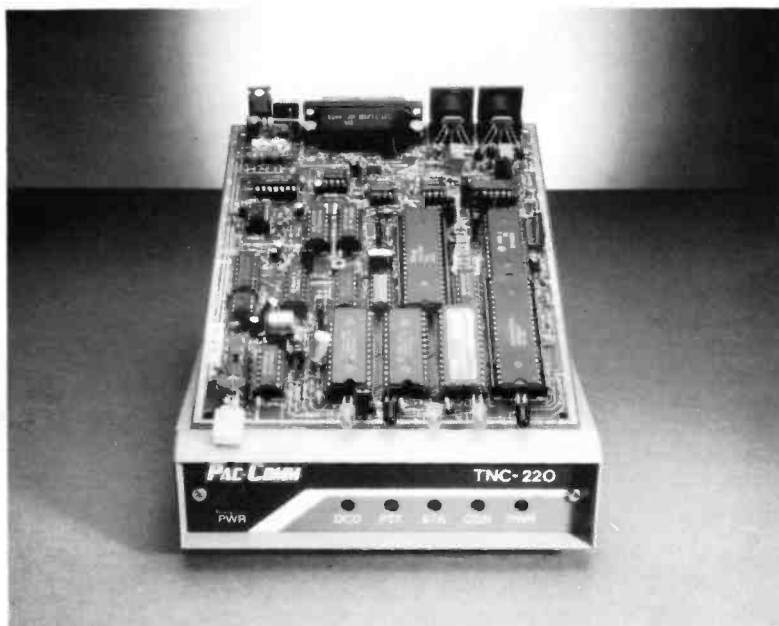
So, enjoy yourself, live long, and write to tell me all about it!



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NEW RUSSIAN SATELLITES

Pat Gowan G3IOR

After an extended series of short delays, the long anticipated Russian amateur radio satellite system was launched at 0720UTC on Tuesday 23 June 1987 from Plasetsk in Northern USSR, to its current circular 105 minute 83 degrees inclination orbit. Instead of the single, or even the expected pair of separate amateur radio satellites, both the RS-10 and RS-11 systems are contained in the same spacecraft, designation number 87-54A, which also houses the *COSMOS 1861* navigational satellite transmitting on both 150 and 400 MHz.

Within a few hours from launch, the command station computer signals uplinked to the program decoder could be heard transponded via the telemetry beacon frequencies. By the evening of the same day the transponders, beacons, telemetry and "ROBOTS" were tested and in use, all apparently working perfectly.

The satellite houses two separate transponders, RS-10 and RS-11, and each of these has five differing modes of transponder operation, plus alternative telemetry frequencies, plus automatic "ROBOT" communicators. The transponder models on both satellite are:

Mode "K" — 21MHz uplink, 29MHz downlink.
 Mode "T" — 21 MHz uplink, 145MHz downlink.
 Mode "A" — 145MHz uplink, 29MHz downlink.
 Mode "KT" — 21MHz uplink, 29 & 145MHz combined downlink.
 Mode "KA" — 21 & 145MHz uplink combined, 29MHz downlink.

RS-10

Each "RS" designation has its own set of frequencies and modes, and for RS-10 these are:
 Mode "K": Uplink passband 21.160 to 21.00MHz to give a 29.360 to 29.400MHz linear non-inverting downlink.
 Mode "T": Has the same 21.160 to 21.200MHz uplink as mode "K", giving a 145.860 to 145.900MHz

downlink, linear, non-inverting.

Mode "A": Uplink as mode "T" downlink (145.860 to 145.900MHz) giving downlink as mode "K" (29.360 to 29.400MHz).

Mode "KT": Has an uplink as for mode "K" to give simultaneous downlinks as "T" and "K" modes.

Mode "KA": Has combined uplinks as modes "K" and "A" frequency ranges, and gives a single downlink as mode "K" in the 29MHz band.

Beacons, associated with the mode in use, are to be found on 29.357, 29.403, 145.857 and 145.903MHz, separated 3kHz out from the edges of the transponder passbands.

The "ROBOT"

The telemetry and "ROBOT" functions are interchangeable, but the "ROBOT" downlink frequency will normally use 29.403MHz. The "ROBOT" automatic QSO device can be called on either 21.120MHz or 145.820MHz, according to the mode instruction given, e.g. "CQ CQ CQ de RS10 QSU 21120kHz". The reply should be "RS10 de (your call) AR" sent at a similar speed, when a response and QSO number will be supplied. When the memory is dumped via the same downlink, the callsigns and serial numbers of all the stations worked in the log will be downlinked. The "ROBOT" will match the speed of the caller between 8 and 65 w.p.m. Morse, and can switch to the alternate band uplink to establish QSO.

RS-11

RS-11 is a similar transponder, telemetry and "ROBOT" system, with the same bands used, but the frequencies employed differ. Mode "K" has its uplink for 21.210 to 21.250MHz, to give a 29.410 to 29.450MHz linear non-inverting downlink. Mode "T" has the same uplink as mode "K", giving 145.910 to 145.950MHz downlink, linear, non-inverting. Mode "A" uplink is as mode

"T" downlink (145.910 to 145.950MHz) giving the same downlink spectrum as mode "K" (29.410 to 29.450MHz).

Mode "KT" has uplinks as for mode "K" to give simultaneous downlinks as modes "T" and "K". Mode "KA" has combined uplinks as modes "K" and "A" frequency ranges, and gives a single downlink as mode "K" in the 29MHz band.

Beacons, associated with the mode in use, are to be found on 29.407, 29.453, 145.907 and 145.957MHz. A 435.395MHz beacon is said to have also flown, but as yet permission to turn this on has not been granted. The telemetry values have yet to be received, but the format is as in the most recent *Practical Wireless* satellite column. The "ROBOT" listens on 21.130 and/or 145.830MHz, normally transmits on 19.407 MHz, and is similar in calling format and reply to the other accompanying system, except that the callsign is now "RS-10".

Performance

The satellite system is not in as high an orbit as the earlier RS series, yet in the first two days of operation your scribe had adequate QSOs with both audible well below the horizon, and the hope of antipodal communications is high at this orbital height with the h.f. bands employed. The receiver is very sensitive, and gave a perfectly readable downlink for just 200mW e.r.p. on the 144MHz uplink, and 50W e.r.p. on the 21 uplink, despite the presence of many QRO stations using the 21MHz uplink band for terrestrial communications — most of whom could not be heard via the F2 or E layers. The one problem is that high-power military spread-spectrum RTTY across the uplink can cause severe blocking of the entire passband when the satellite is in range of this source. The downlink, having 5W of power, is very strong, and defeats the worst of the attenuating effect due to passage

through the dense summer "E" layer.

The antennas perform well, with few nulls in the radiation pattern on any band, uplink or downlink.

The new complex is known as the "BRTK" transponder (the initials indicating the Russian for "onboard radio technical system") was built, like the previous "RS" satellites, at Kaluga, near Moscow, under the direction of Alexander Papkov. It is an excellent performer, providing excellent space communications for a wide range of amateurs using simple and inexpensive equipment.

Tracking

A set of Keplerian elements, taken on launch day by laser radar, gives the following values, which are checking extremely well in tracking.

Epoch Year:	87
Epoch Day:	175.59593305 (23 June 87, 1408.08UTC)
Rev. No/Orbit	3
Drag/Decay	0.0000006 (6E-8)
Inclination	82.9265
Right Ascension	53.3166
Eccentricity	0.0010301
Arg. of Perigee	259.8854
Mean Anomaly	100.1119
Mean Motion	13.71883140

The period is 105.2 minutes, and the increment 26.255001 degrees per orbit. A series of equator crossings are given in Fig. 1 for Saturday 25 and Sunday 26 July 1987, whilst Fig. 2 lists the acquisition of signal (a.o.s.) times for eastern England, with the azimuth bearing at which the satellite first appears.

Tracks for the same dates are shown in Fig. 3 with the a.o.s. time, l.o.s. time when the satellite is at maximum elevation followed by the actual figure in degrees over horizontal. With these aids you should hear some good signals from the transponders, and also quite a lot of stations using the 21 MHz band who are not aware that they are also coming out on the 28 and 144MHz downlink bands. □

Fig. 1a

RS10/11	*	ON	25/7/87
0043	2	23	
0228	3	09	
0413	3	36	
0558	2	08	
0743	2	08	
0928	5	55	
1113	8	1	
1258	1	08	
1443	3	34	
1628	1	57	
1813	2	13	
1958	2	13	
2143	3	39	
2328	2	56	

Fig. 1b

RS10/11	*	ON	26/7/87
0114	2	92	
0259	3	19	
0444	3	45	
0629	1	11	
0814	3	38	
0959	5	64	
1144	9	1	
1329	1	17	
1514	1	43	
1659	1	70	
1844	1	96	
2029	2	22	
2213	3	49	
2358	2	75	

Fig. 2

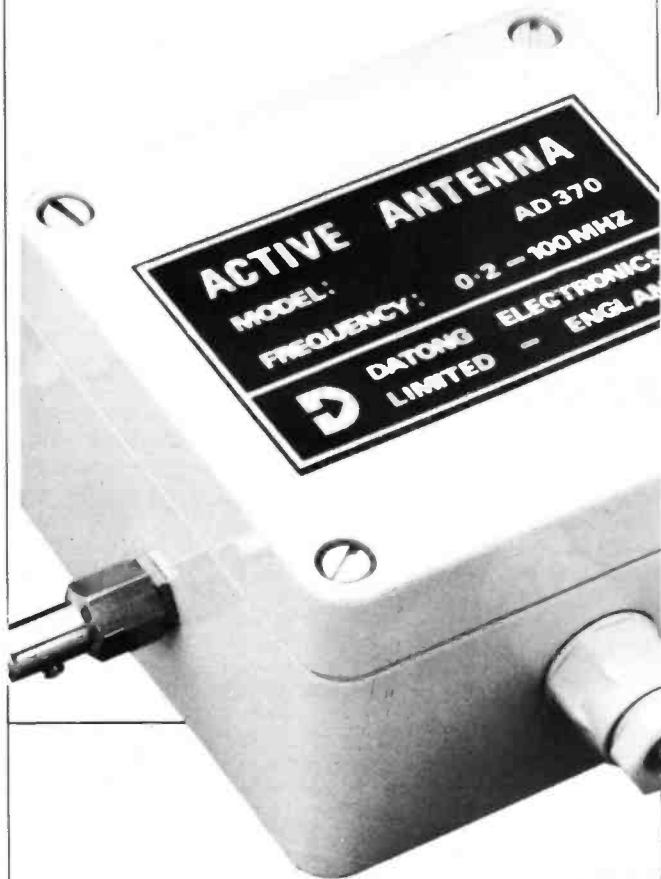
RS10/11	*	ON	25/7/87
A05	0422	AZ	132
A05	0605	AZ	183
A05	0753	AZ	233
A05	0944	AZ	290
A05	1325	AZ	356
A05	1511	AZ	353
A05	1657	AZ	348
A05	1843	AZ	340

RS10/11	*	ON	26/7/87
A05	0311	AZ	91
A05	0451	AZ	152
A05	0636	AZ	201
A05	0825	AZ	253
A05	1017	AZ	311
A05	1356	AZ	357
A05	1542	AZ	352
A05	1728	AZ	346
A05	1914	AZ	334

Fig. 3

AMSAT AMS-81 TRACKING SYSTEM						
ACCESS SKED FROM: 25 JUL 87 000000						
>>G3IOR VIA RS 10/11 <<<						
DAY	AOS	LOS	MAX	DX/EL	AZ	
25JUL	0421	0436	0429	16	100	100
25JUL	0605	0622	0614	63	100	100
25JUL	0752	0808	0800	24	100	100
25JUL	0944	0954	0949	05	100	100
25JUL	1325	1334	1330	22	100	100
25JUL	1511	1527	1519	22	100	100
25JUL	1656	1714	1705	86	100	100
25JUL	1843	1858	1850	19	100	100
26JUL	0311	0319	0315	04	100	100
26JUL	0450	0507	0459	31	100	100
26JUL	0635	0653	0644	59	100	100
26JUL	0824	0839	0832	15	100	100
26JUL	1018	1024	1021	02	100	100
26JUL	1210	1215	1211	01	100	100
26JUL	1355	1408	1402	09	100	100
26JUL	1541	1558	1550	30	100	100
26JUL	1727	1744	1736	50	100	100
26JUL	1914	1926	1920	10	100	100

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STARTING OUT

Brian Oddy G3FEX

A simple s.w. portable transistor receiver with built-in whip antenna will enable anyone to explore the various s.w. bands allocated to international broadcasting, and doing so for the first time is likely to be an interesting and exciting experience!

It will quickly become apparent that many hundreds of stations use these bands to reach listeners in distant lands during the day — in fact there are so many of them that tuning the receiver will require more care than needed on the medium and long wave bands if the stations are not be missed. Many languages in addition to English are to be heard and identifying them will be intriguing and often difficult! The name/callsign and the operating frequency of an s.w. station is usually announced from time to time in several languages; many stations also use an interval signal or a few bars of a signature tune, or a bird call, as an aid to identity.

Some of the major broadcasters, such as the BBC, VOA and Radio Moscow, transmit on several frequencies within a band and can also be found on other bands too. It will be noted that in contrast to the domestic broadcasts on m.w. and l.w., many of the s.w. transmissions take place only for a limited time on a particular frequency before the station either closes down or requests listeners to retune to another frequency.

Fading

Although many short wave stations can be clearly received, nearly all s.w. signals suffer from continual changes in strength called **fading**. Many of the frequencies are shared by several stations and sometimes **co-channel interference** exists; another problem, **adjacent channel interference**, may arise when a strong signal exists on a frequency just above or below that of the weaker wanted one. These and other factors require some further consideration, so let us examine them now.

Selectivity

First, whereas domestic l.w. and m.w. stations are separated by 9kHz, this is reduced to 5kHz on the s.w. bands to allow more stations to make use of the available space. In order to be able to receive each station clearly and without adjacent channel interference it is necessary for the receiver's tuned circuits to be sharply tuned to provide sufficient **selectivity** — though this means some reduction in the receiver's a.f. response. (This will be more fully explained in a future article in this series concerned with principles of the radio receiver.) The audio response of the station transmitter is also tailored to avoid mutual interference.

One of the most noticeable effects on nearly all s.w. signals is fading. This is caused by the signals from a transmitter arriving at a receiver via two or more different paths, whose relative lengths are changing: there will be a varying

relationship between the signals, consequently the overall signal level varies. Sometimes severe audio distortion occurs when a signal fades because the individual components of the signal (carrier and sidebands) do not fade equally at the same time. Fading may be fast or slow — the latter results in an audible low-frequency flutter.

Sunspots

The nature of the ionosphere and the major importance of ionisation as a factor in international broadcasting has already been outlined in this series (*SWM* May and July '87). Blemishes on the sun's surface, such as sun spots and invisible areas called "M" regions, tend to have a 27-day periodicity in their effects on ionisation, as the sun takes 27 days to rotate on its axis. The number of sun spots present follow an 11-year cycle (minimum-maximum-minimum); see Fig. 1. In order to maximise a reflection along a path to a chosen target area at a particular time of day, the frequency has to be selected by a broadcaster with care. When the ionisation levels change it may be necessary to change the frequency so as to maximise the reflection along the path, or perhaps broadcast to another more suitable area.

Schedules

Once the frequency and times have been chosen for a particular target area, they form part of a **broadcast schedule**, which is normally adhered to during a specified period. Using the schedule, it should be possible to receive the broadcast in the target area, but this is not always the case because of the variability of s.w. reception conditions. To overcome some of the problems of uncertainty, a broadcaster may well decide to transmit on two bands simultaneously to a chosen area, leaving the choice for best

reception to the listener; if the programme is a long one the broadcaster may well advise listeners to re-tune to a more suitable band.

Each s.w. band therefore has an important role to play in providing an international broadcast service. In general the 49m (6MHz), 41m (7MHz) and 25m (11MHz) bands would be selected for short and medium distances during daytime and for long distance use after dark. The 19m (15MHz), 16m (17MHz) and 13m (21MHz) bands are used for long distance daytime broadcasting; however these are the bands most affected by solar events. The 19m band normally remains open from early morning until quite late at night — during sunspot maximum periods it may well remain open around the clock. The high levels of ionisation present during daylight are required for satisfactory propagation on the 16m and 13m bands, consequently they tend to close soon after dark. During sunspot minimum periods the 11m (25MHz) band is virtually unusable, but for a year or two either side of the maximum period it is suitable for very long distance broadcasting to all continents.

So far we have only considered the effects of radiation from the sun on the ionosphere when it is said to be **quiet**. There are times, however, when the sun is **active** and the ionosphere is then liable to be subjected to a **sudden ionospheric disturbance**, or "s.i.d.". When an eruption or **solar flare** occurs on the surface of the sun, an intense emission of electromagnetic radiation occurs. The ultra-violet and X-ray radiation present may be so intense that the level of ionisation in the D layer is increased to the point where it absorbs all radio waves before they can reach the higher reflecting F layers and a **Dellinger fade-out** results — this causes a radio black-out over all or part of the h.f. spectrum and may last for a few minutes or an hour or more! □

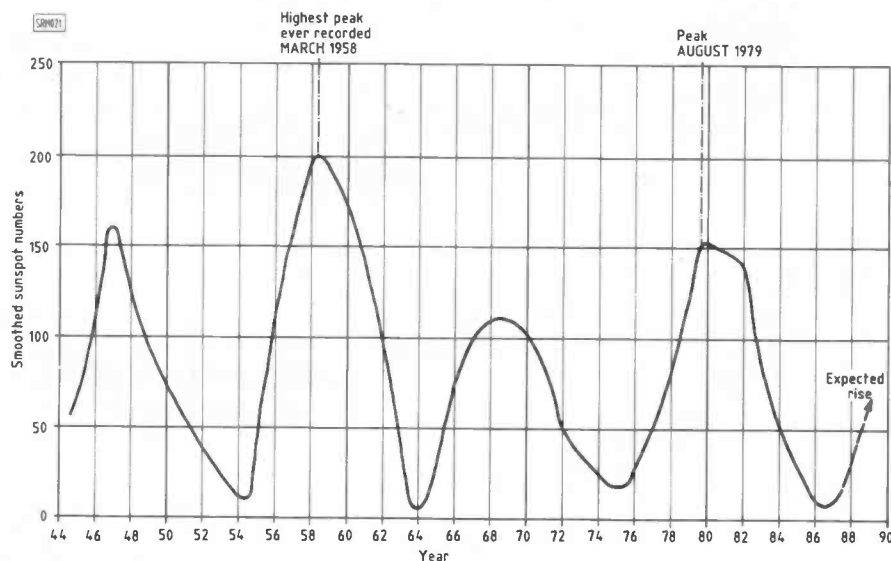


Fig. 1

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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

AMATEUR BANDS ROUND-UP

Justin Cooper

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

We must start this time by adding to our remarks on the topic of earthing in the May issue. A. P. Lincoln (Aldershot), points out that, while cutting the neutral is fairly unlikely between house and source, it is MUCH more likely to happen at the plug-top. Furthermore, when the earth connection, on the flex parts company with the earth pin in the plug, it is free to "walk" and possibly come into contact with the live pin. This is when the appliance it feeds could well become lethal. What is required is correct assembly of the flex to the plug connections, and these are the criteria:

The cable clamp in the plug should sit on the cable sheath, where it can get a firm grip without cutting; if the clamp is allowed to sit on the conductors, it lacks grip and is liable to break conductors by the sharp bend over which they flex. Wiring to earth and neutral pins should allow a little slack, but that to the live pin should be connected with very little slack; thus if an accidental yank pulls the cable out of the plug, the live is the first connection to break and make things safe. Fuses in plug-tops should be as low a rating as possible; note that 1A and 2A fuses are manufactured for 13A plugs, although not often stock items; but they can be ordered.

Peter then goes on to discuss his own mains and earthing systems; an e.l.c.b. (earth leakage circuit breaker) feeds the radio and computer gear, with earth to a "mat" in the back garden, through a 5A circuit breaker; the workshop equipment goes through another circuit breaker and is earthed to the supply earth; all have r.f.i. and spike protection by suitable filters.

As a final point Peter mentions some modern TV sets not designed for use as monitors where the chassis sits permanently at half mains potential regardless of which way round the mains are wired; a false step with one of these could be dangerous, as Peter (and the author!) has good cause to know. BE WARNED.

To these very relevant comments we would add another; if the mains lead plugs in to the back of the apparatus, and consists of an American-style three-pin socket moulded into the end of the cable for safety, just remember that a crack in the moulding can result in a broken conductor; the author had one once where the earth connection broke off within the moulding due to flexing caused by cracks — the first your J. C. knew about that

All-Time Post War HPX Ladder

Name	Prefixes	Name	Prefixes
'Phone Only			
B. Hughes (Harvington)	3284	N. Fox (Wakefield)	595
E. M. Gauci (Malta)	3116	L. Marcquardt (Hereford)	588
Mrs. R. Smith (Nuneaton)	2622	CW Only	
E. W. Robinson (Felixstowe)	2583		
H. M. Graham (Chesham)	1932	F. Dunn (Chester)	2035
M. Rodgers (Bolton)	1802	H. Scott (Rievaulx)	1396
M. Ribton (Gillingham)	1837	N. Melville (Edmonton)	1119
P. Oliver (Paisley)	1730	C. R. Eve (Jersey, C.I.)	220
F. Dunn (Chester)	1566	M. Rogers (Bolton)	202
N. Henbrey (Northiam)	1552	RTTY Only	
P. Davies (Market Drayton)	1427		
B. Patchett (Sheffield)	1103	A. P. Lincoln (Aldershot)	547
Mrs. A. Sitton (Stevenage)	929	W. J. Prior (Lochcarron)	501
A. P. Lincoln (Aldershot)	888	C. R. Eve (Jersey, C.I.)	418
G. Caselton (Orpington)	775	N. Henbrey (Northiam)	334
R. G. Williams (Borehamw'd)	768		
S. Field (Barningham)	735		
A. Vest (Durham)	605		

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	Prefixes
R. G. Williams (Borehamw'd)	449
D. R. J. Hughes (Alderley Edge)	436
J. J. Sales (Lancaster)	400
Mrs. A. Sitton (Stevenage)	378
C. R. Eve (Jersey, C.I.)	300
L. Griffiths (Sheffield 6)	315
M. Probert (Basingstoke)	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)	617
---------------------	-----

was when the metal case "bit him" quite violently, so once again be warned.

Letters

H. Williams (Culceth) uses an NRD515 and Tono decoder to receive RTTY, and remarks that comment in the column is scant. The reason for this is RTTY is well documented in Decode each month. He notes that 14.080-14.100 is the place to seek them; using a 30m wire, he has already logged such as PZ1, HC5, YV, PY, 9H1, 4X6ON, A4XZM, SJ9WL, JA, CN8, plus lots of Europeans and a couple of VKs. I'm sure that in the future Mike G4WNC, who writes Decode, would be delighted to hear from you.

W. J. Prior (Lochcarron) has been experimenting with antennas — the problem there is mainly the eternal one of keeping them up in a spot where high winds blow and are funnelled, plus the problem of receiving signals from over the mountains that block the way in all directions.

Bill's latest effort is a 300m job with three bends and all at 1m above ground; on the earthy side there there is just a single 1m earth rod. This antenna has yielded Bill his first VK, taken him up to 501 in HPX and has stayed up for several months, which can't be bad! Our recommendation now is to spend time and energy on improving the grounding arrangements.

H. Scott (Rievaulx) asks a very relevant question; he has moved some 56km from an earlier QTH and wonders whether the score from those days still counts; as far as the Ladder is concerned we propose to use a limit of 210km or less as the crow flies between the old and the new QTH if one is to carry over a total from old to new; this is more or less in line with the DXCC rules.

E. W. Robinson (Felixstowe) found a crop of the Polish prefixes associated with the visit of the Pope, SN1-0, plus an SO which is the Polish visitors prefix, in his 19 new prefixes. The OE5GOM/MM was using a Hustler mobile whip as his antenna, from between

Cres and Krk off Yugoslavia and putting in a good signal.

Next we turn to B. F. Hughes (Harvington) who sends his last report before he "ups sticks" and returns to his old QTH in Worcester. Another 35 prefixes to add to the 3249 already heard makes a nice way to close the Harvington set-up down.

Wanted

M. Ribton (Gillingham) is in need of any information he can get on the Drake 2A receiver which he now uses; circuit diagram, data, copy of the article in September 1983 *Amateur Radio* or whatever. If you can help, send to Yours Truly and we will forward it to Mike — so long as Mike in his turn sends us his address!!

A new entry comes in from L. Griffiths (Sheffield) who claims 314 but questions 4S7SP; 4S7 is a perfectly valid prefix, for Sri Lanka, so we see no good reason for doubt on this one, unless some other reader can add something?

"Is there still a Sinclair Amateur Radio User group in existence?" enquires R. G. Williams (Borehamwood). As far as we know, it is still active, and still led by P. Newman G4INP, 3 Red House Lane, Leiston, Suffolk IP16 4JZ. On a different tack, Bob is suffering severe problems from TV time-bases, and considers the DTI could and should be able to deal with manufacturers within the scope of present legislation. We agree.

Now to N. Henbrey (Northiam) says, "it has been decided I need a new receiver — but WHICH ONE??" We know precisely the feeling that Norman has, but since he already has a first-class receiver, our own view would be to get this overhauled by someone really competent, rather than spend out on a new one. On a different line, the village boasts its first licensed amateur in GOFLA and Norman has visited him; this is the first time Norman has been in an amateur transmitting shack since he discovered the bands way back in 1946!

From G4GNQ of British Rail ARS we have a note that they will have GB2GJR operational from the Crewe Heritage Complex to celebrate 21 years of their club. Listen out for them until August 16; and there will also be an event at Dinting Railway Centre in the last two weeks of September. Details from G4GNQ — QTHR.

Just a list from N. Melville (London N.18) — but we notice it takes him over the magic 1000 barrier.

SEEN & HEARD

E. M. Gauci (Malta) writes to say that time has beaten him with the compiling of his ATPW List this time, so he sends a "Nil" report to hold a place and will get on with it in time for our next; a kindly thought to let us know, rather than risk missing a deadline, which is appreciated.

What is WWV? New entrant D. Hughes (Adderley Edge) says he hasn't fathomed out what this position on the bandswitch of his FRdx400 receiver is. WWV is one of the world-wide group of standard-frequency and time transmissions and the bandswitch position is provided to enable the operator to pick up the signal and check his own receiver calibrator or whatever. Not knowing the particular receiver we would guess that the WWV position gives access to either 15 or 20MHz, which are standard-frequency station locations, and one would use whichever station's one is audible. Notice that with these stations, the carrier frequency, the modulation frequency and the timing pips at one-second intervals are all equally accurate, derived from a caesium standard. On a different tack, we notice David has been changing antennas with gay abandon; it is well to keep an antenna up for a few months at least before deciding it was a

lemon simply because of the way "conditions" can and do change; apart from the 11 year (or, more properly, 22-year) solar cycle, there are seasonal variations, a monthly variation, and the random variations which upset predictions. This of course, also discounts the daily time factor; early mornings for VK/ZL, evenings for Ws, and so forth.

D. A. Whitaker (Harrogate) turns his attention to v.h.f./u.h.f. in the summer, hoping for Sporadic-E or tropospheric openings. May 28 saw David listening to SP8NCJ on 144MHz band s.s.b., and on June 7 there was an opening to Italy; starting with Sicily and working its way up to Rome, with a YU also heard later that day. Don't get the idea that David is just a v.h.f./u.h.f. type only, though; his QSL from 3Y1EE was his 340th confirmed country on the I.f. Bands. However, sad to say, David had to lose the elm tree which had served for

so long to hold up his I.f. band antennas as it had died; so for the moment, the antenna is what David calls the "sloper to end them all" — which works quite well on 28MHz. Later on, when autumn approaches, there is another tree which will be pressed into service.

For B. Patchett (Sheffield), 28MHz is the band; and he says that around Sheffield they would even welcome CB intruders, just to raise a mite of activity! Somehow, one doubts whether this represents a general outlook; indeed some parts of the country are still plagued with illegal CB intrusion, for which the only known medicine is a good blast of QRO fast c.w. "to test for TVI."

"I wonder" says P. Davies (Market Drayton), referring to his FR6AT logging "whether this is just another French special for the contest, or was it from Reunion Is?" As to that, we haven't seen reports of activity from Reunion,

nor have we heard one ourselves; and we would hardly expect the French authorities to "double up" prefixes in this fashion, so our first inclination would be to dismiss this one as a Phoney. Does anyone out there have information on FR6AT?

The collection of "oddities" from C. Eves (St. Helier, Jersey) includes UW3MO/R (=UW3), FV7NDX/MAR (=FV7) — the /MAR is merely an informal and improper bait to tell people he was on St Marcouf Is.) However, for DFGHJ9, IPKL9, and PK232 we feel nothing, save that they should be expunged promptly from the log lest they infect something else!

L. Marcquardt (Hereford) continues his climb up the Ladder, with another 26 s.s.b. ones; and Luciano also notes that he has his QSL in from HBO/DA1WA, HG4OZ, IT9YSW/ID9, CT3EU, JW0A, and A61XL.

Finale

The deadlines are as noted in the body of the piece, and should be addressed to your J. C., Short Wave Magazine, Enefco House, The Quay, Poole, Dorset BH15 1PP. Please DON'T mark it "Ladders" without a name, as this will lead to serious risk of your offering reaching the wrong column, as the mail is forwarded unopened. However, that's for next time; for now, Good Hunting.

DEADLINE DATES

Issue	Deadline
October '87	August 19
November '87	September 16
December '87	October 21

DECODE

Mike Richards G4WNC

200 Christchurch Road, Ringwood, Hants BH24 3AS

First I must apologise for the delay in replying to some of you, but be patient every letter gets a reply.

Packet

Activity has remained pretty constant during the last month with 14.103MHz being the focal point of h.f. activity. The UoSAT-Oscar-11 Digital Communications Experiment (DCE), is now available to amateurs on v.h.f. The DCE provides a satellite based gateway for access to NK6K in California and VK5AGR in Adelaide, the UK access being via GB3UP in Guildford. The system is operated manually at present and relies on the system operator to control the message transfer from the terrestrial station to the satellite system. Detailed operational instructions can be found in *AMRAC User* June 1987.

For those of you who monitor v.h.f. packet activity there is some good news as the 1987 144MHz packet repeater experiment enters phase 2. Licence applications have been submitted for the following stations:

GB3BY Bury, Lancashire
 GB3EA Bury St Edmunds, Suffolk
 GB3FP Dunfermline, Fife
 GB3GP St Peter Port, Guernsey
 GB3HX Huntingdon
 GB3LP Llandudno, Clwyd
 GB3NP Norwich (new site)
 GB3PL Plymouth, Devon
 GB3PQ Halifax, West Yorkshire
 GB3PX Cambridge
 GB3RA Reading, Berkshire
 GB3RP Wirksworth, Derby
 GB3TA Swindon, Wiltshire
 GB3WA Chester

These repeaters, along with the Phase 1 stations, will be licenced to operate until the end of 1987 when the situation will be re-appraised.

RTTY & AMTOR

After the general rise in h.f. conditions last month we seem to be back in the doldrums again, still we are on the right side of the sunspot cycle so things must improve again.

Unfortunately conditions did not improve for the ANARS

contest on the weekend of 6 and 7 May and I failed to log any good DX. Let's hope things will be better for the BARTG RTTY contest on August 15 and 16.

My log for the month revealed a lot of European activity with just a few interesting stations as shown here: ZS6AED (South Africa), OY/DF7JC (Faroe Is), YO5KDW (Romania), UO5OK (Moldavia), VE3UR (Canada), C31SD (Andorra), HI8EL (Dominican Republic), CE7BIY (Chile).

Commercial Changes

On the commercial scene I have recently received details of a few frequency changes, the details are shown below:

Grenge! Met. (DHJ51)
 3.1665MHz & 100 baud.
 Grenge! Met. (DHN37)
 3.0735MHz & 100 baud.
 Nairobi Met. (5YE) 22.865MHz & 50 baud.
 Jeddah Met. (HZN50)
 23.370MHz & 100 baud.

If you know of any frequency or schedule changes, please write and let me know.

FAX

I have spent many-an-hour this month hypnotised by the output of the FAX-1 from ICS. As I explained last month, I have one of these FAX decoders on loan and will be producing a full review in a later issue. My favourite picture though, is one that was sent in by a reader and is shown in Fig. 1. At least it shows that the weather men have a sense of humour.

By the way, does anybody know the current schedule for Offenbach Meteo on 134.2kHz (DCF 54)?

ASCII

I have received yet more information on stations using this mode. Arthur Owen G2FUD has written with details of the ARRL schedule and two new ones, at least to me. The details are shown below:

1) German ASCII from DJ1XT on 1st/3rd Sunday of the month at 0930 MEZ/MESZ (GMT + 1/+ 2 hrs) using 3.585, 7.035 and 14.085MHz.

SEEN & HEARD

2) FBREF on Saturdays at 0900 MEZ/MESZ using 3.5MHz band may occasionally be in ASCII.

Arthur uses an Apple IIe and an ICS AMT-2 to decode these signals.

Thanks to everyone for the many reports.

Public Domain Software

Rod Smith G4DQY, who is the librarian of the PD Sig. (Public Domain Software Interest Group), has written with details of a new bulletin board. The BBS (Bulletin Board System) has been set up at Rod's home QTH and will operate on 144.650MHz using Rod's own call. Although initially operating as a normal BBS it is intended to provide for down-loading from the PD Sig's massive library. The computing equipment used is an IBM PC clone with 20Mb Winchester disk and MFJ1270 TNC. The radio station consists of a Yaesu FT-280 transceiver feeding a vertically polarised colinear 12m above ground. The Crowborough site is about 215m above sea level so coverage should be good.

For those of you with a suitable modem, the PD Sig. run several telephone BBS located around the country for down loading of software. If all else fails you can join PD Sig. and post your disks! For more information send a s.a.e. to PD Sig(1)

Equipment

My comments in the June issue suggesting that the Pocomtor decoder is the "Rolls Royce" of the data has brought an interesting response from Jack Birse of Keighley. Jack has drawn my attention to an American all-mode decoder, the Info-Tech M-6000. I must admit that the specification looks very impressive and I have included a summary below:

Reception modes

Morse Code with auto speed from 5 to 120 w.p.m.

RTTY Baudot at 37 to 251 baud.
RTTY ASCII at 75, 110, 150, 300, 600, 1050, 1200, 1800 baud.
TOR i.e. AMTOR, SITOR etc.
TDM 2 and 4 channel at 86, 96, 100, 172, 192 and 200 baud.

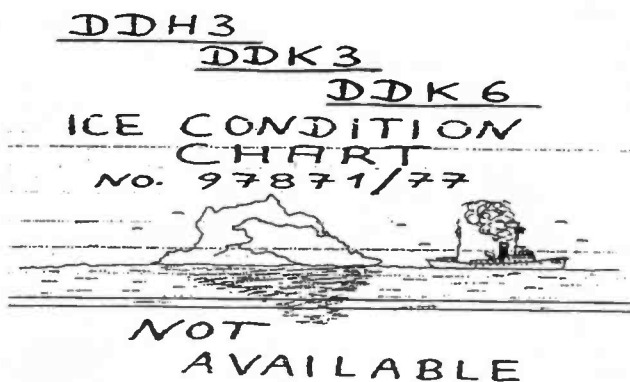


Fig. 1: A weatherman's sense of humour

Shifts

Morse 750Hz and 1kHz selectable tones. Baudot 85, 170, 425, 850 and 1200Hz. ASCII Bell 103A, 202, CCITT V21 and V23.

Inputs

Audio 250mV or t.t.l. levels.

Outputs

Composite video.
Serial and parallel printer.

Other features include screen dump, RTTY speed and shift indication, remote control, on screen tuning indicator and many more. As far as I know the unit is only available from the USA, but if anyone knows of a UK source please let me know. The price should be around \$850 plus shipping costs. Jack purchased his from Universal Shortwave Radio(2) and shipped it back to the UK. Anyone thinking of buying from the USA would be well advised to engage the services of a freight company to handle the paperwork.

One other interesting unit from the same company is the M-800 FAX decoder. This unit takes the audio output of a receiver, either a.m. or f.m. and produces FAX pictures on an Epsom compatible printer. Again according to Jack the performance is excellent.

As I have not actually tried either of these units I cannot compare their performance with any other decoders, but Jack is confident that they represent good value for money. Thanks for all the information.

Interference

Paul Hayden sent me a very informative letter describing his listening station and his various problems. One aspect I latched onto was his interference problem, as I'm sure many of you have problems keeping computer noise out of the receiving system. The cause is very simple, most home computers are manufactured to comply with inadequate radiation limits.

I will start by just briefly describing the frequency generating process in a typical computer. The frequency reference is usually a crystal oscillator running at anything from 1MHz to about 30MHz. The output of this oscillator is passed to a series of dividers to produce an assortment of control signals ranging from a few kHz upwards. As computers are digital devices they work best when all the electrical signals within them are square waves. So here we have a machine which generates a large number of spot frequencies throughout the spectrum and each

one of those spot frequencies, being the result of a square wave, has a series of very strong odd harmonics! Just to finish off, the computer is then mounted in a completely unscreened plastics box!

From this description it is not difficult to see why, on tuning across the spectrum, we hear a general mush of noise with the occasional strong carrier. The difficult bit is the cure.

Now for a few ideas. First rule is fairly obvious, keep your antenna system as far away from your computer as possible. I would strongly advise the use of an antenna with a coaxial feeder, the simple long wire antenna, although being very effective for the s.w.l., is likely to pick up a lot of computer noise. Second rule is make sure you have one good earth and ground all the equipment at this point. Many attempts to cure interference problems have been thwarted by poor or multiple earthing systems.

When it comes to reducing the noise output of the computer there have been several articles describing the various techniques. The most important thing to accept is that you will not completely eliminate the interference, only reduce it. One of the first things to try is filtering all the leads radiating from the computer i.e. mains lead, printer lead, video lead etc. Next step for the brave is to coat the inside of the plastics case with an r.f.i. reducing conductive paint. This is a difficult job and for the experienced engineer only. Note, "aluminium" paint from car accessory shops is not good enough.

Well, there are a few starters, but I would really like to hear about your problems and cures so please write, you may well find that someone has a ready-made cure for your QRM problem.

That's if for another month but please keep those letters and reports coming.

Addresses

(1) P.D. Software Library, Winscombe House, Beacon Road, Crowborough, Sussex, TN6 1UL.
(2) Universal Shortwave Radio, 1280 Aida Drive, Reynoldsburg, Ohio, W3068, USA.

DEADLINE DATES

Issue	Deadline
October '87	August 21
November '87	September 18
December '87	October 28

INFO IN ORBIT

Pat Gowen G3IOR

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

Whilst still on the topic of weather satellites, it has to be recognised that the interests in this field are in three distinct areas, all of which do

not necessarily combine together for all people.

We have, in recent articles, dealt in some detail on the con-

structional side, mainly for those who wish to build and put together a functional weathersat station by the selection, purchase, and

building of their own system. In addition to this, we also have to consider the specific interest of the amateur meteorologist, who

SEEN & HEARD

may need access to immediate cloud cover maps from the satellites without having to enter the field of construction. Also there is the group who have a passing interest, but are not prepared to expand a large amount of time or money on a minority pre-occupation among the many in the radio and electronics related subjects.

To cater for the needs of our second group, those who would wish to own a reliable and functional ready built and ready-to-go system, we can point to the WSR524 Weather Satellite receiver built by Feedback Instruments Limited, of Park Road, Crowborough, East Sussex, TN6 2QR, telephone (08926) 3322.

The WSR524 receives images from both NOAA-9 and NOAA-10 (and future NOAA series on the same frequencies at 137MHz) with a provided quadropilar antenna housed in a white fibre glass cylinder, which also contains the v.h.f. pre-amplifier and a converter to 10MHz. A tripod antenna mast can be supplied, and some 50 metres of coaxial cable to take the signal to the receiver. The special 50kHz bandwidth receiver has also a built in computer, into which one merely needs to key in (via the 16 key panel pad) both satellites nodal period, inclination, equator crossing time and longitude, the decay, the day of the prediction given, the station latitude and longitude, the time and the contrast required, and one is ready to receive pictures from either a connected v.d.u. or ones TV receiver.

The program then "knows" all following passes, and will select the satellites as they come into optimum range, producing a level commandable monitor tone from the built in speaker, and a 256 x 256 x 16 grey level format picture in either visible or infra red lighting, or any merged combination, complementing this with the selectable grid of latitude and longitude with the user position marked. It further can give both sub-satellite positions as they orbit earth, the time, both current and that of the picture held on the screen until the next pass. A computer port is available for access to real time data by an external computer, printer, etc. The unit works either from 120/240V mains or from a 12/24V d.c. power supply.

Having heard of the capability of this unit, your author enquired of the suppliers to find the whereabouts of any local system that could be seen and tried. The manufacturers kindly offered to send up a unit, complete with antenna, tripod, and all cables so that the system might be evaluated. Exactly fifteen minutes after receipt, the time taken to read the handbook, write in predictions, erect the antenna on

the shack roof, add a 3-pin 13A plug, and plug into the shack TV monitor, the system was active and awaiting a satellite. It came just fifteen minutes later, and a perfect picture of a cloud free Africa, southern Spain and Italy began to form on the screen. It continued to fill the screen, finishing with the UK in the centre, and produced an image at least equal to those seen on any TV weather forecast.

Having followed the moving weather fronts and cloud pattern movement for two days, the unit was taken to the Hewitt School, Norwich, to demonstrate to the sixth form students, who are very interested in meteorology. This time it took just five minutes to get running, and the results allowed your author, seeing torrential rain outside the classroom window, to confidently predict a fine day on the next day, Saturday June 20, but conditions only fit for swimming on their sports day on the following Monday. Both came true!

A typical picture from the system, with superimposed grid lines, showing a sunny East Anglia, with cloud threatening from the north West is shown in Fig. 1. Hopefully, when developed, more pictures will be included in next months column. The illustration in Fig. 2 is the WSR524 itself, a neat 300 x 90 x 300mm lightweight assembly in a strong metal cabinet.

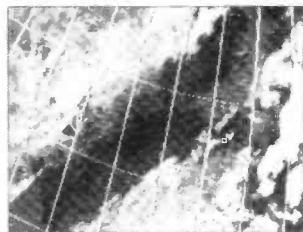


Fig. 1

For those who desire a complete fault free, reliable, ready to use system at relatively low cost, without the trouble of ordering, building, alignment, etc., the WSR524 is strongly recommended. The only minor criticism was that excellent signals were coming in long before the picture started to build. This was soon overcome, as to get "DX" passes of Canada, Africa, the near East, etc., it was simple to fool the automatic system by placing in a user location much nearer to the satellite ground track, as it normally only starts to build when the satellite is above 10-30 degrees elevation, so as to ensure a good noise free signal.

For our third class of user, who only wish to see basic detail satellite weathermaps, including isobar charts for tropospheric lift determination, and other facsimile formats, a quite different approach is suggested. this is the

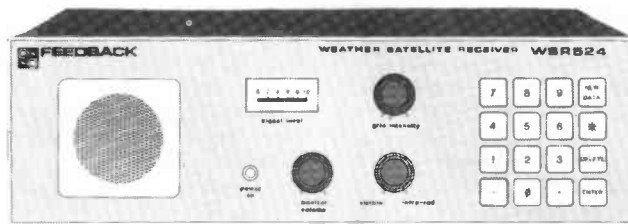


Fig. 2

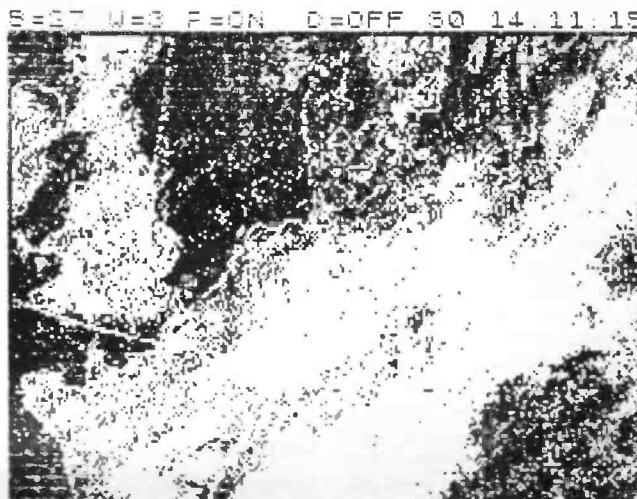


Fig. 3

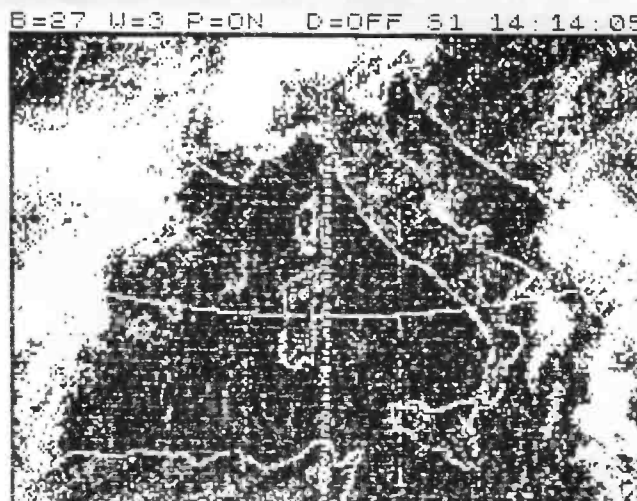


Fig. 4

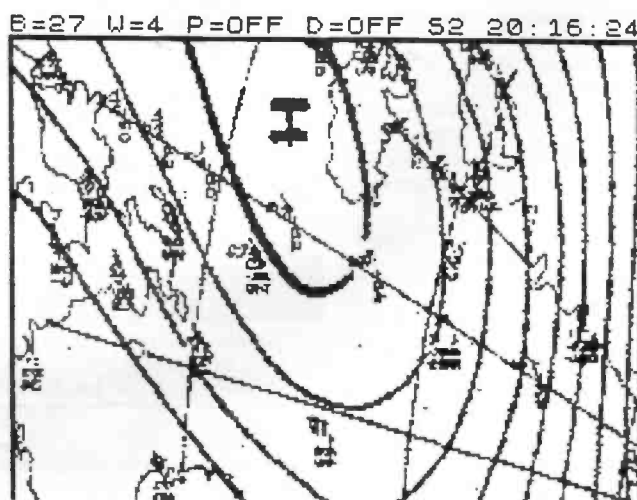


Fig. 5

SEEN & HEARD

G4IDE Spectrum FAX program described last month.

It does not require tracking the satellite themselves, as it involves merely tuning ones receiver or v.l.f. converter to 134.2kHz, 2.620, 3.920 or 4.247MHz, and other frequencies where the many facsimile transmissions carry METEOSAT or NOAA Weathermaps, etc. If one already has the receiver, a Spectrum computer, the program, and the low cost licence, one may see the infra-red and visible light pictures, emphasised and outlined to boot. They are received from the

orbiting NOAA and geostationary METEOSAT spacecraft by the European Space Operations Centre at Darmstadt, polished and labelled, then retransmitted by the Offenbach Meteo transmitter in West Germany at good strength on v.l.f.

With acknowledgement to source, a series of the pictures resolved with the G4IDE "FAX"

program are produced here.

You can see a reasonably cloudy outlined Britain, with the North Sea showing clear conditions, but lots of cloud over Europe in Fig. 3.

The picture, Fig. 4, shows Italy, with Sardinia, Sicily and Corsica in the clear, but with cloud over the Alps, and cloudy conditions to the west

A weathermap, showing a high to the north west of the UK near Iceland, with the isobars around it is shown in Fig. 5. This is a very valuable guide for the v.h.f. and u.h.f. enthusiast, and can be used to great effect in predicting good incoming tropospheric communications conditions. The map is reproduced on its side.

Thus, for only a few pounds, it is possible to be able to see good pictures from the weathersats, thanks to the new technology of both the commercial and amateur experts who have made this possible.

DEADLINE DATES

Issue	Deadline
October '87	August 21
November '87	September 18
December '87	October 28

BAND II DX

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

In most cases, the choice of suitable equipment for DX is largely governed by what the market has to offer as well as the price and the availability of space at home for the installation of receiver and antenna. Very often some advice is required and a compromise is necessary before a decision is reached. Therefore, in addition to your regular DX reports, may I ask for your comments and opinions about the performance of antennas and receivers under both normal and unusual atmospheric conditions. In fact any information that you think could assist our fellow DXers, especially the newcomers, will be much appreciated.

Receivers

"Where Band II listening is concerned, selectivity is of no less importance than sensitivity and in my experience, the majority of Band II receivers available today fall down badly on this score," said a correspondent from Reading. He understands that the overall bandwidth of a typical Band II transmitter is in the order of 150kHz and gives the following example. "A transmitter working on a nominal frequency of, say, 95MHz is actually pumping out a signal into the whole of the band between 94.925MHz and 95.075MHz". Obviously, a listener would like a receiver to match these characteristics as near as possible. Unfortunately, most portables available today are not made for DXing and seem to have much wider bandwidths.

Briefly, this means that little can be done to stop a distant signal from being swamped by a more powerful station on a nearby frequency. At great expense our reader acquired a super stereo tuner with a choice of 200 or 400kHz bandwidths and remarked, "200kHz is not quite good enough

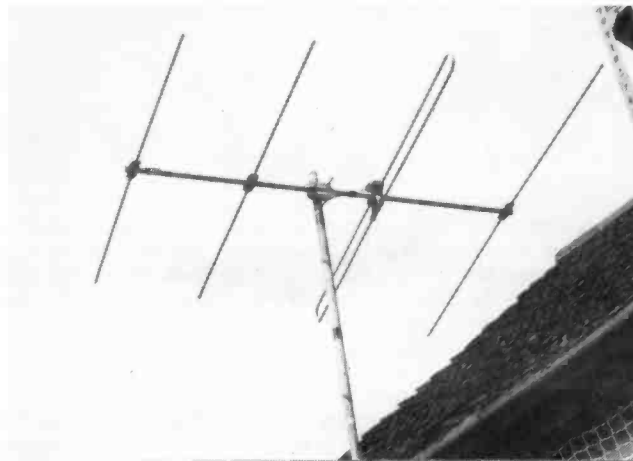


Fig. 1

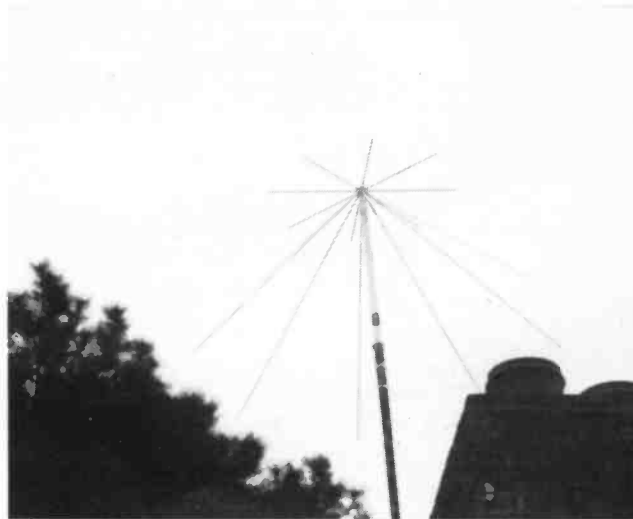


Fig. 2

but not too far off the mark, 400kHz is hopeless, however, using the 200kHz bandwidth enables me to double or triple the number of stations that I am able to hear regularly on a day-by-day basis at distances of up to 320 to 400km in every direction."

To emphasise the importance of selectivity, I find that the 30/120kHz bandwidth selector on my elderly ex-military (R216) communications receiver, is a great asset when sorting out stations in a packed band.

Antennas

Under normal atmospheric conditions, a fair amount of Band II time is taken up by listening to programmes from our favourite station. Although in some cases the rod antenna, fitted to many receivers, will suffice, an outside antenna is often required to ensure good quality stereo reception. My QTH is situated on a line about half way between the transmitters at Rowridge on the Isle of Wight and Wrotham in Kent. For domestic purposes I have a 4-element Yagi, Fig. 1, facing Rowridge, which ensures that my wife's Sharp music centre receives good signals from both stations. An outside horizontally polarised dipole would do, but living close to a 150m rise in the South Downs, between us and the Island, the higher gain and directivity provided by the Yagi, balances the core in the Rowridge direction.

Sporadic-E

"I must mention a spectacular opening on May 28 when Band II was alive and kicking for over 3 hours. There was an extraordinary peak around 1800 when signals were getting through on just about every channel, i.e. over 100 stations! At one point I was

DEADLINE DATES

Issue	Deadline
October '87	August 21
November '87	September 18
December '87	October 28

SEEN & HEARD

listening to an unidentified Arabic station on 106.2MHz," wrote Ian Smith (Paisley). In his third season of DXing, he found this opening the most amazing Sporadic-E event that he had witnessed. "I also heard dozens of east-European stations between 66 and 73MHz," said Ian. Now readers, couple his remarks with those among us who heard the German

and Italian beacons pounding in on 28MHz and we can confirm that the frequency range of 28 to 108MHz was, at that time, in chaos due to Sporadic-E.

At 1850, using my R216, Antiference XS3 distribution amplifier and chimney mounted Revcone antenna, Fig. 2, I counted at least 40 very strong f.m. signals from eastern-European broadcast

stations who operate between 66 and 73MHz. There could have been more, because each time I tuned through the band fresh stations were appearing and fading away on many channels. Signals within this range were also heard, in varying numbers and strengths, early on June 12 and 14 and around 1800, on May 28, 29, June 7, 13, 15, 18, 19 and 20.

From 2030 to 2107 on June 11, Ian Smith, logged 3 stations from Portugal and 3 from Spain between 88 and 99MHz.

In Belfast, Bill Kelly using an Icom R7000 and AH7000 discone antenna identified French, Dutch, Spanish and possibly Portuguese voices, on several spots in Band II, between 0730 and 0840 on the 15th.

TELEVISION

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

"My TV DXing equipment now includes a Realistic Portavision receiver from Aerial Techniques, a Datong AD370 active dipole and a cheap pocket v.h.f. receiver covering 53 to 176MHz which I use as an outboard sound monitor," wrote Ian Smith from Paisley. In Belper, Edwina and Tony Mancini have a special shack, Fig. 1, with at least four receivers devoted to DXTV.

In order to record long distance pictures, for later photography, I installed a D-100 converter from HS Publications in front of the Panasonic NV-430 video recorder used with my gear. After it arrived on June 13, I connected it between a Revcone antenna and a dedicated channel on the recorder and switched on to find a solid test card from Iceland, so that's off to a good start.

In Caerphilly, Noel Smythe's all bands antenna farm, Fig. 2, and camera in front of the screen, Fig. 3, are ready and waiting for a Sporadic-E to open up Band I or a good tropo to bring DX signals to Bands III, IV and V.

Although I cannot detail all of your logs, it was very satisfying to find that pictures from 22 countries, ranging from Ireland to Italy, Iceland to Tunisia and Scandinavia to parts of the USSR were included in your letters for the month prior to June 18.

Band I

While an intensive Sporadic-E was in progress on May 28, I found Iceland's test card mixing with programmes on a similar channel. Among the strong pictures received by Noel Smythe were the Spanish regionals Aitana Fig. 4, and Valencia conveniently dated Fig. 5.

Simon Hamer (New Radnor) logged the news titles Noviny (Czechoslovakia), TV Avisen (Denmark), Dagsrevyen (Norway) and Telejurnal (Rumania) on the 28th. He watched a film from RTSH (Albania) on the 29th.

Between May 18 and 30, Alan Taylor (Coventry) received, mainly test cards from stations in Italy (RAI), Norway (Melhus and

Steigen), Portugal (RTP-Lisbon and Porto), Spain (TVE), Sweden (TV1) and Switzerland (+PTT-SRG1).

From Carmarthen, Ian Davidson, using a Vega 402 and a Murphy colour set with a Labgear Televerta, reports seeing adverts, gymnastics, ice-hockey and puppets from Spain, cartoons from Hungary (MTV-1), films and singing from Poland (TVP) and news from Portugal, between the 18th and 23rd. He also saw an analogue clock from Budapest and a poster showing Ronald Reagan in Western films from Italy (RA1) on the 18th, Czechoslovakian or Polish cyclists on the 22nd and the captions Jornal de Sabedo and Techmazbyt, on the 23rd.

From May 10 to June 14, the Mancinis logged Norwegian test cards scribed Bagn, Bremanger, Gamlem, Gulen, Hadsel (a new one for them), Hemnes, Kongsberg, Melhus and Steigen. They also caught one of the Polish TVP-1 logos, Fig. 6 and saw such news and current affairs captions as *Aktuelle Kamera* and *Tagesschau*, (E and W. Germany respectively) Agenda and Telediario (Spain), TS Nachrichten (Switzerland) and BPEMR, MUPE and HOBCTN, (USSR).

Ian Smith received test cards with the idents, ORF-FS1 (Austria), RS-KH (Czechoslovakia), YLE TV1 (Finland), GRUNTEN (Germany), MTV-1 BUDAPEST (Hungary), TVP-NTD1 (Poland), RTP-LISB1 (Portugal), TV1 SVERIGE (Sweden), TVE-2 (Spain), +PTT SRG1 (Switzerland), TSS-1 and ESTI TV (USSR) and TV LJUBLJANA from Yugoslavia. Ballet, basketball, cartoons, cycling, dancing, farming, football, various films, music, a military parade, motor racing and religion, including the Pope's world travels, are among

the programmes received from various countries by Noel Smythe.

Richard Ayley G6AKG (Poole) added Greipstad to the Norwegian list, he saw analogue clock logos from Hungary, Poland, Spain and Sweden as well as digital clocks on Scandinavian test transmissions. He logged the captions Studioda Intervision and Televize 1 Ceskoslovenska from Czechoslovakia, Magyar 1 Television from Hungary and Avance Telediario from Spain.

While using my Plustron TVR5D with its own rod antenna at Bodiam and Burwash in E. Sussex, between 1300 and 1430 on June 16, I received test cards from Czechoslovakia, Norway and Sweden and a variety of fluctuating pictures on several spots in the Band I.

"What a tasty catch on Ch. E4," remarked a very satisfied Simon Hamer after receiving a test card from RTT (Tunisia) on the 16th.

Bert Mills GW3LJP (Rhayder) is off to a good start with pictures from Austria, Czechoslovakia, Germany, Italy, Poland, Scandinavia, Spain and Switzerland already in the bag.

"Early on June 7, there was an opening to Italy and I noticed that the test card on Ch. 1A had the ident RAI-ROMA at the bottom," wrote Garry Smith (Derby). He found these signals good enough for colour. Shortly after 0800 Garry watched a programme on Ch. 1A showing TVA Canale A and later he saw a Tele-Uno caption between programmes.

John Raleigh (Bedford) uses Panasonic and Thomson receivers with a 3-element Yagi for Band I, a home-brew 11-element beam for Band III and a Triax four stacked bowtie array for the u.h.f. band. On May 19, he received test cards from Hungary, Iceland and

Scandinavia, news and a programme about Picasso from the USSR on the 20th and the caption TB CCCP NPORPAMMA from the USSR on the 21st.

At his QTH in Slough, Mike Bennett saw the Bratislava test card at 1256 on June 5, Flemenco dancing from Spain at 1019 on the 6th, news and weather from Italy on the 11th, Italian Teletext at 1030 on the 15th and a test card from Iceland and the TV1 Knall caption around 1830 on the 18th.

In Belfast, Bill Kelly using an Icom R7000 receiver and AH7000 Discone antenna, listened to the television sound channels from a variety of countries in Bands I and II, during Sporadic-E openings on nine days between May 25 and June 16. Those of you like Bill with v.h.f. receivers can look for DXTV sound on Chs. E2 (53.75MHz), R1 (56.25MHz), Italy A (59.25MHz), E3 (60.75MHz), R2 (65.75MHz) and E4 and IB (67.75MHz in Band I and R3 (83.75MHz), IC (87.75MHz), R4 (91.75MHz) and R5 (99.75MHz) in Band II.

Tropospheric

While in Lawrencekirk, George Garden kept watch on the eastward moving high pressure system from May 22 to 25 for a tropospheric opening. "The duct was steadily improving all the time and around 1500 on the 25th, Scotland's Black Hill station was at its peak; an extremely strong colour picture was being received on a 48-element antenna inside an upstairs room," said George. At this point he decided to take his JVC receiver, amplified loop antenna and video recorder to the summit of Cairn O'Mounth, expecting to find u.h.f. band signals from the nearside of the Scottish border.

"Fortunately, at 1700, I was tuned to Ch. 62 where a local BBC 1 programme was being transmitted, unbelievably it was the *Look East* bulletin, Fig. 7, followed by the weather report for the BBC east region, Fig. 8, coming from Tacolneston," said George. He was further surprised

DEADLINE DATES

Issue	Deadline
October '87	August 21
November '87	September 18
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The frequency range is continuous from 100kHz to 30MHz and its modes of operation are USB, LSB, CW, AM, FM and FSK. An optional VHF converter (VC20) extends the frequency range to include 108 to 174MHz.



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IC-R71E HF Receiver £825.00

100kHz-30MHz CW/SSB/AM/RTTY/FM (optional). Direct frequency entry. 32 memories. Scanning. Remote control and 12 volt d.c. option.



IC-R7000 VHF/UHF £957.00



Continuous coverage receiver. 25MHz-2000MHz. FM/AM/SSB modes. Direct frequency entry. 99 memories. Scanning, remote control option.

AR2002 £487.30



The frequency range is from 25 to 550 and from 800 to 1300MHz. 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 and 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 25kHz steps from the frequency initially chosen.

A socket for the optional RS232 interface (IRC PACK) is provided on the rear panel.

LOWE HF-125 £375.00



Coverage is continuous from 30kHz to 30MHz and operating modes are AM, USB, LSB and CW with an optional FM and synchronous AM board. A comprehensive range of bandwidth filters are standard: 2.5, 4, 7 or 10kHz. There is a 400Hz audio filter for CW reception. Controls are very simple and the frequency tuned is displayed on a large back-lit liquid crystal display. Power requirements are 12V d.c. at around 250mA and internal NiCad batteries give around 10 hours portable operation. The lithium battery gives back-up for the 30 memories for some ten years.



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Fig. 1 The Mancinis

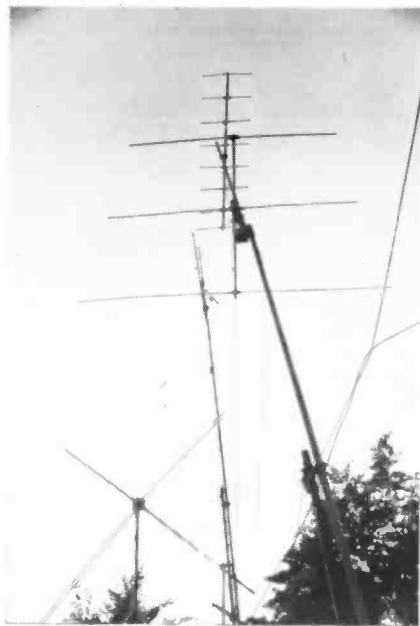


Fig. 2 Noel Smythe's Antennas



Fig. 3 Noel Smythe's Shack



Fig. 4 Spain



Fig. 5 Regional Logo

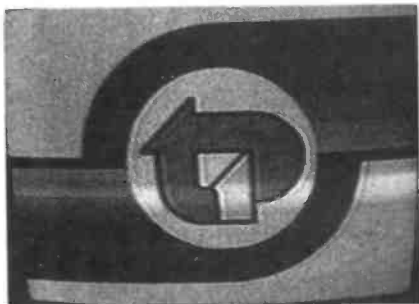


Fig. 6 Poland



Fig. 7 Look East

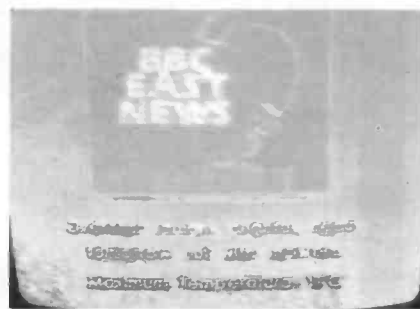


Fig. 8 BBC East News



Fig. 9 On Ch. 16



Fig. 10 May 25 Weather

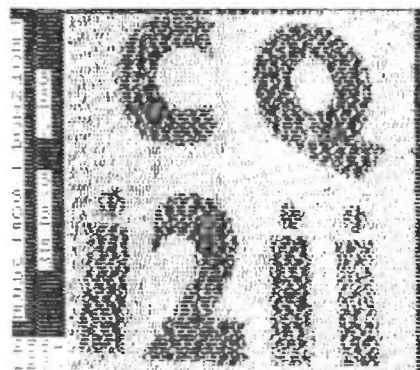


Fig. 11 Italian SSTV

when he logged a Tyneside advert, Fig. 9, on Ch. 61 and realised that this was coming from the Tyne Tees transmitter at Pontop Pike.

There was a slight fog at home before I went up the hill and while I was there, from 1500 to 1815, it never lifted. Visibility to the horizon was zero and the antenna, on my car roof, was wet with condensation," he told me. He continued, "It is interesting and noteworthy that the actual night time weather, shown on the weather map, Fig. 10, was for fog all along the east coast. I reckon that this was providing a major enhancement to the distant signals."

On arrival home George re-

played his expedition tape on a 20in Decca receiver and with his camera set at f2.8 and 1/25th second and positioned about 1m from the screen, he photographed the frames he wanted.

The Mancinis saw various films from France (Canal +) on Chs. F5 and F9 on May 19, 21 and 23 and spasmodic pictures from this station, almost daily, between May 25 and June 6. They also received RTE-1 from Eire on most days and test cards from Denmark and Germany and a news programme from Holland, in Band III, on the 24th and 25th.

John Raleigh logged RTBF-1 and BRT TV1 from Belgium at 1900 on May 22 and 1400 on the 25th respectively.

SSTV

In addition to DX contacts with stations in Argentina, Brazil, Canada and the USA during May, Les Hobson G0CUI (Rotherham) also exchanged slow scan television pictures, on 14MHz, with EA8EV, IK1FEK, IO0D0, I1HJP, LZ1WW, OH2KM, OZ1DOZ, SM6RKU, SP4KM, SV1IY, YU2MD and YU4E2C. On May 30, Les worked ST2SR in Kartoum, bringing his first time QSOs score to 210. "At least 90 per cent of these were on 14MHz," said Les. At 1850 on May 26 and 1920 on the 27th, Richard Bealey, a 17-year-old reader in

Exeter, using a Trio R2000 receiver, long wire antenna and 48K Spectrum computer, copied pictures on 14MHz from stations in Germany, Poland and Sweden. During the six weeks prior to June 12, Ian Smith received pictures from France, Germany, Hungary, Italy, Portugal, Spain, Yugoslavia and the UK. Ian uses a Grundig Satellit 1400SL receiver with a Datong AD370 active dipole antenna and a Spectrum computer with Technical Software's RX4 program for slow scan reception and makes hard copy of his pictures, like Figs. 11 and 12, with an Alphacom 32 printer.

SEEN & HEARD

LONG MEDIUM & SHORT

Brian Oddy G3FEX
Three Corners, Merryfield Way, Storrington,
West Sussex RH20 4NS

The reports received here on the BBC 648 multi-lingual broadcasts suggest that the antenna system used with the 500kW transmitter in Orfordness is quite directional. The daytime ground wave signal seems to provide good coverage in part of Europe and at night the sky wave signal reaches N. Italy well.

Although Den Marriott found it to be a very powerful signal at all hours in Bexleyheath and John Nash noted a good signal in Brighton, along the south coast in Barton-on-Sea Bill Wheeler found reception poor. Near Falmouth, Dennis Monger could find no trace of it at all!

Only the sky wave signal can be heard in Worcester by Edward Broadsmith and Leighton Smart says that it is poor even in Trelewis. Paul Hegarty reports no trace of the signal at any time in Co. Dublin, S. Ireland! Only a weak sky signal reaches Bill Stewart in Lossiemouth. Bungay, Suffolk seems to be the ideal location as Ron Pearce says he can hear their broadcasts there at all hours of the day or night on a crystal set!

Long Wave DX:

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

In view of the increasing numbers of l.w. reports, I have prepared a chart this time — it could become a regular feature if the present level of activity continues! It may also help those who are new to l.w. DXing to identify some of the stations.

A few of the problems associated with l.w. DXing were mentioned last month. A new problem was mentioned this time by John Greenwood of Evesham. It arose when he set his receiver to 153kHz with a view to logging Donebach, W. Germany — instead he heard BBC Radio 1 on 1053kHz! It seems that his phase locked loop (p.l.l.) synthesiser receiver is upset by the strong ground wave signal on 1053kHz from the Droitwich 150kW m.w. transmitter located only 21km away.

John overcame the problem by modifying his m.w. loop antenna so that it could be used on the l.w. band — a few fixed capacitors clipped across the main loop tuning capacitor did the trick! He then added a small wooden shelf across the inside of the loop and placed his p.l.l. receiver on it. This not only cleared up the problem but has resulted in improved l.w. reception since unwanted interference can be nulled-out! During his experiments he noted that

reception, while using a receiver with a conventional local oscillator, was much quieter since there was no synthesiser noise — a good tip for DXers in quiet locations.

David Edwardson has been observing the changes which occur on this band at dusk, he found that a Russian station co-channel with Junglinster on 236 became audible as darkness approached. It reached its peak when it was almost completely dark at 2100UTC and took over the frequency for 30 minutes before fading and giving way to Junglinster again!

John Berridge has also been checking the band at night in Cardiff and has noticed that there are a number of unidentifiable weak stations at the extreme end of the band. Listening well into the night, Tim Shirley picked up a new one in Bristol, namely Plovdiv, Bulgaria on 263 at 0200. Certainly an interesting one to log if you can stay awake!

MW Transatlantic DX

With the relatively short period of darkness just now there is not too much time between the arrival of the transatlantic signals and sunrise. However, some DXers have been making the most of things and have logged some interesting stations!

Using a car radio plus 6m wire antenna in Birmingham, Paul O'Connor spent some time tuning around the band in the hope of hearing some transatlantic DX signals. His patience was rewarded at 0130 when he heard WHN in New York on 1050, noting SINPO 34333 in his log. No other DX was heard until 0200, when a station on 1610 became barely audible. Paul thinks it was the Caribbean Beacon, Anguilla, but it was not possible to confirm that since the signal only peaked SINPO 12311 and no positive identification was made.

Three stations in Florida, USA were logged by Tim Shirley, WCBF in Tampa on 1010 at 0136; WHOO in Orlando on 990 at 0235 and WCNU in Crestview on 1010. He heard very weak signals on 1230 from ZBM-1 Hamilton, Bermuda at 0215 and around 0445 picked up WMOX in Meridan, MS on 1010 — all are subject to confirmation by QSL.

Writing from New Radnor, Simon Hamer says he used his Grundig 1400 receiver at 0330UTC and logged a number of interesting stations. Two of the first stations heard were located in Newfoundland, CBT in Grand Falls on 540 and CJYQ St John's on 930. Some of the stations in other

Freq kHz	Station	County (kW)	Power	DXer
153	Brasov	Romania	1200	F*
153	DLF Donebach	W. Germany	500	A,B,C,D*,E,F*,H,I, J,L,M,P
162	Allouis	France	2000	A,B,C,D*,E,F*,G,H, I,J,L,M,N,O*
171	Kaliningrad	USSR	1000	B,C,E,F*,H,I, L,M,
171	Nador	Morocco	1200	F*,M
177	Oranienburg	E. Germany	750	A,B,C,D,E,F*,J,L, M,P
182	Polati	Turkey	1200	F*
183	Saarlouis	W. Germany	2000	A,B,C,D*,E,F*,H,I, J,L,O*,P
189	Motala	Sweden	300	B,C,F*,H,I,L,M
189	Tbilisi	USSR	0500	F*
200	BBC Droitwich	UK	400	A,B,D,E,F,G,H,I, J,L,M,P
200	Leningrad	USSR	150	F*
209	DLF Munchen	W. Germany	500	B,C,F*,I,L,M,P
209	RUV Reykjavik	Iceland	100	F*
209	Azilal	Morocco	800	B*,F*,L*
209	Radio Keiv	Ukraine	500	B*,F*
218	Roumoules	Monaco	1400	A,B,C,D,E,H,I,J, L,M,O*,P
218	Oslo	Norway	200	F*,L*,M*
218	Baku	USSR	?	F*
227	Konstantynow	Poland	2000	B,C,D,E,F*,H,I,M, O*,P
236	Junglinster	Luxembourg	2000	A,B,C,D*,E,F*, H,I,J,M,O*,P
236	Kishinev	USSR	1000	B*,F*,M*
245	Kalundborg	Denmark	300	A,B,C,D,E,F*,H,I, J,L,M,O*,P
245	Erzurum	Turkey	200	F*
254	Tipaza	Algeria	1500	A,B,C,D*,F*,H,I, J,K,L,M,O*,P
263	Plovdiv	Bulgaria	?	N*
263	Burg	E. Germany	200	F*,L,M
263	Moscow	USSR	2000	B*,C,I,J
272	Topolna	Czechoslovakia	1500	B,C,D*,E,F*,I,L,M,P
272	Orenburg	USSR	15	F*
281	Minsk	USSR	500	F*,I*,L,M

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

areas of Canada were also well received, CHER in Sydney, Nova Scotia 950; CBV in Quebec City, 980; CFGO in Ottawa, ON 1200 and CKCW in Moncton, NB 1220.

Simon also picked up a number of stations from the New York area of the USA, namely WOR 710; WCBS 880; WINS 1010; WHN 1050; WNEW 1130 and WQXR 1560 — all were coming in well. Those noted from other areas of the USA were WBAL in Baltimore, 1090; WCAU in Philadelphia, 1210 and WLAM in Lewiston, Maine 1470. Radio Globo in Rio de Janeiro, Brazil put in an appearance on 1220 and the Atlantic Beacon, Turks & Caicos Islands 1570 was also logged. The Caribbean Beacon, Anguilla 1610 was well received. Simon was surprised to find that WHN, the Atlantic Beacon and the Caribbean Beacon were still audible at daybreak, around 0400UTC!

- A: John Berridge, Cardiff.
- B: David Edwardson, Wallsend.
- C: Bill Eyre, Stockport.
- D: Rab Freeman, Port Glasgow.
- E: John Greenwood, Evesham.
- F: Simon Hamer, New Radnor.
- G: Daniel Masterson, Stoke-on-Trent.
- H: George Millmore, Ryde I.O.W.
- I: George Morley, Redhill.
- J: Paul O'Connor, Birmingham.
- K: John Parry, Northwich.
- L: Philip Rambaut, Macclesfield.
- M: John Sheridan, Mapperley.
- N: Tim Shirley, Bristol.
- O: Roy Spencer, Nuneaton.
- P: Phil Townsend, London.

The report from "old timer" Bill Kelly indicates that he has been hearing transatlantic DX on 16 nights of the month in Belfast! As well as looking for new stations to add to his extensive list of DX, Bill takes an interest in the programmes.

A few of the stations and subjects noted by Bill this time were CFRA Ottawa 580 — a talk on drug smuggling at 0305; VOICM St John's, NF 590 — the news followed by a local weather report at 0235; CKYQ Grand

Bank, NF 610 — adverts and a programme of recorded music at 0350; CBGY Bonavista Bay, NF 750 — pop music at 0330; YVKS Caracas, Venezuela 750 — Latin American music at 0325; WWWE Cleveland, OH 1100 — a series of local adverts at 0315; CBD St John, NB 1110 — an exciting basket ball commentary at 0155; WCAU 1210 — a sports report at 0345; Radio Globo 1220 — a football commentary in Spanish at 0230; WQXR 1560 — a comedy programme at 0230; Atlantic Beacon 1570 — an Evangelical programme; CKLM Lavel, Quebec 1570 — a talk in French at 0355; Caribbean Beacon 1610 — an Evangelical programme.

Writing from Nuneaton, Roy Spencer says "I tried for m.w. transatlantic DX on a few occasions this month, but with no success at all". There have been one or two similar reports recently and it seems strange that a few listeners have yet to hear their first transatlantic signal especially in view of the number of stations being logged by other DXers.

Another dedicated DXer, Leo Gieske of Randburg, S. Africa, has been listening for transatlantic DX during 22 nights of the month from 0345 until 0430! He found that the signals from South America were dominant and logged four stations in Brazil — Radio Globo, Rio 1220; Radio Mulher 1260; Radio Tupi 1280; Radio Bandeirantes 1360; also three in Argentina — Radio Nacional 1130; Radio Provincia 1270 and Radio Buenos Aires 1350. Radio Globo was such a good signal one morning that it could still be heard for 30 minutes after sunrise at 0430UTC!

Three stations from the Caribbean area were also noted by Leo — ZNS-1 Nassau, Bahamas 1540; Atlantic Beacon 1570 and the Caribbean Beacon 1610. The only signal heard from the USA was WPTR in Albany, NY 1540.

Other MW DX

Leo has been listening for European m.w. wave stations around 0345UTC and heard ILR Capital Radio, London on 1548 for the first time this year! He also logged Nice, France 1350; Saarbrücken, W. Germany 1422; Marnach, Luxembourg 1440; Monte-Carlo, Monaco 1467; Sarnen, Switzerland 1566 and Langenburg, W. Germany 1593.

ILR Capital Radio 1548 was also logged by Alex Mackow while on holiday in Bolzano, N. Italy — he found their signal remarkably strong around 0100. BBC Radio London was also quite a strong signal there after midnight. In contrast, LBC on 1152 was rather weak and inaudible before 2330. BBC 648 from Orfordness became audible after dark and was received well. Some of the other BBC stations however were



The receiving equipment used by George Marley in Redhill.

much weaker, namely Radio 1 on 1053 and 1089; Radio 2 on 693 and 909 and Radio 3 on 1215. It is interesting to note that the BBC Droitwich l.w. transmitter on 200 was audible but rather weak.

Torshavn, Faroe Islands 531 was logged by Tim Shirley at 2000 — this station is seldom mentioned and may well be one to add to your DX list! Some of the stations noted by Tim include three in Austria — Wien-Bisamberg 585 at 1700; ORF-1 Linz 1026 at 0045 and ORF-3 Vienna 1476 at 2230; also three from France — Lyon 603 at 1700; Nancy 837 at 1645 and Brest 1071 at 2045. Others were RIAS in Berlin, W. Germany 990 at 1600; Serti, Libya 792 at 2315 and Poznan, Poland 738 at 2100.

The World Service programmes from Radio Prague, Czechoslovakia, via transmitters in Litomysl and Liblice on 1287, have been attracting the attention of Daniel Masterson in Stoke-on-Trent at 2200. The programmes from BRT International via Wolvertem, Belgium on 1512 are popular with Wyn Mainwaring, but he has found reception very poor recently in Cowes, IOW. No trace of their signal could be found by Phillip Townsend in London, although he has been hearing BRT2 via Kuurne, Belgium on 1188, noting SIO 243 in his log.

Listening in Macclesfield at 2130, Philip Rambaut picked up Tenerife, Canary Islands on 621 and logged eleven stations in Spain — RNE1 Madrid 585; RNE1 Seville 684; RNE1 Ovideo 729; RNE1 San Sebastian 774; Radio Sevilla 792; Radio Barcelona 828; RNE1 Murcia 855; Radio Intercontinental, Madrid 918; RCE Madrid 954; Radio Bilbao 990 and Radio Popular, Madrid 999. He also noted four in Portugal — Santa Isabel 630; Lisbon 666; Evora 927 and Seixal 963. David Edwardson has been concentrating on the stations in the Middle East and logged Taiz,

Yemen 1008 at 0001; UAE Dubai 1481 at 0015; Jeddah, Saudi Arabia 1512 at 0030 and Doha, Saudi Arabia 1521 at 0022.

By using a loop antenna, Simon Hamer has found that during daylight he can separate two low power stations on 585, namely France-Inter Paris et Provence, which runs 10kW in Paris and the BBC 2kW transmitter in Dumfries. The signal from the BBC Dumfries transmitter has also been heard during daylight in S. Ireland by Paul Hegarty (SINPO 33343).

Paul often listens to Manx Radio, Isle of Man on 1368 during the day (SINPO 44434), but finds there is too much interference at night from European sky wave signals. A detailed history of Manx Radio and their QSL card has been received by Robert Taylor in Edinburgh — he can hear their ground wave signal at SIO 444 at 1800, however most DXers can only receive their broadcasts after dark via sky wave paths. Robert has also been listening to some of the programmes broadcast by RTE-1 Tullamore 567 and RTE-2 Athlone 612 from S. Ireland during the afternoon — both signals are SIO 444.

MW Local Radio DX

There are fewer entrants in the chart this time due to holidays — it is worth remembering to take your portable radio with you because a different location can often provide interesting and unexpected results!

Short Wave DX

As expected, the 25MHz (11m) band has remained very silent here in the UK. There have been a number of Sporadic-E type openings to Europe recently, but these are only of academic interest to broadcasters. It is the upward slope of the next 11-year solar sunspot cycle which now lies ahead that really interests them, so that they can take advantage of

the excellent long distance propagation which can exist on 11m.

A number of regular broadcasters use the 21MHz (13m) band to beam their programmes to listeners in specific target areas of the world during the hours of daylight. Many of these broadcasts are not intended for UK listeners, but they can often be received here. George Morley picked up several of them during an early morning check in Redhill, namely UAE Radio Dubai 21.700 with programmes in Arabic and English for Australia at 0530 and for N. Africa on 21.605 at 0615; Radio Nederlands via Talata Volon, Madagascar 21.485 — Dutch to S.E. Asia at 0700 and Radio Prague, Czechoslovakia 21.705 — English and Czech to S.E. Asia at 0830.

Rab Freeman has been concentrating on them in Port Glasgow and during the morning he logged Radio DW via Juelich, W. Germany 21.560 — German to Australia at 0631; Radio RSA Johannesburg, S. Africa 21.535 — Afrikaans to E. Africa at 0820; Radio DW via Wertachtal, W. Germany 21.680 — English to Australia at 0900; RSI (s.s.b.) via Vargburg, Sweden 21.555 — Swedish to the Middle East at 0927; RSI Stockholm, Sweden 21.690 — Swedish and English to the Middle East at 1059; RBI via Leipzig, GDR 21.465 — Hindi and English to Asia at 1132; REE via Noblejas, Spain 21.575 — Spanish to the Middle East at 1134; RFI via Allouis, France 21.620 — French and English to E. Africa at 1136; Radio Moscow 21.585 — Khmer and Indonesian to S.E. Asia at 1145 and Vatican Radio 21.485 — Portuguese, French and English to Africa at 1200.

Later Rab noted Radio Liberty via Lampertheim, W. Germany 21.455 — Armenian and Azerbaijani to the Middle East at 1305; Radio Prague, Czechoslovakia 21.505 — English and Czech to Africa at 1535; VOA via Monrovia, Liberia 21.485 — English to C. Africa at 1906; Radio Nederlands via Bonaire, Nederlands Antilles 21.685 — English and French to W. Africa at 1941 and WYFR via Okeechobee, Florida 21.525 — English to W. Africa at 2132.

There are a number of transmissions to Europe during the day — some are in English but others are in foreign languages, for example Radio Free Europe broadcasts via Gloria, Portugal to Central Europe in Czech on 21.720 at 0814 and the programmes for Europe from Tripoli, Libya on 21.645 at 2020 are Arabic.

The direct broadcasts from Radio RSA in Johannesburg, S. Africa on 21.590 are usually well received in the UK and may be heard from 1300 until 1556.

SEEN & HEARD

Freq kHz	Station	ILR or BBC	DXer
603	Invicta Sound	I	C*,F,K
630	R. Bedfordshire	B	F,K
666	Devonair R.	I	I
666	R. York	B	E,J
729	BBC Essex	B	K
756	R. Cumbria	B	J
765	BBC Essex	B	K
774	R. Kent	B	K
774	Severn Sound	I	F
792	Chiltern R.	I	C*,K
801	R. Devon	B	B,E,F,G
828	R. WM	B	F
828	Chiltern R.	I	K
837	R. Leicester	B	B,K
855	R. Norfolk	B	K
873	R. Norfolk	B	K
936	GWR	I	A,F
945	R. Trent	I	A,C*,F*
990	Beacon R.	I	F
999	Red Rose R.	I	I,J
999	R. Trent	I	I
1026	R. Cambridgeshire	B	K
1035	R. Kent	B	K
1035	NorthSound R.	I	H
1035	West Sound	I	J
1107	Moray Firth R.	I	H
1152	LBC	I	B,D*,K
1152	R. Clyde	I	H*
1152	BRMB	I	F
1152	R. Broadland	I	B*,H*
1161	R. Tay	I	H
1161	Viking R.	I	B*,I
1170	R. Orwell	I	B
1170	Ocean Sound East	I	B,I*
1170	Signal R.	I	F
1242	Invicta Sound	I	K
1251	Saxon R.	I	I*,K
1323	Southern Sound	I	K
1332	Hereward R.	I	K
1359	Essex R.	I	K
1359	Red Dragon R.	I	C*
1359	Mercia Sound	I	F
1431	Essex R.	I	K
1458	R. London	B	D*,K
1458	R. WM	B	F
1476	County Sound	I	C*
1503	R. Stoke-on-Trent	B	F
1521	R. Mercury	I	B*,C*,K
1530	R. Wyvern	I	C*,F,J
1548	Capital R.	I	C*,D*,K
1548	R. Forth	I	H
1557	Northants 96	I	C*
1557	Ocean Sound	I	C*,F*
1584	R. Tay	I	C*,H,J

Note:-

Entries marked * were logged during darkness.

All other entries were logged during daylight.

DXers

- A: Michael Banbrook, London.
- B: Francis Hearne, Ilford.
- C: Bill Kelly, Belfast.
- D: Alex Mackow, Bolzano, Italy.
- E: Den Marriott, Bexleyheath.
- F: Paul O'Connor, Birmingham.
- G: John Parry, Northwich.
- H: Stewart Russell, Forfar.
- I: Tim Shirley, Bristol.
- J: Robert Taylor, Edinburgh.
- K: Philip Townsend, London.

Their programmes in English are very popular and cover a wide variety of interesting subjects — Robert Taylor noted SIO 444 in his log at 1430 while listening to a talk about a performance in Afrikaans of *Hamlet*.

Some of the broadcasts are relayed to Europe, for example those from Radio Japan at 1500 reach the UK via relay station in

Moyabi, Gabon on 21.700. Darren Taplin has been listening to their popular programmes in English and Japanese in Tunbridge Wells and noted SINPO 33333 in his log.

The propagation conditions were generally unstable on the 17MHz (16m) band at the beginning of the month and upset long distance reception. The broadcasts from Radio Australia to S.E. Asia on 17.715 became inaudible in the UK for several days, however reception has now improved.

The latest report from George Hewlett, who officially monitors the frequencies used by Radio Australia on a daily basis in Torquay, indicates that their broadcast via Carnarvon, W. Australia on 17.715 usually becomes audible by 0400 and

reach a peak around 0700. By 0830 there is much fading and the signal is very weak by 0850. Their signature tune *Waltzing Matilda* can be heard at 0850 when their transmitter in Darwin, N. Australia takes over the frequency for a broadcast in Chinese to E. Asia from 0900 until 1000.

A number of broadcasters use this band to reach listeners in Europe, but their programmes are not necessarily in English — for example, much of the broadcast from Radio Pakistan on 17.660 from 0715 until 1120 is in Urdu, however there are some items in English. Edward Broadsmith often listens to their bulletins of world news in English which are read at slow dictation speed, so he decided to send them a report. They responded by sending along an attractive QSL card and have asked him for further reports on their signal.

The programmes from UAE Radio Dubai are mainly in Arabic, but they too have some items in English. They beam towards Europe on 17.820 from 0630 until 1200. Using a Vega 206 portable in Morden, Sheila Hughes has been listening to their interesting series called *Role of Proverbs in Arab Society*. Sheila also likes the clear format of their news bulletins. They also beam towards Europe on 17.775 from 0615 until 1500. Robert Taylor picked them up on this frequency at 1313 and noted SIO 444 in his log.

Eight languages are used during the broadcast to listeners in Europe from RCI in Montreal, Canada on 17.820 from 1330 until 2100! The items in English may be heard at 1445, 1800, 1900, 2000 and 2130. Their transmission is usually well received during the afternoon. Using a Trio R2000 receiver, George Morley logged their signal at 1657 as SINPO 55545. However this is not always the case during the evening if the band closes early!

When conditions permit, a number of broadcasts beamed to Europe from the USA, Central and S. America may be heard during the evening. Neil Dove has been listening to one of them in Lockerbie, namely Radio Surinam International. Their programmes in English and Dutch reach listeners via an RNB transmitter in Brazil on 17.755 at 1700. The programmes in English and Spanish from the studios of WYFR in Oakland, California are beamed towards Europe from Okeechobee, Florida on 17.750 at 2000. Darren Taplin logged their signal as SINPO 54444 at 2040.

John Nash has been listening to some of the popular programmes from Radio NCJB in Quito, Ecuador on 17.790. They cover a wide variety of topics including a special series for DXers at 2130. Another interesting station was mentioned by John Berridge,

Voice of Free China (VOFC) in Taipei, Taiwan, relayed via Okeechobee, Florida on 17.845 at 2200. Their series called *Let's Learn Chinese* has been attracting the attention of George Efstratiades in Thessaloniki, Greece and a competition brought him a prize!

The reception conditions prevailing on the 15MHz (19m) band tend to be rather more reliable than on the higher frequencies. However, long distance reception was also affected on this band earlier in the month. Reception has now improved and many interesting stations have been logged by DXers.

The signals from Radio Australia's Shepparton transmitting station in S.E. Australia reach us on 15.240 via the long path over the Pacific in the early morning. To hear them it will be necessary to listen around 0400! The report from George Hewlett quotes their signal as SIO 433 at 0400, but it is only 221 by 0500. It is then lost because RBI commences a broadcast via Nauen, GDR to the Middle East on the frequency at 0430. Radio Australia also use 15.415 from 0900 until 1100 but Radio Moscow beams towards Europe on 15.420 from 0800 until 1530 and makes reception almost impossible.

A direct broadcast to Europe from Radio Japan, Tokyo, may be heard on 15.195 at 0700, but should conditions be more suitable their broadcast may be heard via Moyabi, Gabon on 15.230. George Morley logged their signal via this route as SINPO 32333 at 0725. Another DX signal which is audible some mornings was noted by Tim Shirley on 15.115, namely FEBA Radio, Seychelles. Their transmission from 0715 until 0835 is really intended for listeners in S. Asia.

Radio Pakistan "back-up" their 16m broadcast to Europe at 0715 with a 19m transmission on 15.605. Edward Broadsmith says the finds the choice very helpful since day to day reception varies. Bill Stewart has been listening to the Voice of Vietnam, Hanoi on 15.010 at 1330. Their programmes in English are intended for listeners in Europe and end at 1400. Sheila Hughes has been DXing with her Vega 206 portable during a Caravan holiday near Rye and picked up their bulletin of news from Hanoi at 1800.

There are direct broadcasts to Europe from S. America during the evening. The programmes from RAE Buenos Aires, Argentina on 15.345 commence in English at 1700 and continue in German, French and Italian until 2155. John Nash logged them at 2154 as SIO 433. Between 1800 and 1950 there are some interesting items in English and German from RNB Brasilia, Brazil on 15.265.

SEEN & HEARD

Freq MHz	Station	Country	UTC	DXer
2.560	Xinjiang	China	2256	D
3.210	R.Federacion	Ecuador	0355	E
3.210	R.Mozambique	Mozambique	0335	E
3.230	ELWA Monrovia	Liberia	2135	C
3.230	R.RSA	S.Africa	0330	E
3.250	R.Luz Y Vida	Honduras	0300	L
3.250	SABC Radio 5	S.Africa	0350	E
3.255	LBS Monrovia	Liberia	2300	M
3.260	Voz de Rio Carrizal	Ecuador	0245	M
3.285	R.Belize	Belize	0537	M
3.315	R.Pastaza	Ecuador	0355	E
3.320	R.Suid Afrika	S.Africa	2147	C,G
3.330	R.Comoro	Comoro Is	1900	M
3.365	GBC Radio 2	Ghana	2210	B,C,G
3.375	AIR Gauhati	India	0345	E
3.395	R.Zaracay	Ecuador	0350	E
3.915	BBC Kranji	Singapore	2200	C,F,G
3.920	KCBS Shinuju	N.Korea	2130	M
3.925	NSB	Japan	0500	M
3.945	NSB	Japan	2130	M
3.960	FBS	Falklands	2359	M
3.980	VOA Munich	W.Germany	1800	K
4.450	R.Afghanistan	via USSR	2000	N
4.500	Xinjiang	China	2225	D,N
4.545	Alma Ata	USSR	0320	E
4.735	Xinjiang	China	2359	N
4.755	Sani Radlo	Honduras	2315	I,M
4.760	ELWA Monrovia	Liberia	1955	J
4.760	TWR	Swaziland	2200	N
4.765	R.Moscow	Via Cuba	0125	C,E
4.770	FRCN, Kaduna	Nigeria	2012	C,H,J,N
4.785	RTM Bamako	Mali	2010	J
4.795	R.Douala	Cameroon	2104	C,I,J,N
4.795	R.Nueva America	Bolivia	0340	L
4.800	AIR Hyderabad	India	2345	N
4.800	LNBS Lesotho	Maseru	2145	C,N
4.805	R.Nac Amazonas	Brazil	0155	C
4.815	R.diff TV Burkina	Ouagadougou	2125	C,J,N
4.820	R.Botswana	Botswana	2100	J,M,N
4.820	La Voz Evangelica	Honduras	0145	C
4.825	R.Ashkhabad	USSR	2020	C
4.830	Africa No. 1	Gabon	2018	C,D,G,H,J,N
4.830	R.Rejoi	Costa Rica	0440	E
4.830	R.Tachira	Venezuela	0015	C,E,M
4.835	RTM Bamako	Mali	2020	C,G,J,N

Freq MHz	Station	Country	UTC	DXer
4.845	R.Nacional, Manaus	Brazil	0145	C
4.845	ORTM Nouakchott	Mauritania	2100	G,J,N
4.850	R.Columbia Pt	Costa Rica	0210	E
4.850	R.Luz Y Vida	Ecuador	0130	M
4.850	R.Yaounde	Cameroon	2058	B,C,G,H,J,N
4.885	R.San'a Yemen	Yemen	2359	N
4.865	PBS Lanzhou	China	2054	D,H
4.870	V. du Revolution	Benin	2020	A,C,D,G,I,J,M
4.880	SABC Radio 5	S.Africa	2015	B,C,G,H,J,N
4.885	R.Clube do Para	Brazil	0400	E
4.890	ORTS, Dakar	Senegal	2230	N
4.900	R.diff Nat. Conakry	Guinea	2110	C,G,H,J
4.905	N'djamena	Chad	2030	J
4.905	R.Relegio, Rio	Brazil	0150	E
4.915	R.Ghana, Accra	Ghana	2240	J
4.915	R.Nac. Macapa	Brazil	0400	E
4.920	R.Quito	Ecuador	0205	C,E
4.925	R.Nacional, Bata	Eq. Guinea	2245	N
4.930	R.Moscow 2, Ashkabad	USSR	2145	C
4.940	Kiev	USSR	2110	C,G
4.940	R.Yakutsk	USSR	0145	E
4.945	Caracol, Neiva	Colombia	0400	E
4.945	R.Nat. Porto Velho	Brazil	0430	E
4.950	R.Nac. Luanda	Angola	0500	M
4.955	R.Ci. Rondonopolis	Brazil	0140	E
4.958	Azerbaijan	USSR	2050	K
4.970	R.Rumbos	Venezuela	0210	C,E,M
4.975	R.Uganda	Uganda	1915	D,H,J,K,N
4.980	Ecos del Torbes	Venezuela	0130	A,C,E
4.985	R.Brazil Central	Brazil	0345	E
4.990	FRCN, Lagos	Nigeria	2020	G,H,J
4.990	Yerevan	USSR	2100	M
4.995	R.Ulan Bator	Mongolia	2200	N
5.005	R.Nacioal, Bata	Eq. Guinea	2005	C,G,J
5.010	R.Garoua	Cameroon	2014	A,J
5.020	ORTN Niamey	Niger	2020	J
5.025	R.Uganda, Kampala	Uganda	2040	J
5.035	R.Bangui	S.Africa	2150	N
5.040	Omdurman	Sudan	2245	N
5.045	R.Togo Lome	Togo	2040	A,J
5.050	Voz de Yopal	Columbia	0026	I
5.075	R.Beijing	China	2300	N
5.095	R.Sutatenza, Bogata	Columbia	0225	C
5.290	R.Moundou	Chad	2359	N

Using a Yaesu FRG-7700 receiver in Stockton-on-Tees, Ian Curry logged their signal as SINPO 43333.

Some of the major broadcasters use relay stations to reach their listeners during the evening. Three of VOA's relays were mentioned in reports, namely Tangier, Morocco on 15.205 beamed on Europe from 1700 until 2100 — noted by John Parry in Northwich; Monrovia, Liberia 15.600 beamed on S. Africa but heard near Rye by Sheila Hughes at 1810; Poro, Philippines 15.305 beamed towards Australia, but received by Philip Rambaut at 2200. The BBC Antigua, W. Indies relay on 15.260 was picked up by Julian Wood in Buckie at 2000. Their world service transmission is intended for listeners in S. Africa. John Nash has been listening to VOFC relayed via Okeechobee, Florida on 15.440 at 2200.

Listening in London at 2145, Gregory Adrian has been hearing RCI in Montreal via their transmitter in Sackville, E. Canada on 15.325. Their transmission extends from 1330 until 2200 and is a back-up for their 16m broadcast mentioned earlier. He has also been hearing WCSN, the new station in Boston, beaming to listeners in W. Africa on 15.300 at 2200.

Radio Moscow has been making extensive use of the 13MHz

(22m) band to reach listeners in Asia, Australia, Africa, the Middle East, Europe and N. America and at present they occupy some 17 frequencies between 13.605 and 13.795 during the day!

There are a number of other broadcasters active on this band too, some of those noted in the reports from DXers were the Voice of Israel, Jerusalem beaming programmes in Hebrew to listeners in W. Europe on 13.750 at 1046 heard by Philip Rambaut. Radio Nederlands broadcasting in English to Asia on 13.770 at 1430 heard by Tim Shirley. Radio Baghdad, Iraq with items in Spanish for S.W. Europe on 13.650 at 1840 heard by John Parry. Radio Prague, Czechoslovakia beaming towards E. Africa and the Middle East on 13.715 at 2120 heard by George Morley.

The 11MHz (25m) band is usually a good deal more reliable than the higher frequencies, consequently there are many broadcasters operating there in an attempt to ensure that their programmes reach their chosen target area. Signals from all continents can be heard at some time during the day or night. Radio Australia broadcast to listeners in the S. Pacific area on 11.910 from 0400 until 0630 and George Hewlett says their signals have recently been roaring in! It is also worth checking for Radio New Zealand, Wellington on 11.780 at

0400, Simon Hamer logged their signal as SIO 232.

Some of the other stations heard by DXers during the early morning include ELWA Monrovia, Liberia 11.955 at 0655; Radio HCJB Quito, Ecuador 11.925 at 0750 heard by George Morley. WYFR via Okeechobee, Florida 11.580 at 0822 heard by John Nash. Logged during the afternoon were REE Madrid, Spain 11.920 at 1430; Radio Beijing, China 11.600 at 1439 heard by John Nash. ARC Lucca, Italy 11.505 at 1500 heard by Tim Shirley. Radio Budapest, Hungary 11.910 at 1630; UAE Radio Dubai 11.730 at 1700 heard by Leighton Smart. BBC via Ascension Island 11.750 at 1600; Radio Pyongyang, N. Korea 11.335 at 1715; CBS-2 Taipei, Taiwan 11.775 at 1726 heard by Philip Rambaut.

During the evening many others were noted, Radio Kuwait, St. of Kuwait 11.675 at 1830; Radio Beijing, China 11.500, noted by Michael Osborn in Chelmsford at 1900. Radio Prague, Czechoslovakia 11.685 at 1920; the Voice of Israel 11.655 at 1930 heard by Robert Taylor. WCSN Boston, USA 11.695 at 2040; Radio Finland, Helsinki 11.945 at 2100 heard by Neil Dove. All India Radio, New Delhi 11.620 at 2030 heard by Den Marriott. Radio Damascus, Syria 12.085 at 2130 heard by Bill

DXers

- A: Gregory Adrian, London.
- B: Alan Curry, Stockton-on-Tees.
- C: Neil Dove, Lockerbie.
- D: David Edwardson, Wallsend.
- E: Bill Kelly, Belfast.
- F: Den Marriott, Bexleyheath.
- G: George Morley, Redhill.
- H: John Nash, Brighton.
- I: Michael Osborn, Chelmsford.
- J: Fred Pallant, Storrington.
- K: John Parry, Northwich.
- L: Ronald Proudfoot, Newcastle-upon-Tyne.
- M: Tim Shirley, Bristol.
- N: Jim Willett, Grimsby.

Stewart. Radio RSA Johannesburg, S. Africa 11.900 logged by Francis Hearne in Ilford at 2145. Radio Japan, Tokyo via Moyabi Gobon 11.800 at 2315 heard by David Edwardson.

There is also plenty to interest the listener on the 9MHz (31m) band! There are direct broadcasts to Europe from Radio Australia via Shepparton, S.E. Australia on 9.655 from 0700 until 1000. The report from George Hewlett notes their signal as SIO 434 from 0700 until about 0815, but it gradually fades to 322 by 0830 and is lost by 0845. The signals usually reappear around 0900 at 322, but fade to 220 by 0930 and are lost by 0945. Their transmissions to the W. Pacific area on 9.760 and to N. America on 9.580 are audible but very weak at 0800.

Some of the interesting stations logged by DXers during the day were Radio HCJB Quito, Ecuador 9.860 at 0810 logged by Sheila

Seen & Heard

Hughes. SRI via Sottens, Switzerland 9.560 at 0750 was noted by **Jim Willett** in Grimsby. WCSN Boston, USA 9.465 at 0800; Radio Nederlands 9.715 at 11.30 all noted by **Alan Curry** in Stockton-on-Tees. Radio Bucharest Roumania 9.690 at 1314 logged by **Ian Curry**. Vatican Radio, Rome 9.645 at 1345; Radio Budapest, Hungary 9.835 at 1415 heard by **Sheila Hughes**. KFBS Saipan, N. Mariana Islands 9.465 at 1530 heard by **Tim Shirley**. R. Pyongyang, N. Korea 9.325 at 1543 logged by **George Morley**.

During the evening many more were heard, namely Radio Beijing, China 9.850 at 1925 logged by **Sheila Hughes**. Radio Damascus, Syria 9.950 at 2021 heard by **David Edwardson**. VOIRI, Iran 9.020 at 2015; REE via Aragon, Spain 9.765 at 2140 all logged by **Ian Curry**. Radio Damascus, Syria 9.950 at 2030 heard by **Julian Wood**. Radio Baghdad, Iraq 9.875 at 2100 logged by **Tim Shirley**. WHRI South Bend, USA 9.770 at 2134 heard by **John Nash**. Radio Vilnius, USSR 9.640 at 2200 logged by **Sheila Hughes**. Vatican Radio, Rome 9.615 at 2240 heard by **Gregory Adrian**. RHC Habana, Cuba via Moscow, USSR 9.590

at 2246 logged by **Alan Curry**.

The 7MHz (41m) band is considerably overcrowded and a good deal of adjacent channel and co-channel interference exists which often makes reception difficult. A typical example was mentioned by **Stewart Russell** of Forfar, namely Radio Australia and Radio Monte Carlo, Monaco who both beam towards Europe on 7.205 from 1700 until 1815. It is a great pity that there is not more co-operation between the stations using this band.

Some of the more distant broadcasts noted by DXers include WHRI South Bend, USA 7.355 at 0820 heard by **Alan Curry**. Radio Beijing, China 7.470 (Russian at 1706); BBC via Kranji, Singapore 7.105 at 1800 logged by **Philip Rambaut**. Radio Bangladesh, Dhaka 7.505 at 1815; Voice of Greece, Athens 7.430 at 1920 heard by **Robert Taylor**. RCI Montreal, Canada 7.235 at 1920; Radio Korea



Seoul, S. Korea 7.550 at 2020 logged by **Neil Dove**. All India Radio, New Delhi 7.410 from 1845 until 2230 heard by **Leighton Smart**. WCSN Boston, USA 7.365 at 0007 heard by **Bill Stewart**.

Some of the 6MHz (49m) broadcasts to Europe noted in the reports were RFI Berlin 5.965 at 0346; Radio Finland, Helsinki 6.120 at 0430 logged by **Roy**

Spencer. SRI Berne, Switzerland 6.165 at 0645 heard by **Den Marriott**. RFI Paris 6.175 at 1600; Radio Austria, Vienna 5.945 at 2000 heard by **Ian Curry**. Radio Bucharest, Rumania 5.990, noted by **Colin Godwin** in Malvern at 2030. BRT Brussels, Belgium 5.910, noted by **Francis Hearne** in Ilford at 2100.

Four of the broadcasts intended for listeners in N. America were logged by **Roy Spencer**, namely Radio Prague, Czechoslovakia on 5.930 and 6.055 at 0303; Radio Budapest, Hungary 6.025 at 0321 and VOFC via Okeechobee, Florida on 5.985 at 0348. The Voice of Lebanon, Beirut beaming to the Middle East on 6.548 was logged by **John Parry** at 2025.

Station Addresses

ILR Radio Trent, 29-31 Castle Gate, Nottingham, NG1 7AP.

Radio Sweden International, S-105 10 Stockholm, Sweden.

The Christian Science Monitor, WCSN World Service, One Norway Street, Boston, MA 02115, U.S.A.

Pakistan Broadcasting Corp., Headquarters, Broadcasting House, Islamabad, Pakistan.

RAE Buenos Aires, 555 Correo Central, 1000 Buenos Aires, Rep. Argentina.

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Issue
October '87
November '87
December '87

Deadline
August 21
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ADVERTISERS INDEX

ARE Communications Ltd.....	11
Bredhurst Electronics Ltd.....	30
Datong Electronics Ltd.....	34
Dewsbury Electrics.....	13
Dressler (UK) Ltd.....	17
Elliott Electronics.....	36
Garex Electronics.....	49
Hornby J.C.....	13
Howes C.M.....	43
ICOM (UK) Ltd.....	Cover ii
Johnsons Shortwave Radio.....	30
K and M Services.....	49
Lowe Electronics Ltd.....	7
MGR Services.....	34
Practical Wireless.....	32
SEM.....	34
Sony.....	Cover iv
Stephens-James Ltd.....	36
Technical Software.....	13
Uppington Tele-Radio (Bristol) Ltd.....	34
Reg Ward & Co. Ltd.....	43
Waters & Stanton.....	Cover iii
R. Withers Communications Ltd.....	36
G. Wilcox.....	49

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LISTEN OUT FOR

GB4PLS: This station will be on air between August 7 and 9 at the Pleasure and Leisure Show, Bicton Park, East Budleigh, Devon. This event is to be a part of a much larger show depicting pleasure and leisure activities in the South West and will include attractions such as exhibitions of art and craft, food and drink, pets and accessories, fashion shows, marching bands and various competitions. All visitors will be welcome and talk-in will be provided if requested. The station will be run by the Exmouth ARC.

GB1CXI: The Treble One Squadron was formed on 1 August 1917, from a nucleus flight of No. 14 Squadron, at Deir-ei-Belah in south-west Palestine. This station is celebrating their formation on August 1 and 2. They will be using 144MHz from the Squadron's current location RAF Leuchars. All contacts will receive a QSL card, as will all s.w.l. contacts.

Dave Bloomfield GM1RFM
QTHR

GB6HF. The Houghton-le-Spring Amateur Radio Club are holding a special event station to celebrate Houghton Feast. It marks the

dedication of the church to St. Michael. It dates from very early days. Present day events include: a carnival, fairground, cycle racing, roasting of an ox, special church services and the special event station.

Operation will be on 3.5 and 144MHz from October 2 to 11. RAYNET will also be covering the charity cycle race as part of the week long event.

GB2SMC. Between August 8 and 23, it is planned to operate a special event station in connection with the celebrations for the 850th Anniversary of the founding of St. Magnus Cathedral in Kirkwall in 1137. The primary mode will be s.s.b. on the h.f. bands 3.5 to 28MHz. There might be v.h.f. activity too.

Bill GM3IBU
Crosslea
18 Dundas Crescent
Kirkwall

**Have you Got a
Special Event Station
we should know about?
If so, write and tell us**

GB0UWC: To celebrate the 25th anniversary of the United World College of the Atlantic, they are running a special event station over the August Bank Holiday period. They will be operating from St. Donat's Castle in South Wales. The main mode will be s.s.b. on the h.f. bands between 3.5 and 28MHz.

Dr. J. Devonshire GW4LFF
St. Donat's Castle
Llantwit Major
S. Glamorgan

GB1RLD: Four members of Radio Link — Derby Hospital Broadcasting — will be operating the Special Event Station from the Outside Broadcast Caravan at the City Hospital. They will be operating on the 144MHz band on September 19 from 1000 to 1600 and September 20 from 1000 to 1600.

GBOWEM: This special event station will be on the air on September 5 to commemorate the 1987 Carnival in the North Shropshire market town of Wem. The station will be active throughout the day, with both 'phone and RTTY transmissions on h.f., 144MHz and possibly 430MHz.

Some equipment has been loaned for the occasion by the Salop ARS. A special QSL card will be available.

Eric GOHRU
0930 33638

SPECIAL EVENT STATION GBONBB

by D. F. Kitchen

It was bright and sunny at 7am on Sunday May 10 as Ken G0DLC and Ron G0BGL, with other members of the Appledore and Parkham Radio Clubs went to the New Bideford Bridge to set up the special event station. Their caravan was kindly loaned for the occasion by The Exmoor contest Group.

Unfortunately in spite of leaving the caravan unlocked and empty overnight, vandals succeeded in breaking one window. It was certainly a depressing start to the day, but the weather, full of "Eastern Promise" soon has spirits soaring again.

A trap dipole was rapidly suspended between two sections of an extending ladder and connected to a Yaesu FT-707. The two halves of the ladder were lashed to a boundary fence. Before 8am, contact had been established with an Italian contest group operating under the callsign I3CRW.

The 144MHz band was catered for by a 4-element quad on the top of a 10m guyed mast and an FT-480. The mast was rotatable and the beam aligned approximately in the desired direction manually.

Festivities were due to start at mid-day, however, all and sundry were soon being informed of the impending opening of the new Bideford Bridge over the River Torridge. This was in spite of minor

When a special event station is organised, it can be a lot of fun — but hard work too. This is a report from one group as to how they got on.

problems with power supplies and some mutual interference between the two transceivers. The new bridge will give the town a bypass and reduce hold-ups to traffic along the A39 between Bude and Barnstable.



Left to right: Ken G0DLC, Dave s.w.l., John G0GFK and Ron G0BGL

The weather lived up to its promise making it possible to operate the station in the open air all day, consequently everyone collected a superb suntan in addition to having a thoroughly good time.

Some 96 contacts were made on h.f., mainly on 3.5MHz although there was some activity on 7MHz. Operation on other h.f. bands was complicated by a series of Russian contests. The v.h.f. bands were not quite so rewarding but there was a memorable QSO with G0AEA, the Harbour Master of St Marys on the Scilly Isles. His was not one of the QSL cards delivered by hand during the afternoon!

Operating was shared between Jean G0BYL, Keith G0AYM, Ken G0DLC, John G0GFK and Les G4PEK. Other club members took care of the important task of logging.

The people manning the station were kept quite busy explaining what was happening as a great deal of interest was shown by many of the visitors to the celebrations. Some 20 000 members of the public had visited the celebrations by 2pm.

The whole event was a great success, attendance being beyond the wildest dreams of the organisers. Local charities benefited accordingly and the Appledore and Parkham Clubs did their share toward keeping amateur radio on the map. □

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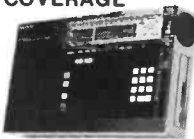
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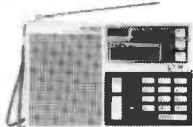
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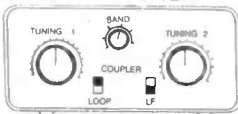
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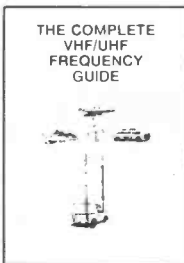
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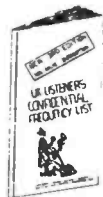
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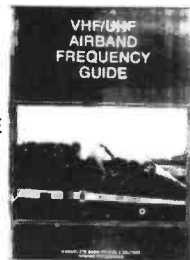
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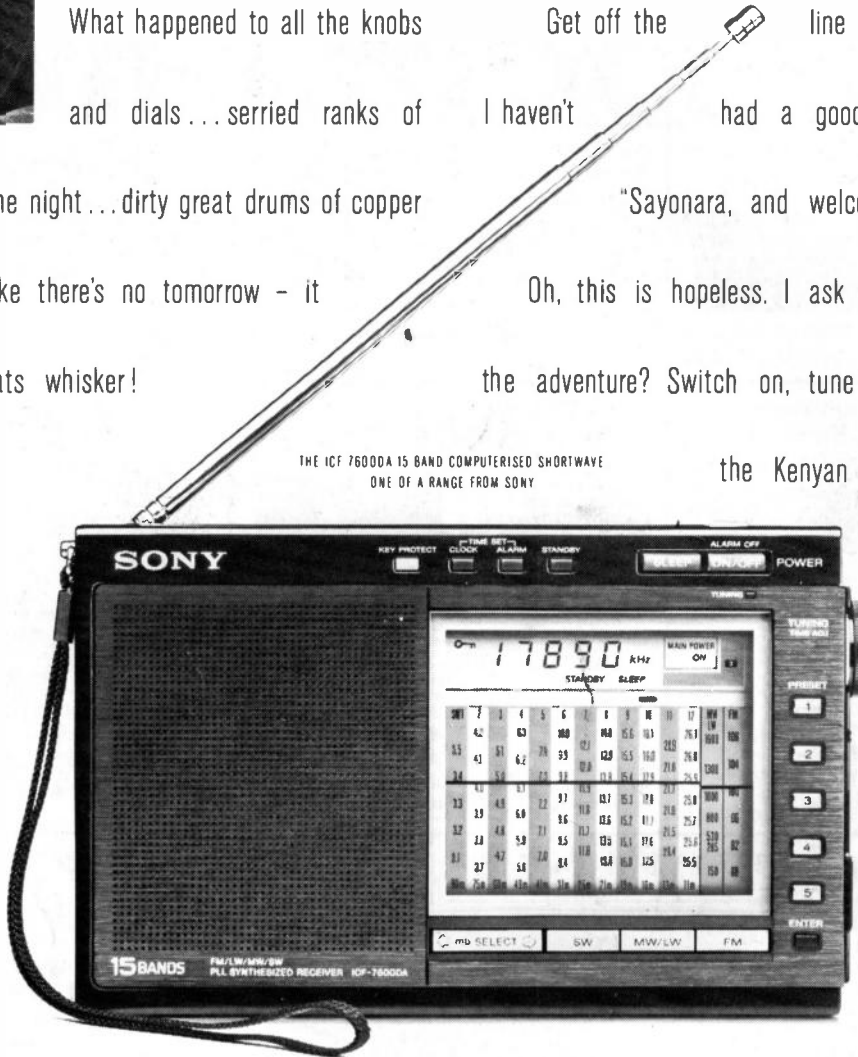
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