

ICOM

Count on us!

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



ICOM introduces the IC-R7000, advanced technology, continuous coverage communications receiver. With 99 programmable memories the IC-R7000 covers aircraft, Marine, FM Broadcast, Amateur Radio, television and weather satellite bands. For simplified operation and quick tuning the IC-R7000 features direct keyboard entry. Precise frequencies can be selected by pushing the digit keys in sequence of the frequency or by turning the

main tuning knob. FM wide/FM narrow/AM upper and lower SSB modes with six tuning speeds: 0.1, 1.0, 5, 10, 12.5, 25KHz. The IC-R7000 has 99 memories available to store your favourite frequencies including the operating mode. Memory channels can be called up by pressing the memory switch then rotating the memory channel knob, or by direct keyboard entry. A sophisticated scanning system provides instant access to the most used frequencies. By depressing the Auto-M switch, the IC-R7000 automatically memorises frequencies that are in use whilst it is in the scan mode, this allows you to recall frequencies that were in use. The scanning speed is adjustable and the scanning system includes the memory selected frequency ranges or priority channels. All functions including the memory channel readout are clearly shown on a dual-colour fluorescent display. Other features include dial-lock, noise blanker, attenuator, display dimmer and S-meter and optional RC-12 infra-red remote controller, voice synthesizer and HP 1 headphones.

IC-R71E, General coverage receiver.

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

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



Helpline: Telephone us free-of-charge on 0800 521145, Mon-Fri 09.00-13.00 and 14.00-17.30. This service is strictly for obtaining information about or ordering Icom equipment. We regret this cannot be used by dealers or for repair enquiries and parts orders, thank you.

Datapost: Despatch on same day whenever possible.

Access & Barclaycard: Telephone orders taken by our mail order dept, instant credit & interest-free H.P.

Icom (UK) Ltd.

Dept SW, Sea Street, Herne Bay, Kent CT6 8LD. Tel: 0227 363859. 24 Hour.



12| Easiwire Wiring System



Cover If you are put off trying your hand at building radio and electronic projects by the thought of soldering then the new Easiwire system is well worth looking at.

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GOOD LISTENING

A WORD IN EDGEWAYS

Sir

I have been reading, with great interest, the letters regarding the Eureka/Rebecca radar system and I must fall in on the side of W. Blanchard (February '88 SWM) and back everything he said in his letter.

I do not write this as an "armchair expert" with a pile of technical books in front of me, but as an ex RAF Radar Mechanic (National Service) who worked on this equipment in 1950-51.

I would be very surprised if the equipment as W. Blanchard and I knew it ever staggered into the 1960s, let alone the '70s and '80s as some would have us believe.

Is the answer a modern state-of-the-art system but retaining the old code name Eureka etc? After all that seems to have happened with LORAN.

Finally comes the question of Band III TV also raised by W. Blanchard — are we to believe that the TV stations once jostled for air space with 1kW radar pulse transmissions?

All food for thought, gentlemen!
E. ROGERS G10MZ
SALTASH
CORNWALL

Sir

Oh dear! I suppose that I asked for it. I merely assumed that, because when I last used Rebecca/Eureka in 1958 I was told that it was obsolete and would shortly be withdrawn, 30 years later it might just have been. No chance of its companion BABS being found somewhere, I suppose? Or better still, somebody lurking in a corner with an operative GEE set? This must make it easily the longest-lived of the wartime radio nav aids.

Which brings me to the main point of this letter. The Royal Institute of Navigation was rather surprised recently to discover that nobody seems to have written a proper history of aerial navigation. There are plenty of books about the marine version, and even some on land navigation, but of aerial navigation there is nothing apart from an occasional memoir. Accordingly it has

been decided to form a study group with the objective of collecting sufficient information to allow the compilation of an authoritative history.

Much of the aerial navigation is closely concerned with radio navigation, and many of your readers must have worked with, operated, serviced or even designed radio navigational devices in the last 60 years or so. We would be very pleased to hear from anyone who feels that they might be able to contribute to this project by way of personal reminiscence, original material, papers or documents. In particular, material from the years up to 1939 is very scarce.

If anyone wishes to help, please write to me c/o The Royal Institute of Navigation, at The Royal Geographical Society, 1 Kensington Gore, London SW7 2AT
W. BLANCHARD
DORKING

Sir

I am writing about a quite serious problem that you may feel worthwhile mentioning in SWM.

Yesterday I bought a Matsui MR 4099 receiver from the local Curry's shop and, from another source six Ever Ready Silver Seal R20S (D Type) batteries. When I came to insert them into the battery compartment they were such a close fit that, had I continued, there was no way that the inner ones could have been removed.

I then bought six normal type batteries from a Superdrug store, sold under the firm's own name. These fit quite loosely and there has been no trouble removing them.

In your review of the 4099 in the September '88 SWM you mentioned the likelihood of used batteries swelling or leaking and so becoming hopelessly jammed.

However, the batteries that I used were brand new and higher than normal cost but don't seem to be suitable for use in the 4099, nor, I imagine, in other variants of the Sangean 803 such as the Realistic DX440.

The radio itself seems to be well made and at £100 offers quite a lot for the money.
K. GARDINER
DONCASTER

This poses a problem which, perhaps, some of our readers might be able to unravel. Are Ever Ready Silver Seal batteries over size or are the cheaper, own brand ones made undersize in case they swell? Has anyone else come across this problem? From the frequency with which the 4099 crops up in Brian Oddy's LM&S column there are a lot being used by readers. ED

Sir

I have been trying to locate a company who will undertake to repair a Sangean ATS-803 receiver which was purchased in Singapore last October and is still under warranty.

I have tried companies who sell this receiver but under their own trade name, but as my unit is under the Sangean name, no one will undertake the repair. I have also written to Sangean in Taiwan but have not received a reply.

If anyone can help me to get the set repaired I will be very grateful.

A. G. SMITH
PETERBOROUGH

If any reader or dealer can help Mr. Smith please reply through the Editorial Offices. ED

Sir

I have often read that many s.w.l.s think that licensed amateurs do not want their reports. This may, or may not, be true, but the object of this letter is not to raise that particular issue.

I do want accurate reports from s.w.l.s in connection with a running design programme of compacted TX antennas and their associated circuitry — or what are sometimes called "his funny aerials"! Most of these antennas are quite unconventional and break many of the accepted textbook rules established for a long time. The object of this research is to make smaller and smaller h.f. antennas for both transmitting and receiving but with a good performance. Many have worked very well but some have been disasters.

Presently on the stocks is a 20mm (8 inch) long 3.5MHz (80m) transmitting antenna! The experimental lash-up works — so Mark 1 is now in the course of construction. I am also working on the MicroLoop 80 which is just 460 x 460mm, and more.

You can usually find me between 3.535 and 3.580MHz c.w. 0430 to 0600 prevailing time (GMT or BST). Transmitter power is usually 10 to 15W.

Why c.w.? Because I like it! Why low power? Because it is the only sure way to test a new antenna design. If it doesn't work then it is no good, whereas 100W, say, will get someplace, somewhere, even with a lousy antenna. And c.w. fans — the standard of c.w. operating at that early hour is invariably good and polite!

Detailed written reports, good or bad, will be much appreciated and will be acknowledged. My address is in the current Call Book.

Thank you.
RICHARD Q MARRIS G2BZQ

Sir

I notice that on the Contents page of the April 88 SWM you have incorrectly credited me with writing "Report from the Polder". Unfortunately you obviously paid the real author!
PETER LAUGHTON
LONDON

Word processors are marvellous things — but I can still make mistakes! My apologies to both Peter and the real author Jonathan Marks.

ED

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

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

WHAT'S NEW

Volvo Launch RDS Car Radio

Way back in the December 87 issue of *SWM* Peter Shore explained how the new Radio Data System (RDS) works and hinted that Volvo were about to introduce a new car radio equipped for RDS.

Volvo have always been very safety-minded in the design of their cars and safety features heavily in the reasoning behind the introduction of their SR-701 radio.

The driver of a car fitted with the SR-701 can just switch on, select his favourite v.h.f. f.m. station with the touch of one button and stay tuned anywhere in the country without having to retune. This removes the hazardous process of trying to find the same programme on a stronger station whilst driving the car.

Should the driver want to hear traffic information which might affect his journey then the RDS radio will give him that option. It can even be set to break into the programme or tape that he is listening to with urgent, pre-coded traffic messages.

The radio will also display the exact time, controlled by the RDS signal. The time displayed is never wrong and does not need resetting when the clocks change.

Both the BBC and IBA are well advanced with coding their f.m. transmissions. Ultimately the RDS codes, which are standardised throughout a large part of the



European Broadcasting Union, will identify not only the transmitter but the different types of programme material so that an RDS radio will be able to select programmes by subject.

There is no doubt that RDS is an exciting step forward, particularly for the motorist. However, there are obstacles to be overcome if you fancy equipping your car with the Volvo SR-701 radio. While the radio itself will fit into the standard car radio cut-out, Volvo in their wisdom have opted to have a separate cassette player. This is fine — just as long as you own a Volvo with twin radio apertures in the dash! Otherwise you will be restricted to just the radio — with RDS benefits of course. Volvo put forward their technical arguments for splitting the system in this way — when you want to change the

cassette player for a Compact Disc job you don't have to throw away the radio. What happens if you want both cassette and Compact Disc was not clear — perhaps you change the two-aperture Volvo for a three-aperture SAAB.

Aside from the RDS features the SR-701 is a top of the range conventional car radio with medium and long wave, six-channel autostore, l.c.d. display, 2 x 20W power amplifiers with five-band equaliser. To help keep your SR-701 safely installed in your Volvo an owner-reprogrammable, four-digit, anti-theft coded system is fitted.

The SR-701 radio has been priced at £517 plus VAT and fitting while the separate TP-701 cassette player will cost £152 plus VAT and fitting, from any UK Volvo dealer of course.

TF3SIX on the Air

Jonas Bjarnason TF3JB of Hljodtaekni Radio Supply and Richard Diamond G4CVI of South Midlands Communications have worked together in order to obtain the licence for a 50MHz Icelandic beacon.

SMC have donated the beacon, built by Mike Walters G3JVL, along with a vertical unity gain antenna. The Yaesu power unit has been donated by Hljodtaekni Radio Supply, who have also organised the site near Reykjavik.

The beacon has the callsign TF3SIX and uses 50.057MHz running 50W e.r.p. The locator is HP94CC.

Free Software

We have heard from Peter Fawcett G0FBK and he would like us to pass on that free software is available in the form of a cassette to enable the EG2000 Colour Genie computer to run packet. The Colour Genie has been used for quite some time now as a dedicated RTTY terminal. It has been used successfully with the TNC220, but it is thought that it should be possible to use it with other TNCs.

If you send one pound, to cover the cost of the cassette and postage, you will receive a cassette and four-pages of useful data.

It's not known just how many Colour Genie EG2000s were sold, but they were retailed by Lowe Electronics for RTTY use. Now it is hoped that RTTY enthusiasts can get going on packet too — without too much extra expense.

For more details of where to obtain your software from, write to:

Peter L Fawcett G0FBK
7 Albert Hill
Bishop Auckland
Co. Durham DL14 6EH

The 934MHz Club UK

The 934MHz Club UK is a nationwide organisation that brings together users of 934MHz and represents their interests. The magazine they produce comes out four times a year and gives round-ups of what's happening in all the different areas around the UK.

For your year's subscription, you get 4 magazines, updated membership lists, organised contests and rallies. So if you are a 934 MHz user, or potential user, and would like to know more about the group, then contact them at:

The 934MHz Club UK
PO Box 424
Althorne
Chelmsford
Essex CM3 6UP

RadioGram

The RadioGram magazine is published bi-monthly for all valve radio enthusiasts. It costs £6.50 in the UK and Ireland for six issues, that's not always a calendar year.

Issue No. 14, which recently arrived on my desk, contains features about the Zetavox ST, The EMI Story, Hail Columbia! as well as general features on vintage music and a beginner's guide.

If you would like to know more about *The Radio Gram*, then contact:

The RadioGram
Larkhill
Newport Road
Woodseaves
Stafford ST20 ONP



Bearcat BC580XLT Scanning Receiver

Nevada in Portsmouth are introducing the new Uniden Bearcat BC580XLT base/mobile scanning receiver. The main features of the set are that it has 100 memory channels, the frequency coverage is 29-54MHz, 118-174MHz and 406-512MHz. The other main feature is that the price will be £225.

Other things about the set are that it has a

folding stand for table top use, can be run from either 13.8V d.c., two AA batteries or an a.c. adaptor and has a rugged construction designed for mobile use.

Nevada Communications
189 London Road
North End
Portsmouth Hants PO2 9AE

WHAT'S NEW

Amateur Madness

Everyone knows that radio amateurs are mad and a story that reached the news desk recently proves it!

Roy Andreang, using the callsign GB4CMT, jumped out of an aeroplane at 14 200 feet on Easter Saturday. He had hoped to be able to send Morse on the way down, but unfortunately the Morse key didn't work properly.

Still, he did manage to put out a call using the FT-290 Mk II loaned by SMC (Northern) Ltd. Four days after the jump, Roy celebrated his 64th birthday, but he has promised his family that this was the last time.



Over the years, whilst working in association with the Haltemprice District Scout Fellowship, Roy has acquired many awards. He was the first to transmit from the top of the north tower of the Humber Bridge in 1974, was the first amateur to talk to others whilst making a paracute jump when he was 55 and the claim this time was the first to brew a cup of tea on the way down.

Improved Discone

Garex Electronics have announced an improvement to the popular Revco Revcone wide-band discone antenna.

There is often an advantage in fitting a vertical whip section above the "disc" elements to improve the l.f. performance of the discone. Another application is to provide a reliable transmitting capability on one particular band.

So now, with the Revcone, the vertical section is optional. Only the mounting stud is provided initially, the vertical section may then be chosen from any mobile type whip in the Revco range from 27MHz to 950MHz.

For more details on this antenna, contact:

Garex Electronics
7 Norvic Road
Marsworth
Tring
Herts. HP23 5LS

Diplome du Calvados

The REF regional club of the Department du Calvados in Normandy, have an award available to all radio amateurs and s.w.l.s.

Applicants must have worked (or heard) 10 stations located in the Calvados district (No. 14) on any band and/or mode. There are special endorsements available for h.f., v.h.f., s.h.f., c.w., RTTY, etc., on request.

Contact with the club station, FF6KCZ on h.f. or FF1KCZ on v.h.f. counts as two contacts.

No QSLs are necessary, send your log details, certified by two licensed amateurs and 10 IRCs to:

The Award Manager
Pierre Roger FC1CNJ
8 Rue des Petites Haies
F. 14440 Douvres La Delivrande
France

QRP Contest

The date of the *Practical Wireless* 144MHz QRP Contest has now been fixed. The date to put in your diary is:

Sunday June 12
0900— 1700UTC

Further details and a full set of the rules are published in the June issue of *Practical Wireless* now on sale at your newsagents.

Attention Cybernet Users

Nevada have recently written to us saying that the Kyocera Corporation of Japan will be ceasing production of 27MHz CB radios. Kyocera were responsible for producing the famous Cybernet and Ham International brand names.

Nevada have managed to purchase a large quantity of spare parts for all the Cybernet models, including the Cybernet Beta 3000, Beta 2000 and Beta 1000. They also have a limited quantity of Ham International spares.

For details of availability and cost of various spares, contact:

Nevada Communications
189 London Road
North End
Portsmouth
Hants PO2 9AE

Audio/Video Cassette Care

When you have spent many hours waiting for that elusive TV or radio signal, you don't want to find that the tape or video recorder you have been using to preserve the moment with is dirty and the results ruined.

We have been given details of a range of six audio/video care systems launched by Bib. Each care system is packaged in a strong, handy, "luggage" type case with a clear, hinged lid, snap lock closure and

We've only space here to describe three of the care packages for you, but you should be able to find the whole range in the shops.

The Video Care System CS1 includes a push button VHS cleaner, anti-static screen cleaning fluid, VHS title labels and re-usable



Re-introductions

Johnsons Shortwave Radio are introducing and re-introducing some different radios.

The latest ones to appear in the shop are: the Philips D2999 which is an all-electronic digital world receiver. It covers 150kHz-29.999MHz and 87.5-108MHz.

The Goodmans OP-35 is a world time handy radio with "humane wake system"! It covers 520-1620kHz, 87.5-108MHz, 5.8-6.2MHz, 7.1-7.5MHz, 9.5-9.9MHz, 11.65-12.05MHz and 15.1-15.6MHz. It also includes a clock which, once set up correctly, will tell the time in twenty-one different places around the world.

The Philips D2935 is a portable world receiver. It covers 146kHz-29.999MHz and 87.5-108MHz and from the brochures looks like it has touch-sensitive controls.

More details about these radios can be obtained from:

Johnsons Shortwave Radio
43 Friar Street
Worcester
WR1 2NA

Uniden Crystals

Cirkit have been appointed as distributor for Uniden crystals, crystal filters and clock oscillators.

Apparently, Uniden are one of the few manufacturers in the world that grows its own crystal so that quality can be controlled right from the raw material stage. They say that special frequencies and tolerances can be accommodated from 1MHz up to 130MHz in a variety of can sizes and mounting styles.

Crystal filters are available in 2, 4, 6 and 8 pole configurations in a variety of centre frequencies and band widths.

Further information, contact:

Cirkit Distribution Ltd
Park Lane
Broxbourne
Herts EN10 7NQ

record safety tabs.

The Audio Care System CS3 includes a carbon fibre anti-static record brush, a stylus brush with inspection mirror, cleaning fluid, cassette head cleaner, head cleaning fluid, tape splicer complete with splicing tape and tape cutter.

The Audio Cassette Care System CS5 includes an electronic tape head demagnetiser, audio cassette tape head cleaner and fluid, audio tape head cleaning tools, a pocket sized inspection light and 10 audio cassette title cards.

The price you can expect to pay for these kits is £12.99 each. So does anyone have a birthday in the near future? . . .

WHAT'S NEW

More and more s.w.l.s and TVDXers are investing in rotators these days. South Midlands Communications have sent us details of some of their Yaesu antenna rotators.

There are three which might interest the s.w.l. as they are for light and medium duty work. Obviously there are some very "beefy" rotators also available including ones that can provide azimuth elevation too.

The first one is the G-250, is it for small and medium v.h.f., u.h.f. radio and television antennas. The power consumption is 37VA, the 360° rotation time is 43 seconds, the maximum vertical load is 50kg and the mast diameter is 25-38mm.

The G-400 and G-400RC have the same specification but have different control units. They are designed for small h.f. and medium to large u.h.f., v.h.f. radio and television antenna arrays. Power consumption is 40VA, 360° rotation time is 50 seconds, the maximum vertical load is 200kg and the mast diameter is 36-63mm.

For details of these and all the other Yaesu rotators, contact:

**South Midlands
Communications Ltd
School Close
Chandlers Ford Ind. Est
Eastleigh
Hants. SO5 3BY**



A subject close to all s.w.l.s who have spent a lot of money on their listening station is security.

The Teleguard VP4 and VP3 are volumetric security systems which use passive infra red movement detectors. The VP3 is a self contained unit comprising one infra red movement detector, siren and power supply. The VP4 is a modified version of this offering protection of up to three additional areas by means of radio linked passive infra red detectors. As an extra deterrent, the optional VP2 Telesound unit

can be positioned outside the protected area to give audible and visual warning.

The units are armed and disarmed by a small hand held remote transmitter which can be used up to 30m away from the unit. The built-in siren has a 115dB noise level too, so it's likely to be heard!

**Security Int. Ltd
Cornwallis House
Howard Chase
Basildon
Essex SS14 3BB**

Engineering Information from the BBC

Birchover: A new TV relay station is being built on the south side of Birchover, some 8km north-west of Matlock Channels are:

Channel 39 BBC1 Midlands
Channel 42 Channel 4
Channel 45 BBC 2
Channel 49 ITV Central

Antennas should be horizontal Group B, mounted outside.

Millburn Muir: The BBC's f.m. station at Millburn Muir, near Dumbarton, should have changed its frequencies overnight on April 5/6. The new frequencies will be:

Radio 2/1 88.3MHz
Radio 3 90.5MHz
Radio Scotland 92.7MHz

The Millburn Muir relay is 5km north of Dumbarton. As the frequencies are only

500kHz lower than the previous ones, listeners should have no trouble retuning their receivers.

Perth: The BBC's f.m. radio services in the Perth area — Radio 2/1, 3 and Scotland — should have moved to a new site at Kirkton Mailer, about 3km south of the town centre. The transfer should have taken place overnight on March 9/10.

RALLIES

★ **May 29:** The East Suffolk Wireless Revival will take place at the Civil Service Sportsground, The Hollies, Straight Road, Ipswich. Doors open at 10am.

**Colin Ranson
Tel: Ipswich 688204**

★ **June 12:** The Royal Naval Amateur Radio Society Annual Mobile Rally will again be held in the sports field, HMS Mercury, Nr Petersfield, Hants. Gates are open between 1000 and 1700. As usual there will be plenty of attractions for all the family at this very friendly rally. More details from:

**Cliff Harper G4UJR.
Tel: 0703 557469.**

★ **June 12:** The open day for the Mid Lanark Society will be held at the Community Centre, Newarthill by Motherwell. This new venue is about half a mile from the old one. There will be the usual traders, a bring & buy stand, demonstrations of packet radio and RTTY, lectures and the annual awards of the EHI Trophy. Talk-in will be on S22.

* **SWM in attendance**

★ **June 18:** The Royal Air Force Halton Air Show and Amateur Radio Rally will take place at RAF Halton, near Aylesbury, Bucks. The RAFARS Golden Rally will be held inside a hanger. More details from:

**Terry F. Owen G4PSH
Tel: 0296 85760**

★ **June 19:** Denby Dale Mobile Rally will be held at Shelley High School, about five miles south-east of Huddersfield, West Yorkshire. Rally opens at 11am (10.30am for the disabled). There will be the usual traders there, food and sideshows for all the family. Talk-in on S22, SU22 and 28MHz f.m.

**G3SDY
Tel: 0484 602905**

★ **June 26:** The 31st Longleat Mobile Rally will be held, as always, at Longleat Park, Longleat, Nr Warminster, Wilts. The rally starts at 10am. More details from:

**Brian Goddard G4FRG
Tel: 0272 848140**

★ **July 2/3:** The Popular Flying Association Annual Rally is again being held at Cranfield Aerodrome, Bedfordshire.

★ **July 10:** The Sussex Mobile Rally will take place at the Brighton Raceground. More details from:

**Bob Henaire G1IOS
Tel: 0798 43841**

★ **July 15 – 17:** The RSGB 75th Anniversary National Convention will take place at the National Exhibition Centre, Birmingham. RSGB HQ can give you more details.

★ **July 24:** The Cornish Amateur Radio Club have had to change the venue of their rally. The new venue is the Village Hall, Perranwell, about 8km SW of Truro.

★ **July 28 – 31:** The AMSAT UK Colloquium will again be held in the University of Surrey, Guildford. More details from:

**G3AAJ
Tel: 01 – 989 6741**

GRASSROOTS

Lorna Mower

On June 21, **Acton, Brentford & Chiswick ARC** discuss Mobile & Portable Operation. They meet 3rd Tuesdays, 7.30pm in Chiswick Town Hall. W. G. Dyer G3GEH on Acton 3778.

Derby & District ARS meet Wednesdays, 7.30pm at 119 Green Lane, Derby. June 1 is a Junk Sale and the 8th a 144MHz Foxhunt — meet in Allestree Park. Kevin Jones G4FPY (the new Sec) on Derby 669157.

Southgate ARC meet 2nd & 4th Thursdays, 7.45pm in Holy Trinity Church Hall (Upper), Green Lanes, Winchmore Hill. June 9 is the Finer Points of Packet Radio by G3XDV and a Packet Radio demo on the 23rd. Brian Shelton on Winchmore Hill 2435.

June 2 is Independent TV by G3OGP for **Horsham ARC**. Thursdays, 8pm in the Guide Hall, Denne Road. Phil Godbold G4UDU on Steyning 814516.

Pontefract & District ARS meet Thursdays, 8pm in the Carleton Community Centre, Carleton Road. May 26 is Direction Finding by G4ISU/G4KMW, June 2 is RAYNET County Controller by G3PSM, the 16th CW Keys and Keying by G4OSY and an Open d.f. Hunt on the 23rd. G6OJX on Knottingley 83792.

Blackwood & District ARS meet Fridays, 7pm at Oakdale Community College (in school term). May 27 is the Use of Computers in Amateur Radio by Paul Chandler, June 10 is FT-101ZD a technical description by GW3NWS and the 17th is Planning Permission by Robert Morgan of Islwyn Borough Council's Planning Department. Brian Mathews GW6YYR on Newbridge 243858.

On June 4/5, **Stevenage & District ARS** have a Talk & Demo on the "Shefford" 144MHz transceiver by the Shefford Club and the 12th is Stevenage Day. Meetings are 1st & 3rd Tuesdays, 8pm at SITEC Ltd, Ridgemoor Park, Telford Avenue. Peter GOGTE on Stevenage 724991.

Vale of Evesham RAC now meets at the MEB Club, Evesham, B4048 (on the left entering town). This will be their 1st Thursday venue, 7.30pm, 3rd Thursdays will be used to convert a caravan ready for contests, etc. June 2 is a 144MHz Foxhunt, (7.30pm at HQ), the 16th is Work on Club Caravan. Mike G4UXC on Evesham 831508.

Rugby ATS meet Tuesdays 7.30pm in the Cricket Pavilion, outside Rugby Radio Station. May 31 is a 144MHz DF Hunt, June 7 a Test Gear Night, the 14th a 144MHz DF Hunt and the 21st is a talk by C. M. Howes on QRP Kits, Kevin G8TWH Rugby 77986.

Stourbridge ARS meet twice monthly in the Robin Woods Centre, Beauty Bank. June 6 is Natter/On-Air Night and the 20th

is a Summer Surplus Sale. C. Brunn G1WAI on Hagley 885602.

On June 1, **Wirral ARS** have a Surplus Sale, the 15th is a DF Hunt. R. E. Bridson G3VEB on Wallasey 1346.

Wyre ARS meet 2nd & 4th Wednesdays, 8pm in the Breck Sports and Social Club. May 28 or 29th is NFD recce, June 8 a Morse Class, 18/19th is Bentham Jamboree and NFD Planning is on the 22nd. Dave Westby G4UHI on Lancashire 854745.

Todmorden & District ARS have Clandestine Radio by G3LEQ on June 6. They meet 1st and 3rd Mondays, 8pm, Queen Hotel. G1GZB on Todmorden 7572.

It's a Treasure Hunt on June 21 for **Midland ARS**. They meet in Unit 16, 60 Regent Place, Birmingham, 7.30pm with classes from 7pm. Tom Brady G8GAZ on 021-357 1924.

Pathfinders, G3VPO (June 2) **Homdean & District ARC**. Meet 1st Thursdays, 7.30pm in Merchistoun Hall. Dan Bernard G4RLE on Portsmouth 755274.

South Powys ARC meet 1st floor, RAFA Club, The Struet, Brecon. June 7 is a Demo of two h.f. Equipments. B. Carter GW8AAG on Bwlch 730158.

Crystal Palace & District RS meet 3rd Saturdays, 8pm in the All Saints Parish Rooms, Beulah Hill. June 18 is a Test Equipment Evening. Geoff Stone G3FZL on Forest Hill 6940.

The **Tyneside ARS** is moving to St. Teresa's Club, 200b Heaton Road, Heaton, Newcastle-Upon-Tyne. Further info and how to get there from Gary G4KOT on Tyneside 2341148.

Wirral & District ARC have a Practice DF Hunt on June 1, the 8th is the 10th Anniversary Celebration of the Club (special event stations) and the 22nd a Barbecue at Heswall Shore. They meet alternate Wednesdays, 8pm in the Irby Cricket Club, Irby Mill Road, Irby. Alan Griffiths G1XYP on Moreton 7517.

Sutton & Cheam RS meet 3rd Fridays, 7.30pm in the Downs Lawn Tennis Club, Holland Avenue, Cheam and Natter Nights are 1st Mondays in the Downs Bar. May 29 is 432MHz Trophy Contest, the 30th the Cheam & Worcester Park Fete (Special Event Station GB75SAC), June 16 a Natter Night at 20 West Farm Avenue, Ashted and the Inter-Club Quiz (No. 2) CATS v S&C follows on the 17th. John Puttock at 53 Alexandra Avenue, Sutton.

A Film Show on June 6 is for the **Rhyl & District ARC**. They meet at 7.30pm in The 2nd Rhyl Scout HQ, Vale Road. Mike GWOHWK on Llandegla 621.

Keighley ARS have an annual Foxhunt on May 31 and an Informal Evening on June 14. Meetings are 8pm in the Club Room, rear of Victoria Hotel,

Victoria Park. Kathy G1IGH on Bradford 496222.

May 30 is a Social Evening for the **Felixstowe & District ARS**. June 13 is a Quiz. Meetings are alternate Mondays, 8pm in the Scout Hut, Bath Road. Paul G4YQC on Ipswich 642595.

Halifax & District ARS meet 1st and 3rd Tuesdays, 7.30pm in the Running Man Public House, Pellon Lane. June 21 is Bill G4DNB. David GODLM Halifax 202306.

Cheshunt & District ARC meet Wednesdays, 8pm in the Church Room, Church Lane, Wormley. They have the Hertford County Day — GB75 station on May 30, June 1 is NFD Preparation and the 8th and 22nd are Natter Evenings. Peter Davies G1KQA on Lea Valley 764930.

Loughton & District ARC meet alternate Fridays, 7.45pm in Room 30 of Loughton Hall. June 3 is a Formal h.f. d.f. Hunt (7.30pm for 7.45pm first call). John Ray G8DZH at 9 Albion Hill, Loughton, Essex IG10 4RA.

June 16 is a Video on SWL's in the Early Days of Radio for the **Barry College of Further Education RS**. Meetings are Thursdays, 7.30pm in the annex of the Barry College of FE, Barry to Bonvilston Road (A4226), near the Welsh Hawking Centre. Dr. Kevin Johnston GW4BCB at 68 Heol Isaf, Radyr, Cardiff.

Edgware & District RS meet 2nd & 4th Thursdays, 8pm in the Watling Community Centre, 145 Orange Hill Road, Burnt Oak. May 26 is an NFD Briefing/Constructors Contest, June 9 a Digital Transmission for Amateurs by E. Kessler and G4GYS on Antenna Surgery or How to Cut your Wire Antennas on the 23rd. Ian Cope G4IUZ on Hatfield 65707.

South East Kent (YMCA) ARC have a Natter Night on June 1, a talk by G8VR on the 8th, a Natter Night and Waldershare Final arrangements on the 15th and the 22nd is a Treasure Hunt. They meet Wednesdays with Morse or RAE Coaching on Monday & Tuesdays. John Dobson on Dover 211638.

Binstead ARS meet Mondays, 7.30pm at "Brickfields", Newnham Road, Binstead, IOW. The June lecture is Antennas & Propagation by G3MAD. Bob Griffiths GOISB at 29 Dubbers, Godshill, IOW.

June 8 is Solving Breakthrough by G1WZZ for the **Fareham & District ARC**. Meetings are Wednesdays, 7.30pm at the Porchester Community Centre, Westlands Grove with Morse Classes from 6.30pm. Bob G8VOI on Portsmouth 250830.

North Wakefield RC meet Thursdays, 8pm in The White Horse Public House, Fall Lane, East Ardsley. May 26 is a monthly meeting, June 2 a Barbecue, the 9th is On the Air with G4NOK, the

16th a Trip on the *Water Prince* Floating Restaurant and a Natter Night follows on the 23rd. Steve G4RCH on Leeds 536633.

Wimbledon & District ARS have the Construction Contest for G3PGA Trophy on May 27 and June 10 is Nuclear Magnetic Resonance in Medicine by Dr. John Griffiths. They meet 2nd and last Fridays, 7.30pm in St. Andrews Church Hall, Herbert Road. David Love G4RBQ on Burgh Heath 51559.

Colchester RA's have Kites 'n' Aerials by G4YTG on May 26. Meets 1st floor "B" Block, Colchester Institute, Sheepen Road, 7.30pm. Mike Griggs G4YJN on Colchester 348189.

Mid-Warwickshire ARS have a d.f. Foxhunt and Barbecue on June 7 and the 21st is Technical Topics by members. Meetings are 2nd & 4th Tuesdays, 8pm in the St. Johns Ambulance HQ, 61 Embscote Road, Peter Brown GOHIH on Marton 632370.

Exeter ARS meet 2nd Mondays, 7.30pm in the Community Centre, St. Davids Hill. June 13 is an Annual Surplus Sale. Ray Donno G3YBK on Exeter 78710.

Farnborough & District RS meet 2nd & 4th Wednesdays, 7.30pm in the Railway Enthusiasts Club, 103 Hawley Lane. June 8 is Quiz Night and the 25th a v.h.f. Field Day Review. Tim Fitzgerald G4UQE on Camberley 29321.

On June 13, **Atherstone ARC** have Weather Satellites by G4ROA. They meet 2nd & 4th Mondays, 7.30pm in the Physics Lab. Atherstone Upper School, Long Street. John Arrowsmith G4IWA on Atherstone 713670.

Yeovil ARC have a Junk Sale on June 2, Regulated PSUs by G3GC on the 9th, the Horizontal Full Wave Dipole by G3MYM on the 16th and the 23rd is Sporadic E Propagation by G3MYM. Club meets Thursdays, 7.30pm in The Recreation Centre, Chilton Grove. David Bailey at 46 Goldcroft, Yeovil.

Wakefield & District RS meet every other Tuesday, 7.45pm in the Community Centre, Prospect Road, Ossett. May 29 is a Car Boot Sale, the 31st RAYNET by G6RBE, June 7 a DF Contest, the 14th a 144MHz Contest Discussion/Club Aerial Inspection, the 19th is a *Practical Wireless* v.h.f. QRP Contest and RSARS by G4RBY on the 21st. John Bryan G4RVY on Leeds 820198.

South Bristol ARC meet Wednesdays in the Whitchurch Folk House, East Dundry Road, Whitchurch. June 1 is the Bristol Rally Club Briefing G4WUB, the 8th is a Packet Activity Evening G4XCB, the 11th a Club Open Day GB2WFH, the 15th a Computer Evening G4RZY and the 22nd a Briefing for the Longleat Rally. Len Baker G4RZY on Whitchurch 834282.

REVCO RS-3000 SCANNER

Peter Rouse GU1DKD

A lot of modestly priced scanners have appeared on the market in recent years but the great failing has been the inability of most of these machines to allow the user to select the mode regardless of the band. The reason for this of course is quite simple: Most of the world, and in particular the USA, decided many years ago that f.m. was the best means of getting a v.h.f. or u.h.f. signal from point A to point B whilst mobile. Airband is the exception where because of the traditional use of a.m. it has as yet been impossible to get a change to f.m.

Scanner manufacturers tend to design their equipment for the American market where sales outstrip British figures many times over. The American market provides a simple set of rules for the manufacturer to work with. It goes something like this: You programme the scanner to switch to f.m. except when it is tuned to Airband and then it automatically switches to a.m. That means you can forget front panel switches, elaborate programming techniques to store mode as well as frequency and that means you can keep costs down.

That's all very well until you look at the quirky British market where not only is a.m. still in use on some bands but is getting a new lease of life as certain services you should not be listening to move from Band II to places I am not allowed to mention and start to use a.m. (the fact that British manufacturers are the only ones left churning out equipment for this complete "clucker" of a mode is I am sure purely coincidental).

For owners of top of the range scanners such as the Icom, AORs and Tandy 2004 this presents no problem but for someone with a limited budget it did. I say did because the Revco RS-3000 is the first budget priced scanner to appear on the market with programmable modes.

Banded Coverage

As a budget priced scanner you would neither expect, nor get, the kind of no-gaps coverage offered on the up-market machines so what you get is banded coverage with four bands in all. This starts off at 26MHz and goes on to 30MHz so giving coverage of the CB channels and the amateur 28MHz band. Coverage then picks up again at 66MHz and goes on to 88MHz so covering the "Low Band" v.h.f. channels used by a variety of services. The next band covers 118 to 176MHz offering coverage of Air Band, Marine, 144MHz amateur service, etc. Finally u.h.f. coverage is provided between 380 to 512MHz.

For a great many users those bands will provide all the necessary coverage they will ever want and you can enter 50 of your favourite frequencies into memory. That is not a bad number of channels (far more than the AOR 2002 for example). The memory is arranged in 5 banks of 10 channels and it is possible to lock-out banks as well as individual channels. Delay (2 seconds) is individually programmed

Budget-priced scanners always arouse interest, even more so when they have features that have only previously been available on the more up-market machines. Peter Rouse reviews a new scanner by Revco.



onto each channel which is a bonus because some costlier scanners only allow delay to apply to all channels or none, not individual ones.

The scanner offers full search facilities with stepping rates of 5, 12.5 and 25kHz but it does not recall previously programmed upper and lower limits so these have to be re-entered each time search is used. Priority is provided on memory channel 1 and when this feature is selected it is scanned once every 2 seconds. Memory back-up is provided by a capacitor and the manufacturers say memory is retained for up to 2 weeks with power off.

The Box, the Bells and the Whistles

The RS-3000 is quite compact considering it's features and for anyone looking for a mobile unit it should fit quite easily in most cars. Indeed I suspect it was designed as a mobile unit because it comes with a vehicle mounting bracket but does not come with a mains power supply. The only other accessory is a small telescopic whip which plugs into the Motorola-type antenna socket on the rear apron where you will also find the d.c. input socket and jack socket for external speaker.

The front panel features squelch and volume controls and the keyboard pad together with l.c.d. display. The latter not only shows the frequency and channel number but also mode, manual or scan status, delay, lockout, priority, search limit and stepping rate. The keypad is easy to use, only one button serves a double purpose (decimal point/priority) and there are up/down buttons for manual stepping.

Overall Impressions

The sensitivity of the test sample tallied pretty much with the quoted figures and these are roughly what I would expect on a

middle-of-the-road scanner. Spurious rejection figures are not quoted and I suspect this is because they are not very good. Although impressions were purely subjective, it was apparent that strong local signals could pop up on all sorts of frequencies and an acquaintance who had already bought a RS-3000 complains that transmissions from an antenna 200 metres from where he lives, appear on just about any frequency he enters into the scanner. However, I must put this complaint into context by saying that this problem only occurs with nearby transmissions and I know of a lot of other scanners in this price range that fare no better. My only other gripe is about the antenna socket which is the same car radio type as found on quite a few different makes of scanner — it is near useless at v.h.f. and even worse at u.h.f. If I bought a RS-3000 I would remove it and replace it with a BNC connector.

So would I buy one? I think "her indoors" would blow a gasket if I bought another scanner and but for that I would probably buy one to permanently install in the car. The strong point is the programmable mode. Despite the hilarious Pidgin-English manual the beast is easy to drive and frequency coverage is adequate for most needs. It does not come with a mains power pack but then that is something that is quite cheap to buy or simple to build. It has plenty of memory channels and some features that are only found on more expensive machines. It is compact and professional looking and is very good value for money compared with some of the opposition.

I am grateful to **Links Communications** in Guernsey for the loan of the review sample. The Revco RS-3000 is distributed in the UK by **Garex Electronics Ltd** and costs £199 inc. VAT. □

SPECIFICATIONS

Frequency Coverage:	h.f. — 26-30MHz v.h.f. — 68-88MHz — 118-176MHz u.h.f. — 380-512MHz
Modes:	a.m./f.m. programmable on each memory channel
Sensitivity:	v.h.f. (n.f.m.) & h.f. 0.5µV (10dB S/N) Airband & u.h.f. 1µV (10dB S/N)
IFs	10.7MHz & 455kHz
Search step rates:	5, 12.5 or 25kHz selectable
Audio output:	1.5 W into 8 ohm
Power source:	13.8V d.c. (mains p.s.u. not supplied)
Inputs/outputs:	DC supply, 50ohm antenna & external loudspeaker
Display:	Backlit Liquid Crystal
Dimensions:	152 x 58 x 220mm
Weight:	1.05kgs.

SCANNING RECEIVERS are our speciality (and all that goes with them)



The AR2002 is without doubt the best known and best performing VHF/UHF monitor receiver on the market. Encompassing every frequency of interest, whether it be VHF airband, UHF airband, radio amateur, mobile radio, FM broadcasts, TV sound, the AR2002 also gives the user top performance. Frequency selection can be by direct keyboard entry, but there is a good old tuning knob as well, for whizzing up and down the bands. Properly styled and engineered for use in fixed station, mobile or portable, the AR2002 comes complete with a mains power supply and extending whip aerial. Now available from Aircastle products is a brilliant computer control system which makes the AR2002 into the most amazing monitoring system you ever experienced. Send for details right away.

AR2002.....£487 inc. vat. Carr. extra.



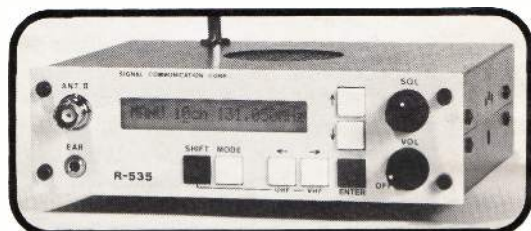
In the realms of hand held scanners, it would be hard to beat the new AR800E. This compact package (only 60 x 50 x 135mm) contains an AM/FM scanning monitor covering the frequency ranges 75-105, 118-174, 406-495, and that most requested band 830-950 MHz. Channel spacing can be programmed from the keyboard for 5, 10, 12.5, and 25 kHz according to band, so all frequencies are correctly selected. AM and FM modes are available, and there are 20 memory channels to store the most used frequencies. You can also tell the set to search automatically between frequency limits set by the user, and transfer any frequency of interest directly into an unused memory. To cap all this performance, the AR800E comes complete with rechargeable batteries and mains charger, and at an attractive price.

AR800E.....£199 inc. vat. Carr. extra.



For the airband enthusiast, the WIN-108 is the answer to a maiden's prayer. This compact handheld airband receiver is fully synthesised and covers the entire VHF airband from 108 to 136 MHz. With direct keyboard frequency entry you can be on channel faster than a Concorde captain, and the clear frequency readout tells you where you are. 20 memory channels are included, and you can scan these automatically. Not only that, you can tell the WIN-108 to search any given frequency range within the air band so as to find new frequencies of interest. Forget the AIR-7, the WIN-108 does it all and more. The WIN-108 comes complete with a correctly matched helical aerial and is eager to go.

WIN-108.....£175 inc. vat. Carr. extra.



For those who demand the best, the airband receivers from Signal Communications are a must. The company is totally dedicated to producing the best airband radios around, and the latest R-535 is in such demand that we are having to keep a waiting list of eager enthusiasts. Why? Simply because the R-535 gives ultimate performance not only on the VHF airband, but also on UHF as well. Designed for simple programming and high speed scanning and searching, the R-535 has no less than 60 memory channels to store your most used frequencies. VHF and UHF channels can be mixed in any order. A full list of accessories is available, including power supplies, aerials, rechargeable battery packs, and so on, making the R-535 the complete system for the advanced airband enthusiast.

R-535.....£249 inc. vat. Carr. extra



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RZ-1.....£465 inc. vat. Carr. extra.

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FORTY FIVE YEARS LISTENING

Goff Curtis

Years ago I flew, and instructed, as a wireless operator in WWII, and on leaving the RAF in 1946 found life somewhat tame without some contact with radio. The l.f. and m.f., broadcast bands soon lost most of their appeal, and on mentioning this to a local G2 he said, "well, you will have to get on the amateur bands, and h.f., if you want to hear long distance stuff".

Although having been a wireless operator, the amateurs and DX were a mystery to me, but on his advice a start was made by "knocking up" a 2-valve battery 1-V-1 with coils for each band.

This was followed by an Eddystone 740, a mains receiver built like a battleship. New, it cost £35, and has only just "gone up the creek". The present RX is a Trio R600, a simple RX, but quite a good set for the amateur, and s.w. broadcasting bands, when used with an L shaped 20m dipole, and 2.6m long wire, which are switchable.

The years between 1946 and 1960 were spent solely on the amateur bands; 90 per cent 14MHz c.w. until there were only uninhabited islands, etc. left to log, and for the next twenty years a move was made to the short wave broadcast bands.

After hearing 120 countries, which was thought to be quite a good score, until learning of a Dane who had heard 160! A return, about 1980, was made to the amateur bands, a decision that has never been regretted, particularly, as no longer a loner listener, contact with fellow listeners via tape, phone, letters and DX "phone ins" keep one up to date, and the "pot boiling".

The notebook found in the spare room fired up the enthusiasm to use those 1940s procedures once again, and push up the "score", and it still helps in 1987 to find those rare callsigns. The DXpeditions can hardly be missed once the callsign "pile-up" is heard, especially if the callers are following the instructions to call "up". An American YL, recently operating s.s.b. in Africa, sent "I will only answer calls 10 up", and when callers eventually twigged this and went up, her frequency was in the clear, and it was a pleasure to listen. Like a breath of fresh air. Some c.w. operators (not all!) control and keep discipline on their frequencies, and have been heard to send "call up, or I will have to blacklist you". Polite, sensible, and mostly effective. This has often been said before and bears repeating. Listening is like fishing, it needs some skill, and patience. The angler doesn't really mind getting wet whilst it's raining if he eventually gets a "catch". The TXer and listener are in the same boat. A new listener to the bands could switch on his brand new receiver, and hear a good catch immediately, but its not always that easy. Although saying that, a KC6 in the West Carolines, not logged at this QTH during forty years searching, was heard via the speaker in the sitting room, whilst making tea in the kitchen.

Sitting at the receiver, listening out to what is going on in the world, must be one of life's greatest pleasures, and this pleasant thought was highlighted when clearing out a spare room. Nothing of value was found except for a handwritten notebook of methods and tips found useful when monitoring. Made up at least forty years ago, it could have been written yesterday, as the information, more or less, still holds good today.

On the other hand it took ten days to hear an expedition to an island in the Indian Ocean, but that is a later story.

When first fishing the amateur bands in the 1940s with the battery 1-V-1 the bread and butter countries, apart from a few lucky long distance, were first concentrated on leading up to the better calls. After a time it was realised a more methodical, but not mechanical, system would help during a search for the rarer ones, and as the useful points turned up while listening, they were scribbled down in that 1940s notebook, and this is how it reads. Not very different from today's art of listening.

The following points apply to c.w., because after all, this is amateur radio, and although s.s.b. is rarely used at this QTH (unless there is a "wanted" new country on s.s.b. only). Many of the twenty points to easier hunting must help when listening for speech.

Casual Listening

1. Skim over the band once or twice for a possible DX "pile up".
2. Check other signals for a DX callsign.
3. Check the weakest signals, 2 or 3 layers down, especially in the quiet "cracks", building up to the top, greater strength layer. When looking for the weak ones, ignore the strong. It's similar, when driving, to not looking at, and being dazzled by, approaching headlights.
4. Don't listen for too long at a session. Have a rest, keep going back (if you can) every half hour or so. Conditions change.
5. Check all h.f. bands in daytime, especially 14MHz.
6. Watch frequency of stations calling the DX, or "DX only", as the station answering the call could be the DX.
7. Go into a doze on a weak one, they often peak up.
8. Keep the volume down so a weakish one can just be read, but up on its callsign. In fact, keep the gain down as far as possible all the time.
9. Don't tune off a likely good station without making a note of its frequency. You may not find it again by going back to its approximate frequency.
10. Always have pencil, paper, clock, and tape recorder handy.

DXing

1. Grab all information possible on current and future DX activities, via DX broadcasts, and nets, newsheets, "phone ins", and on the air.
2. Listen as continually as possible for DX which only operates for a short time, frequent looks for others.
3. Watch stations not sending their own callsigns, especially snappy RST

A sketch of Goff at the T1154 and R1155 by an ex-bomb aimer.



FORTY FIVE YEARS LISTENING

Part 1

- reports only. They are more often than not DX.
- Note callsigns of stations calling the DX. If someone comes back to one of these it should be the DX.
 - Listen I.f. of the wanted DX frequency as the callers should be "up", h.f.
 - Familiarise oneself with DX's "fist" (type of sending) strength, and other useful pointers, so that they are not lost amongst the QRM, and "operators" calling him whilst he is working!
 - Have a list of wanted callsigns, frequencies, times, dates over the RX.
 - Careful on 21MHz as often the "pile up" cannot be heard; only the DX, and when he is listening the frequency is quiet.
 - Use propagation forecasts, and the beacons, as a guide to the best times to listen.
 - If DX is sending too fast to read, some send around 40w.p.m., record it at 3¼ inches per second, and play it back (if possible) at 1¼!

Two very useful broadcasts are from Radio Berlin International, who transmit propagation forecasts every second Monday, but not having listened recently my latest gen could be incorrect, but they are on at least three times on Monday. Another very helpful broadcast is from the Dutch Radio Society, VERON, who come up every Friday on 3.6MHz with good DX tips at about 1550, and 1950UTC. Thanks to them A61, VU4/Andamans, and OF0/Market Reef, I have pushed up the "all time heard country score" to 342, which, again, was considered quite good until hearing G3AAE, had, at least, 360 confirmed by QSL cards, and a W1 368!

The RFOFWW net on 14.2MHz around 1100UTC also provided a 731, and a DX "phone in". The Western Carolines, so it hasn't really been a bad half year, even if the eleven year cycle is still duffy.

The 3rd crew "B" flight (1-r) F/lt Jock Mitrat (pilot), F/lt Micky Finn (navigator), Sgt Smith (gunner), Sgt Thomas (engineer), W/O Nicholson (bomb aimer) and Goff.



Palmyra Island

KP6AA

Stephen S. Barnes

QSL from KP6AA heard in 1947, received 1961!

The really dedicated listener, like the licenced DXer, seriously studies propagation; is on the right frequencies at the correct times, and consequently hears many more calls than the average listener like myself, who finds this a little too mechanical.

It's worthwhile "working it out" if a brand "new one" is reported to be "on". It pays off then! It also pays, of course, to have a pretty good idea of where to look at certain times, but to save over-taxing the brain (although forecasting should be obvious after forty five years) a "conditions" (expected) chart is pinned up over the RX, next to that list of wanted callsigns, times, etc. and when conditions are reasonably normal it works out.

It looks like this:

- 1.7MHz: Day and night: Locals up to about 62km.
Night: Locals up to about 186km.
- 3.5MHz: Dawn: Europe up to 621km. N. Africa? Oceania?
Night: Local, Europe, and N. America?
- 7MHz: Dawn: Oceania, N. America, S. America, C. America, West Indies.

Dusk: N. and S. Africa, M.E., India, F/East, Oceania.

Night: N. America, C. America, W. Indies, S. America?

14MHz: Dawn: Oceania, N. America (+ West Coast?), S + C. America, W. Indies.

Day: N. Africa, M.E., India, F. East.

Dusk: N and S. Africa, M.E., India, F. East, Oceania, N. America.

Night: N. America, + W. Coast.

21MHz: Similar to 14MHz.

28MHz: Dawn: N. Africa, M.E., India, F. East, Oceania? S. America?

Day: Could be similar to Dawn, although Pacific more likely?

Dusk: S. Africa, N. America, S. America, C. America, W. Indies.

The new bands have not been monitored, and I am unaware of conditions as 80 per cent of my listening done on 14MHz, particularly c.w. 14MHz is an outstanding band, especially at dawn and sunset — when conditions are good!

Conditions were good on one night only, and three others, when trying out the broadcast bands for a change. Two S. American countries not heard for 20 years, came through, both on 11MHz, around 2330UTC. A woman announcer speaking in Spanish (it could have been from anywhere) said the word "Mexico", and the station played harp music (only) for about a solid hour. Luckily I stayed awake with help from five pipes of tobacco, and equal amounts of coffee, and it payed off when the announcer came up at 0001 with the Spanish equivalent for "this is Radio Mexico".

On checking the details in the *World Radio TV Handbook*, they were on 15.385MHz (not 11MHz) between 0001 and 0100 in March, only using 10kW. The second "wanted" was found, after a search, due to the Argentine being exceptionally strong I.f. of the 11MHz band, which led one to think that there may be some weaker, usually more difficult to hear stations coming in, and there was. Paraguay was on 11.915, at 2145UTC and gave their ident at 2215, in January. They were on for three nights

FORTY FIVE YEARS LISTENING

only with their 40kW, and have not been heard since.

A third exciting time was hearing New Zealand. A pal phoned to say they were reported on 11.820MHz around 0900UTC, and they were. They were tape recorded, as were Mexico and Paraguay, but the tape playback was so grotty it was erased (what a fool) so that another, better recording could be made tomorrow. They were not there the next day, or the next, and were not heard again for another ten years! The programme was being beamed to Australia, using only 7kW (I am almost certain) but the recording was OK this time, S7/5, and they kind sent a QSL card and pennant.

Since beginning this "line shoot" I have heard that someone has heard 190 broadcasts countries, so I must be satisfied with the 120 on tape here, and keep on the amateurs, as it can't be easy to hear another 70 broadcast countries during the next few years.

The radio "bug" really bit whilst flying, and became almost the sole interest (which is socially wrong) when using that battery receiver between 1946 and 1960. This has been adjusted since by amateur radio being now one of several hobbies, albeit the principal one!

It is impossible to give up listening for too long, for the fear of missing something; the recent August and September 1987 Market Reef and Mount Athos DXpeditions for example. If predictions are broadcast that short future conditions are to be duff, and no "specials" coming up, it is relaxing to have a few days off from wearing the headset. The speaker is only used when keeping an ear open, for something to crop up, from another room, when making the tea! Future details are via Radio Berlin International, currently every second Monday on various "can't-be-missed" frequencies at 1515, 1645 and 1815UTC (and later times).

VERON, the Dutch Radio Society give wonderful DX news in English, every Friday at 1745 and 1945UTC on 3.600MHz, followed by slow, and fast, Morse practice. Many brand new countries, and expeditions have been heard thanks to their appreciated "DXpress". Probably quite a number of people have passed their c.w. tests, also thanks to VERON.

It is relaxing, at times, to not allow the receiver to become almost the only interest. Secondly, and this impression is rather strange and also welcome going back to the set after not using it for a time almost gives one the effect of listening for the first time. Very refreshing. Using a new, borrowed, or different spare receiver produces the same feeling — for a time.

The point of having a rest from the R-600 had almost been reached when VERON, and two know DX nets of s.s.b. and c.w. said the following stations should be coming on in August and September. CZ1NT FR5ES/J, JD1 (Minami Torsihima, or Ogasawara?) OF0MA (Market Reef) and SV2UA/SY

CHRISTMAS ISLAND.

Z C 3 A C

To Radio Stn BRS 20104 Confirming your CW/Phone ^{REPORT} QSO
 on 1-5-1958 At 1515 hrs G.M.T./Local time. On 14 Mcs.
 Your Sig ^{W/5} RST 57511 QRM HVY!! QRN - Tx is YTA ZA PA.
 Input 110 Watts. Ant duplex Receiver HRO
 Tks/Pls QSL via VS2 QSL Bureau Tnx QSO
P.O. Box 600 Best 73's
PENANG MALAYA or direct. *V. J. Mathew* **MATHEW.**

Three cards were received from this station, one by airmail.

(etc.) in Mount Athos, and most exciting of all (to me anyway) having been hunting that country for forty years or so, was 8R1J, who was heard with a 339 signal working G3VWM on 21.028MHz around 2050BST. A premonition reared its head there, as 21MHz is generally dead here at that time.

All those call signs mentioned by the DX boys were needed for brand new all time "heards", so the RX was kept warmed up for the two months, but disappointingly only brought in the OFOs, SV2S and the 8R1, but they helped to bump up the "score" by three, and most satisfyingly, several hours were spent on the bands fishing instead of gardening.

Reports have not been sent out since around 1965, as it's really easier to tape record them, and the recording can be drooled over anytime later, which is more interesting, I think, for a listener, than just looking at a card which, however kindly sent, just says "TKS RPT 73". One of the last "serious" QSL cards sent was to some first class Indian operators who spent ten days (I believe) on the Laccadive Island, in the Arabian Sea, (Indian Ocean) in March 1961, and they remain pleasantly in the mind, as although they were continuously searched for on practically all bands for ten days, they weren't identified until an hour before they closed down, at 1730, 25 March 1961, a Saturday.

This is the day I take my XYL shopping, and as they hadn't been heard by 1600 my wife was asked if she would mind going shopping alone. Generally sweet natured, this made her become a little hostile towards radio amateurs, thinking of all the shopping to carry home. So we made a pact. I would run her to the shops, leave her for an hour, nip back home until 1730, and then come out and bring her home. The speed limit must have been broken as I whistled back home, and switched on to find that their frequency appeared to be dead. Which was not surprising as not one UK station had been heard calling them during the ten days.

At 1636, W1IJB called them and RAJU, with the call sign UV2NRM, came back with IJBs report, I could hardly believe it, and had to convince myself it hadn't all been a dream, until the day their QSL card dropped through the letter box by Airmail, and a second card via the bureau. This holds pride of place pinned over the RX, flanked by KS6AG, a YL school teacher, in Pago Pago, Dorothy, heard at 0608hrs in July 1958, working W6WO on the key, and she was kind enough to send her card confirming my report in ten days, by airmail.

Only one American, now KH6, has been heard from US Samda during the last 29 years, probably due to my bed, at my age, being more attractive than listening at 6am.

The card on the previous page is KP6AA (Palmyra Is) who crept down the single wire feeder into the battery 1-V-1 on 3 January 1947. A report was sent off that day via the bureau, as his QTH was unknown, but must have gone astray as nothing was heard until 1960, when his home QTH was seen in a magazine. Another card was sent to this address, and Stephen sent his KP6 QSL, saying "surprised to have a request for my old card after all these years, and happy to say I have a few left". This was in 1961. When mentioning listening is rather like fishing the word "persistence" could have been included. Ten days to find the Laccadives, and fourteen years to receive a card.

Jack Lamberts VP4WD QSL took a shorter time to come in from the Tabagos, where he was the first amateur to operate from the hotel Robinson Crusoe, on the island, 90 per cent of the cards here are for c.w. reports; a few say "tk's for the first c.w. report", and probably the almost 100 per cent acknowledgments of reports sent out was due to them being in c.w. Many said they were inundated with speech reports from Europe which were mainly useless. □

Part Two continues the story

EASIWIRE

Circuigraph Easiwire is the rather cumbersome name given to a new wiring system which does away with soldering. Using the system a beginner should be able to construct circuits using conventional components and the simple tools supplied in the starter kit.

With Easiwire connections are simply made by winding the connecting wire tightly around the pins or wires of each component in the circuit. The connecting wire is carried on a small spool and fed through the tip of the special pen. Each component is held in place by pushing its pins, or wires, through the holes of the plastics matrix board supplied. The holes in the board are tapered and grip the pins so that the components are firmly held in place. The wire is then wrapped tightly around the first pin to be connected, carried across the board to the next pin in the circuit and tightly wrapped around it. This process is continued until the complete circuit has been connected.

Easiwire has several advantages for the beginner. He, or she, can draw the circuit onto a piece of thick card, pierce the holes for the component leads using the tool provided and simply interconnect the component leads following the circuit diagram. This has the advantage of teaching the beginner something about the relationship between the theoretical circuit diagram and the real, practical circuit while reducing the outlay on matrix board.

The components can be used again and again, after unwrapping the wire, as the wrapping process does not damage the components.

Although it may appear to be a form of wire-wrapping it most definitely is not. Wire-wrapping involves cold-welding the wire to component pins which are specially shaped from hard metal so as to cut into the wire. Easiwire just wraps the wire round the leads without any deformation occurring.

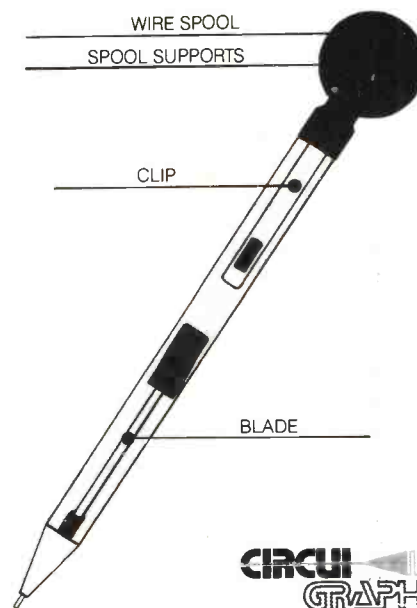
Starter kit

The starter kit contains all the tools and basic parts needed to get going with Easiwire. The wiring pen has a built-in wire cutter and carries a reel of wire which feeds through the pen tip to make wrapping easy. A spare reel of wire is provided. A sheet of flexible plastics matrix board is included together with two sheets of double-sided adhesive material which can be used to fix the wire in set positions and hold insulation in place at crossovers. A special double-ended tool is supplied. One end unwraps joints, the other enlarges the holes in the board to allow larger component leads to be inserted. To allow you to connect power to the circuit some spring-loaded terminals and jacks are included in the kit along with instructions on using the system.

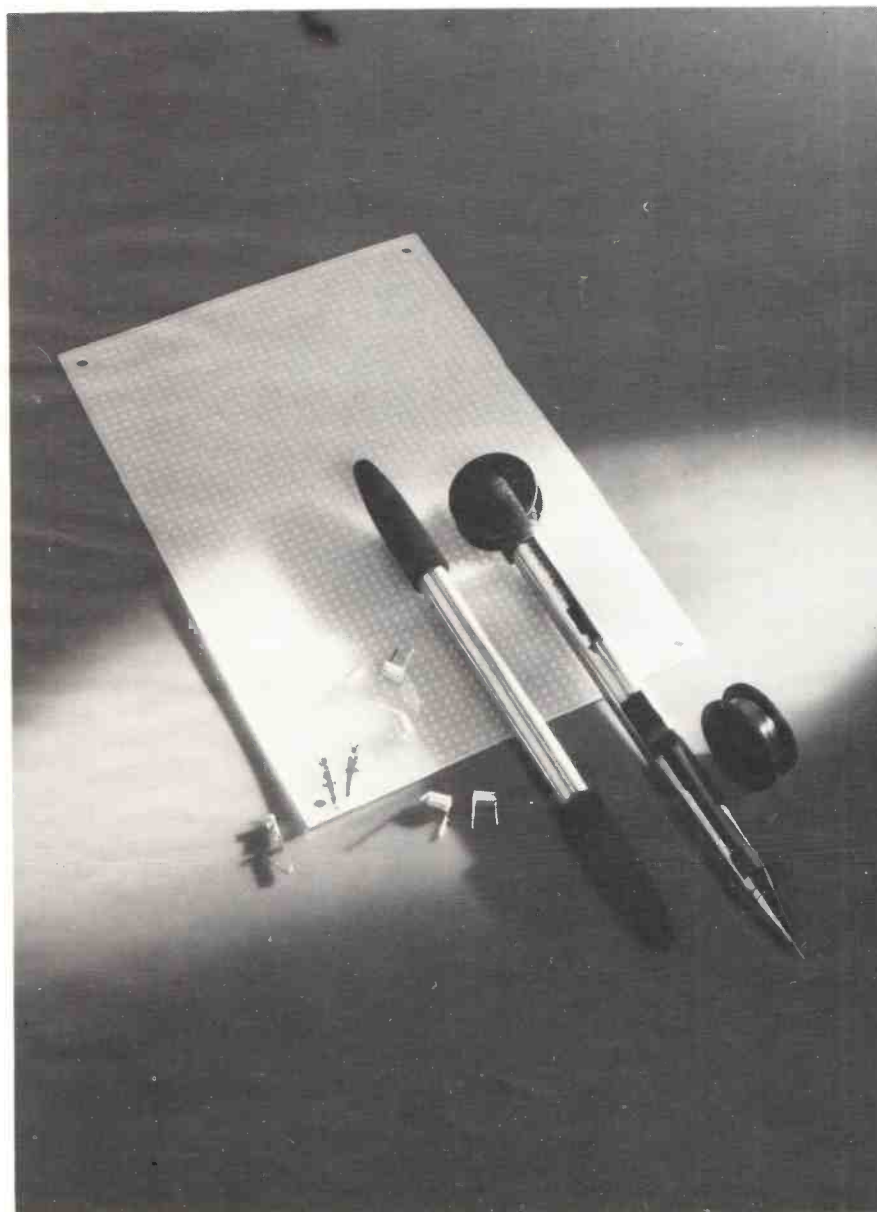
Soldering is considered by many readers to be a black art and as a result they are put off trying to construct their own radio gear. Dick Ganderton has been looking at the latest "no-solder" wiring system marketed by BICC-VERO.

Short Wave Magazine will be producing projects for the beginner which will use this new wiring system to introduce readers to the exciting world of home construction.

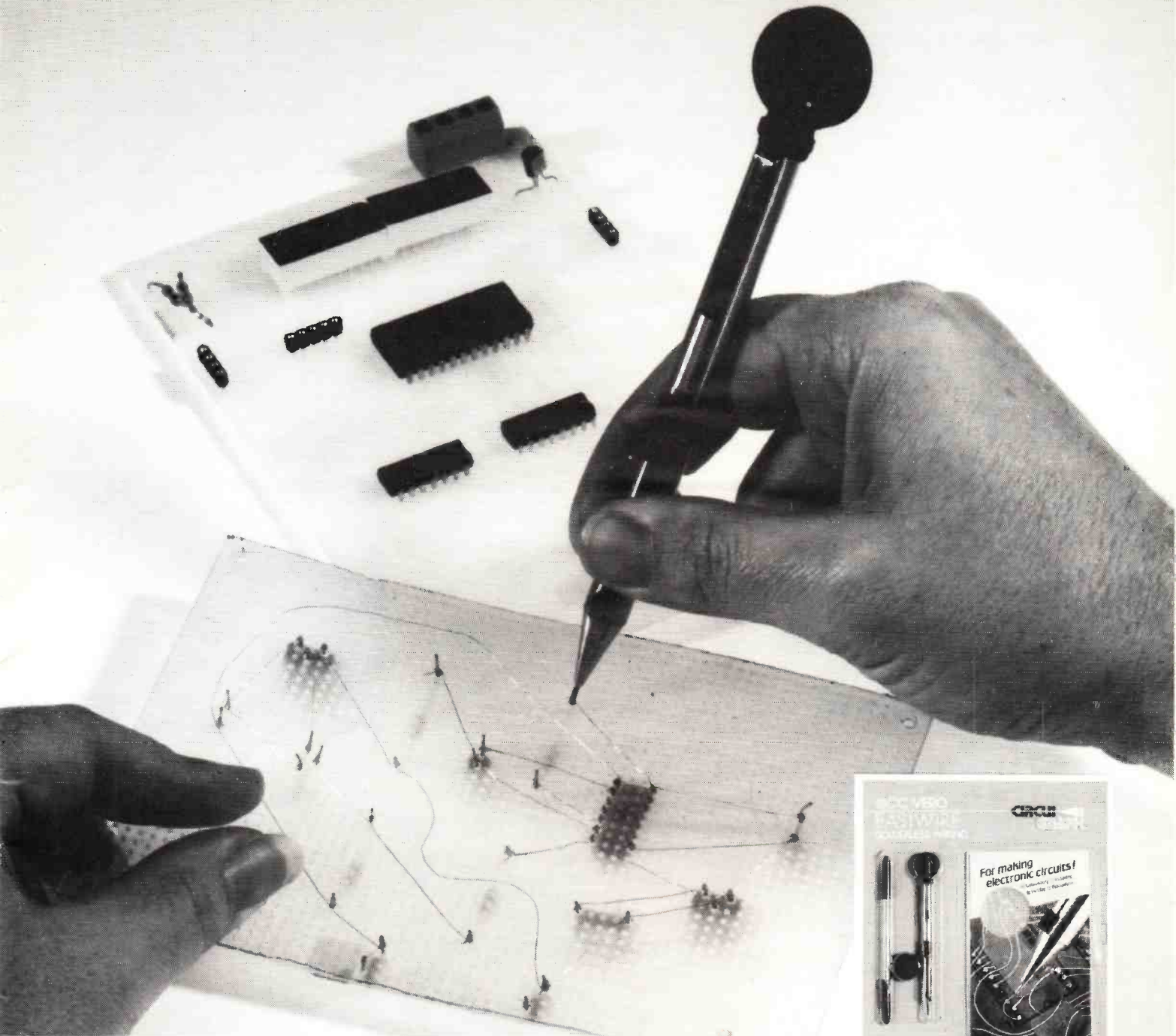
With an introductory price set at £15, Circuigraph Easiwire is being marketed in the UK by **BICC-VERO Electronics**, Flanders Road, Hedge End, Southampton SO3 3LG, Tel: (04892) 88774.



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SWM

INTRODUCTION TO DX-TV

Keith Hamer and Garry Smith

Frequencies Affected

Sporadic-E propagation affects frequencies well into the v.h.f. spectrum. This includes TV channels in Bands I and II which are allocated between 40 and 100MHz. Much of the reception takes place on channels below 70MHz, but during intense openings the m.u.f. (maximum usable frequency) can rise sufficiently to permit the reception of the v.h.f. f.m. radio band and even the 144MHz amateur radio band.

Extreme Distances

Sometimes Band I reception is possible from countries located outside the European area and it is not uncommon to find transmissions from the Middle East mingling with ones from Yugoslavia. In fact, many experienced enthusiasts delight in an opening to the south-east in the hope that something further afield will appear. The same remarks apply to openings to Spain and Portugal.

Double-hop Sporadic-E is usually responsible for the reception of stations situated in the Middle East because there is a tendency for them to appear during the reception of countries located at roughly half the distance. However, one theory suggests that double-hop Sporadic-E is not always responsible and reception could be caused by a combination of single-hop Sporadic-E and tropospheric

This month, TV reception from other continents and ways of improving your results by using multi-element antennas are discussed.

propagation. This theory is supported by the fact that throughout the Mediterranean area, tropospheric enhancement exists for many months of the year.

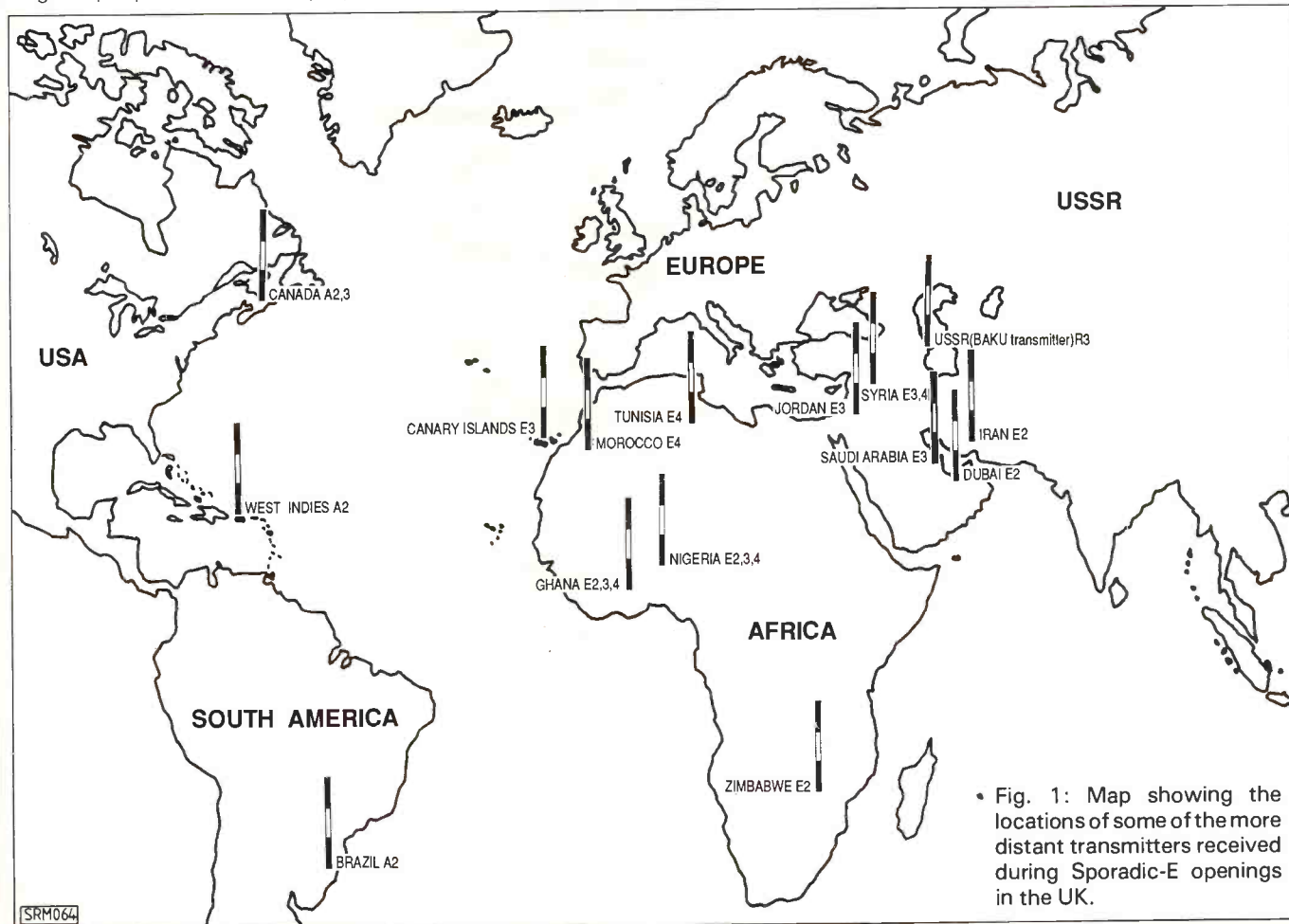
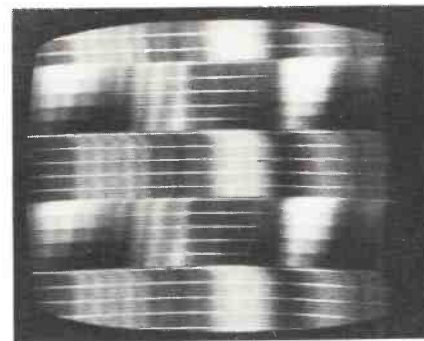
A classic example of reception via a combination of propagation modes is thought to have occurred from Zimbabwe. For several years, either side of the solar peak, repeated loggings of the channel E2 transmitter at Gwelo became possible by a process due to transequatorial propagation (t.e.p.) skip and Sporadic-E ionisation. Transequatorial skip is usually limited to a region within 40 degrees above and below the equator but in this particular instance the t.e.p. signal arriving in the Mediterranean area was then propagated by Sporadic-E ionisation, before finally descending in the UK. A photographic example of such reception is shown in Fig. 2.

DX reception isn't always confined to the lowest channels in Band I either. In 1971, one DXTV enthusiast in the UK received signals on Channel R3 from a Russian transmitter at the coastal city of Baku on the Caspian Sea. More recently,

Finnish DX enthusiasts have encountered f.m. radio broadcasts from Iraq during intense Sporadic-E openings.

Sporadic-E reception from countries much further afield has been known and exotic locations such as Dubai, Iran and Saudi Arabia have all featured in DXers' log-books over the last three years. A few years ago, West Indian signals were logged in the UK, although their exact origin still remains a mystery. On another rare occasion, a Brazilian station operating in Band I was noted in the Netherlands, a distance of approximately 10 000km. Fortunately its location was successfully traced by a studio caption

Fig. 2: The chessboard test card transmitted from the Gwelo transmitter in Zimbabwe. The signal was received in the UK via a combination of transequatorial and Sporadic-E propagation.



• Fig. 1: Map showing the locations of some of the more distant transmitters received during Sporadic-E openings in the UK.

INTRODUCTION TO DX-TV

Part 10

being aired at the time. It is worth noting that the two dramatic instances quoted previously were witnessed by experienced enthusiasts who were diligent enough to spot something unusual during what may have appeared to others as just an ordinary opening.

Transatlantic DXTV Reception

On less frequent occasions, transmissions from North America and Canada have been successfully resolved. Two instances of TV reception from across the Atlantic occurred in 1987, during June and July, when 525-line signals in Band I were observed at several locations throughout the British Isles. On the latter occasion, the signals were extremely weak but one DXer managed to resolve them using a fixed loft antenna which was facing east! Openings on the 50MHz (6m) band from across the Atlantic were also very much in evidence during both those openings. Similar 50MHz activity was present on other dates too, but there were no reports of 525-line television pictures being received.

One possibility suggests that the m.u.f. was insufficient to propagate signals from the lowest 525-line TV channel (A2), which has a vision frequency of 55.25MHz and a sound carrier 4.5MHz higher at 59.75MHz.

When one considers that reception from distant countries in the Middle East, such as Jordan, Syria and even Iran, has been relatively commonplace during the past few seasons (especially 1987), it is fair to assume that reception from North America or Canada should stand a similar chance of being received. Upon examining the map, the distances involved are very similar and there are a fair number of Band I 525-line stations in operation on the eastern coast of Canada and the USA. Another reason for fewer reports of TV reception from across the Atlantic may be the fact that most DXTVers direct their arrays towards the Continent and are therefore less conscious of signals approaching from the west.

Recognising 525-line Signals

Receiving a 525-line signal seems to be the dream of most DXers (on this side of the Atlantic, of course!) mainly because it signifies a genuinely exotic example of DX reception. Recognising a 525-line signal can be a problem because many enthusiasts are not quite sure what to look for. There used to be widespread belief that the horizontal hold control would require adjustment to compensate for the difference in the number of lines. However, this is not the case. The frequency of the line oscillator needs to be run at roughly the same rate, namely 15.625kHz in the case of a 625-line transmission and 15.750kHz for a 525-line signal. In practice, the flywheel sync circuitry compensates for

the slight difference in frequency. So, how do we recognise a 525-line signal?

The chief difference lies not with the number of lines, but with the field frequency. All 625-line signals have a field frequency of 50Hz, a frequency which is governed by the public electricity supply. In the USA, and other areas, where the 525-line is used, the electricity supply is 60Hz — the field frequency of the 525-line system being the same. When a 525-line signal is received, the picture rolls vertically at quite a rapid rate. This is usually the first indication of such a signal. The rolling can be cured by re-setting the vertical hold control, but normally the picture amplitude or height is then insufficient, caused by the field timebase operating at a different frequency. The height can be adjusted to compensate for this, but the gaps at the top and bottom of

the picture make the signal more authentic. On strong 525-line DX signals, the frame timebase may be tolerant enough to lock on to the different frame sync pulses without adjustment. Indeed there are a few receivers designed without provisions for frame hold adjustment. Note that some of the more modern multi-standard designs will compensate for the difference in amplitude automatically, once the timebase recognises the different sync-pulse rate. For DX work, this can only cause confusion!

In certain South American countries, 50 and 60Hz electricity supplies can be found. Venezuela is one example and a combination of 525-line and 625-line TV systems are in operation. The 625-line system used has the same parameters for vision bandwidth and sound spacing as the 525-line system to ensure compatibility with shared channel allocations. The systems are N and M respectively. Unfortunately a System N signal would not be as easily recognised as a System M one would be, unless the accompanying sound channel with its 4.5MHz spacing could be monitored, or some visual means of identification was possible — such as captions, etc.

Antennas for Band I

We mentioned in Part 9, that a very simple antenna system, such as a dipole, could be pressed into service for initial experiments with Sporadic-E propagation. The majority of Continental high-power transmitters favour horizontal polarisation in which the receiving antenna has to be mounted "flat" or horizontal. Consequently it is recommended that the dipole should be so positioned.

Occasionally, a polarisation change takes place *en route* and signals which started out life as horizontally polarised arrive at the receiving site as vertical ones. Surprisingly, many enthusiasts rely solely on an array mounted horizontally, but an additional antenna such as a dipole mounted vertically, could prove advantageous when polarisation changes do occur.

A dipole mounted vertically will respond to vertically polarised signals arriving from all directions (Fig. 3), but with a dipole mounted horizontally, maximum signal pick-up occurs when it faces the transmitter (Fig. 4). With any horizontally mounted antenna, some method of rotating it is essential in order to obtain the best reception. If the dipole is mounted on top of an alloy pole, some method of manual rotation can be devised, although for convenience an electric rotator is best.

Better Antennas

Once addicted to the hobby, most enthusiasts can't resist the temptation of installing a more elaborate means of collecting signals. Band I arrays of

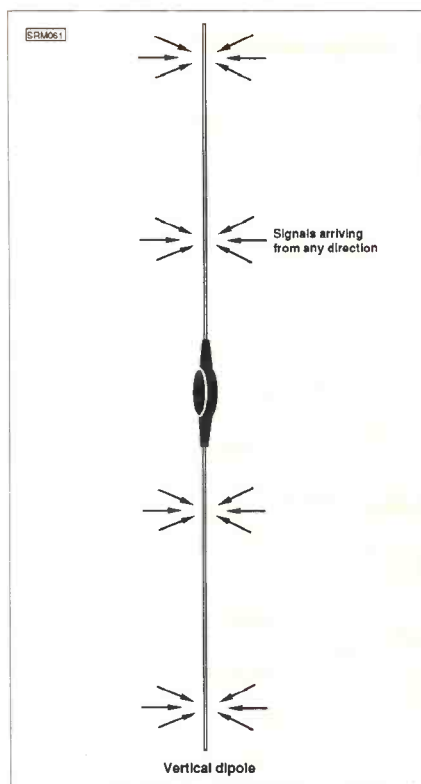


Fig. 3: A vertically-mounted dipole will respond equally well to signals arriving from all directions.

Fig. 4: Maximum signal pick-up occurs when the rods of a horizontally-mounted dipole face the transmitter (Broadside on).

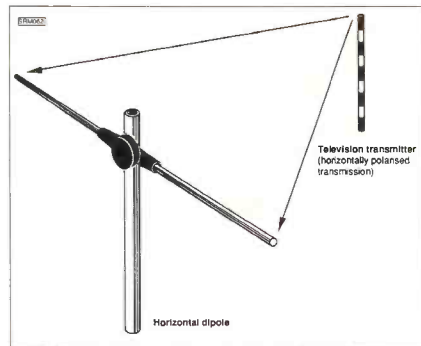


Fig. 5: Antenna dimension data for constructing a 3-element Band I antenna.

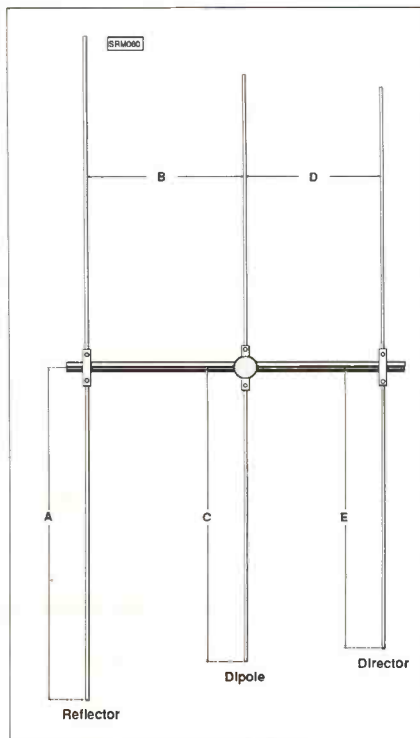
3-elements or more are quite common among enthusiasts as they possess a number of advantages over a dipole.

The addition of a reflector behind the dipole and a parasitic element, known as a director, in front of the dipole increases the gain of the system, in simple terms, its "pulling-in" ability from a more specific direction. The gain of a wideband array will exhibit a lower overall gain than an array cut for single channel operation because of its compromise performance over a wider range of frequencies. Although adding more directors will enhance the gain and directional properties of an array, Band I antennas with elements in excess of five are seldom encountered. Antennas with more than five elements are available, but their sheer size may be a problem and they could attract unfavourable comments from neighbours. The improvement in directivity is perhaps the greatest advantage of using a multi-element Band I array because unwanted co-channel signals from other directions can be significantly reduced or eliminated completely. However, an antenna which is too directional could easily become a disadvantage in most DX applications because the operator would probably be unaware of other signals arriving slightly off beam. The same remarks apply equally to its front-to-back ratio. Some of the commercially-produced channelised arrays have a multi-element reflector assembly designed to reduce signal pick-up from the rear. This is fine if it is used in domestic reception applications where a co-channel transmission to the rear might cause interference. For the DXer, such a design might be a disadvantage in the same way that a highly directional antenna would be. In the UK, for instance, a DX signal picked up from the rear of the antenna would be welcomed with open arms because it means it would have come from an "exotic" source.

Availability

When BBC1 and ITV programmes became duplicated on u.h.f. in November 1969, there was little incentive for manufacturers to continue the production of Band I TV antennas for the UK. Of course, there was an export market, but such antennas were only produced in small quantities. Today you'll be lucky to find a British manufacturer still producing them.

Fortunately specialist manufacturers, such as those engaging in amateur antenna construction, can nowadays be of assistance in supplying suitable antennas for Band I reception. Apart from the traditional multi-element array at least one manufacturer is offering a Band I quad-driven Yagi of enormous dimensions!



	Channels E2-E3	Channels R2-E4	Channels E2-E4
A	1520mm	1270mm	1520mm
B	810mm	1020mm	980mm
C	1400mm	1120mm	1270mm
D	510mm	580mm	620mm
E	1270mm	1040mm	1040mm

DIY Antennas

It is a relatively easy task to construct your own multi-element antennas to cover Band I channels E2 to E4. Suitable half-inch diameter alloy tubing can be obtained from most metal stockists; the necessary hardware such as weatherproof dipole junction boxes and suitable element clips are also available.

The spacing between the parasitic elements should be between 0.1 and 0.15 wavelengths to achieve optimum gain. A greater spacing between the elements results in a better impedance match, but at the expense of gain. If closer spacing is used the centre impedance of the dipole will fall considerably and create problems with matching. Using a folded dipole assembly will compensate for this, but constructing one might be difficult unless you happen to have access to tube bending equipment. Suggested dimensions are shown in Fig. 5.

Semi-wideband Arrays

The measurements for a semi-wideband array are also shown in Fig. 5. Due to its smaller operating bandwidth, this type of array offers an improvement in gain over a wideband design having a similar number of elements. This particular type of array was designed by Ray Davies and Clive Athorve of Norfolk some years ago in order to improve signals received from Belgium and the Netherlands on a daily basis without restricting its use to any particular Band I channel.

Channelised Arrays

The gain of the system is often considered to be the least important aspect because most signals received via Sporadic-E propagation are anything but weak. However, the increased gain is an important factor if you wish to concentrate on monitoring an extreme fringe Band I transmitter on a regular basis.

Such a transmitter could be Lopik in the Netherlands on Channel E4, this is a signal which can be received on virtually a daily basis, albeit extremely weak, over large areas of the UK. For the reception of specific transmitters, a channelised array is recommended since its performance will

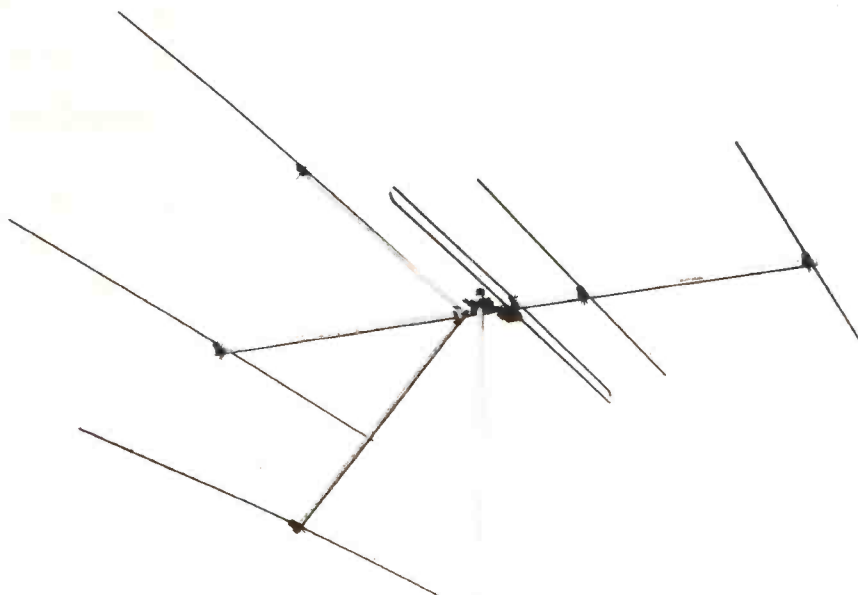


Fig. 6: Channelised Band I array.

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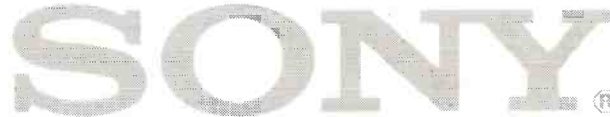


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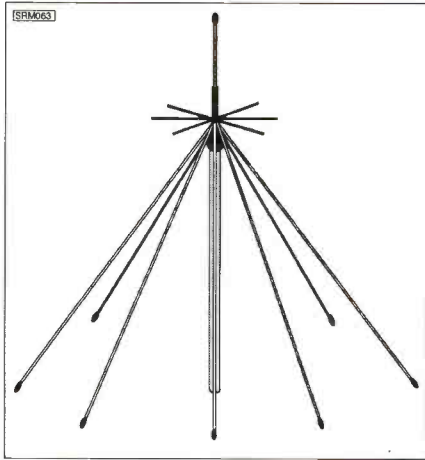


Fig. 7: Discone antenna.

be optimised for that particular channel. Some Band I channelised arrays can be obtained with as many as eight elements but bear in mind that some of these may constitute part of the reflector assembly.

Search Antennas

There are times when some means of monitoring an empty band for initial signs of DX reception is desirable. A four element array beamed east should not effectively respond even to strong signals arriving from other directions (the south,

for example) and an opening could easily be missed. Besides, most antenna rotators take a minute or more to turn the arrays through 360 degrees and although this may not seem very long, a small Sporadic-E opening could easily come and go!

What is required is some form of "search" antenna system with an all-round or omni-directional response, thus avoiding the need to continually rotate a multi-element array. Various options are available.

For instance, two or more dipoles could be mounted facing different directions and fed to independent receivers enabling several DX signals to be monitored simultaneously. Alternatively a switching arrangement could be considered allowing the output of either dipole to be selected. Another arrangement consists of two dipoles mounted horizontally at 90 degrees to one another. The output can be phased together to provide a system giving omni-directional coverage.

One type of antenna which has successfully been used by enthusiasts for Band I reception is the **discone**. This particular antenna covers 50-500MHz and is primarily intended for v.h.f. scanner applications.

Another type of antenna which may have possibilities for search applications is



Fig 8: Triax UFO active antenna.

the **active antenna**. One type is enclosed in a small weatherproof plastic housing, features an integral low-noise wideband amplifier and is omni-directional. This is the UFO manufactured by Triax, at only 325 x 255mm it is primarily intended for yachts, caravans, buses and lorries.

Need Help?

The start of the 1988 Sporadic-E season should be with us as this issue of the magazine hits the bookstalls. If there are any newcomers to DXTV who would like queries answered, write to the authors via the Editor enclosing an s.a.e. for a reply.

ON SALE NOW

. . . . AT YOUR NEWSAGENT

The cover of Practical Wireless magazine, June 1988, is shown at an angle. The title 'Practical Wireless' is prominently displayed in a large, stylized font. Below it, the subtitle 'The Radio Magazine' is written in a smaller, cursive font. The main headline reads 'The Yaesu FT-736R VHF/UHF Transceiver REVIEWED'. The issue date 'JUNE 1988 £1.20' and the ISSN number 'ISSN 0141 0857' are also visible. The background of the cover features a photograph of a Yaesu FT-736R transceiver.

AIRBAND

Godfrey Manning G4GLM

A sightseeing charter flight is being organised by **Peter Mugridge** (Epsom, Surrey) for Saturday, November 26, taking off from Gatwick at 7 p.m. and returning an hour later. Route will be Reading, Bristol, Land's End, The Solent, and back *via* Midhurst or Worthing. Peter is not only a keen aviation enthusiast but also an astronomer; on a Halley's Comet spotting flight he was amazed at how different the view from the windows looked at night when the cabin lights were turned out! The November flight will be around full moon and, with the cabin in darkness, a spectacular view of moonlit landscapes and/or cloudtops is expected. After costs, proceeds will go to the Mary Hare Grammar School for the Deaf, Newbury (Peter is an old pupil). And I might be giving a flight-deck commentary, so come and hear what really goes on during a flight! The aircraft will probably be a Boeing 737 but this is subject to final decision. Tickets shouldn't cost more than £39 and firm bookings are needed in the next four weeks — even though November seems such a long way off — otherwise the flight will not get airborne. Interested? Then write to me at the editorial address (but do not send any money yet) or even 'phone me weekday evenings 01-958 5113 which is also the number to ring if you'd like to visit my museum.

Your Experiences

Peter's flying log to date is quite distinguished; as well as having flown in a BAC One-Eleven and Concorde "Alpha Golf" (G-BOAG) he has also notched up some rotocraft; the Sikorsky S-61 Gatwick/Heathrow link (no longer in service) and some Air Hanson Bell Jet Rangers.

Meet the Team!

This year, *Short Wave Magazine* and *Practical Wireless* will be exhibiting at some aeronautical events, June 18 is the date of the airshow at RAF Halton, Wendover, near Aylesbury, Buckinghamshire and Cranfield Aerodrome, Bedfordshire is the venue for the Popular Flying Association's annual fly-in on July 1-3. The magazine's stand will have a selection of aeronautical radio items selected from my collection and I hope to be at both events (Saturday only at Cranfield). See you there?

Frequency Information

The search continues for a comprehensive list of radio navigation aids in alphabetical order of their identity. If a Morse ident, is received, then which beacon is it? **J. F. Coulter** (Winchester, Hampshire) has sent me a cutting from *Reed's Nautical Almanac* which includes those aircraft and marine beacons within range of shipping.

In the column this issue Godfrey looks at frequency changes and flight plans as well as issuing an invitation to join him on a special charter flight from Gatwick and help a good cause at the same time.

Unfortunately this list is not in call sign order, but is useful information nevertheless, I see that an ordered list does appear in the RAF *En-Route Supplement* but this is incomplete and I'm not sure as to why, Mr. Coulter's previous experiences were as a naval operator during the war and he also worked with the RAF at Gatow during the Berlin Airlift. Some well-known British airlines had their beginnings at this time; a little-known Frederick Laker was amongst those early operators! Lastly, a comment on the 877R receiver; its tuning scale is, as I suspected, a conventional dial and with 17mm to cover the airband, station identification and selectivity will not be comparable with a scanner.

The usual publications (radio-navigation charts, *Aerad Supplements*, etc.) give the latitude and longitude of each radio beacon. These can be plotted on Ordnance Survey maps or even located directly on the various topographical aeronautical charts. This was tried by **John Parry G4AKX** (Northwich, Cheshire) and he was able to find the Whitegate n.d.b. (WHL: di-dah-dah, di-di-di-dit, di-dit, 368.5kHz) in a wood near Oulton Park Racecourse at N5311.1 W00237.3; also the Manchester runway 06 i.l.s. locator outer marker (MCR; dah-dah, dah-di-dah-dit, di-dah-dit, 388kHz) near Knutsford at N5318.4 W00222.2 and 3.89 nautical miles from the threshold. John

Captain's panel, Britannia Boeing 767-204 G-BLKV (23072). Note indicated airspeed 236kts, flight level 410, time 13:15 UTC. Just coming up to Autun (ATN: di-dah, dah, dah-dit, 114.9MHz) heading 356°. A left turn is required for Abbeville (ABB: di-dah, dah-di-di-dit, dah-di-di-dit, 116.6MHz).

(Author's photo)



notes the withdrawal of the Congleton n.d.b. (CON: dah-di-dah-dit, dah-dah-dah, dah-dit, 360.5kHz) which should reduce interference to Ronaldsway (RWY: di-dah-dit, di-dah-dah, dah-di-dah-dah, 359kHz).

Eureka has been covered extensively (April "Airband") but continues to attract interest. **M. Hames** (Chasetown, Staffordshire) quotes the system's range as 50 nautical miles, assuming an airborne interrogator.

The relay sites for the London Air Traffic Control Centre were listed in the March "Airband." Unfortunately, one location was incorrect; for Frimmingham read Trimmingham. This is 15km from the North Walsham, Norfolk home of **T. S. Christian** to whom I'm grateful for bringing the error to my attention. The station relays 124.6MHz + 5kHz, 125.275MHz (Anglia Radar), 131.05MHz - 5kHz and 134.25MHz - 5kHz. Note the offset to allow several relay stations, sited at various locations, to work on the same nominal frequency without mutual co-channel interference. Trimmingham has within its range Norwich Airport, North Denes helicopter base, RAF Coltishall and several smaller fields. On the Norfolk coast there is much helicopter activity out of Coltishall such as "Rescue 125" and "Rescue 126". Communications are on h.f. when distance requires this; also, marine liaison is done on m.f. and v.h.f. with Yarmouth Maritime Rescue Coordination Centre (m.r.c.c.) and on h.f. with Edingburgh r.c.c. Bad-weather Sundays bring out the helicopters and lifeboats in joint exercises. This is not the sort of flying that would appeal to most people and all users of the coast and sea should be grateful that, if the worst ever does happen, help is at hand even in the most undesirable weather conditions.

A reminder that the new North Terminal is now open at London (Gatwick). The

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BANDSCAN

Peter Laughton

New Short Wave Service From Morocco

Radio Television Marocaine recently started relaying its international network on short wave. Programmes from Rabat are noted between 1400 and 1700UTC on 17.595kHz. At 1700UTC they switch to 17.815MHz until 1900UTC when they continue until 0100UTC on 11.920MHz. The BBC Monitoring Service reports that English programmes from Morocco also form part of this new international service short wave relay, i.e. between 1630-1800UTC, Monday-Friday. On Saturdays the block is later between 1700-1800, and on Sundays between 1900-2000UTC.

Don't jump to conclusions though because at 1630UTC 17.595MHz in Europe has two stations broadcasting in English on top of each other. BRT Belgium is broadcasting a programme towards Africa, and Morocco is trying to do the same in the opposite direction! Let's hope that one of them makes a move before too long.

Contras

Despite the recent accord between the Nicaraguan government and the Contras forces which started on April 1, the US backed forces have no plans to discontinue their clandestine radio station. Radio Liberacion, believed to be coming from the southern part of El Salvador, continues to operate. A spokesman for the United Nicaraguan Opposition in Washington DC told *Short Wave Magazine* that the opposition was regarded as humanitarian aid, not military.

US Navy Radar To Move

The United States Navy has decided to move its relocatable short wave over-the-horizon radar system to a new site in the Aleutian islands. They are located near the Alaskan mainland. In the course of 1989, the experimental radar system will move from its current site in White House, Virginia to Amchitcka Island.

Meanwhile the US Airforce has a short wave over-the-horizon radar system up in Maine, in the North-East corner of the USA. Extensive tests of the system were made in January. But judging from monitoring reports, it seems to have done all this testing without causing major interference problems to short wave broadcasters.

Ever since the Russian over-the-horizon radar system caused severe reception problems during its early operations, concern has been expressed that these radars should find a modulation system to make them compatible with other spectrum users. If any reader has experienced what he or she believes to be the new US h.f. radar system, drop me a line.

Satellite Links Now Working

The Boston based Christian Science Monitor news station has established the satellite link to the rock music station KYOI it has bought on Saipan. Between 2200 and 2300UTC the *Monitor* news programme is going out on 15.405MHz before they return to tapes of soft-rock music.

Radio Canada International's new relay of English programmes via the facilities of Radio Japan is being heard on 15.385 and 17.710 MHz with fair signals at 1200UTC. But at 2200UTC the programme is blocked by Radio Sweden using the same channel of 11.705 MHz to America.

1000 Years Dublin

Back on St. Patricks Day March 17, a new station began life in Dublin, Ireland. Run by the public service broadcaster RTE it has a rather unusual name: Radio Millenium. As well as f.m. the new station is also being heard on 1.278MHz medium wave between 0700 and 1300UTC Monday to Friday, Saturday's between 0900 to 1300UTC. Putting the station in the middle of Dublin's largest shopping arcade is seen as an attempt to improve the national radio's visibility in face of the onslaught from local pirate stations.

New Zealand Out Of Band

Radio New Zealand have announced a move to a new out of band channel back on Sunday May 1. Between 1830 and 2105UTC look for the 7.5kW transmitter on new 12.045MHz. There has been a lot of talk that the BBC External Services have been talking with both Australian and New Zealand broadcasting organisations.

It is said that discussions are underway to establish a new relay station in the Pacific for the BBC. Signals from the BBC Singapore relay station are not reliable all the year round in the Pacific area.

But don't hold your breath! The press office at the BBC External Services in Bush House told *Short Wave Magazine* that plans to build the Pacific relay station in New Zealand are in **very** early stages. So early in fact that they have not yet approached the British Foreign Office for possible funding.



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Moscow's Midweek Muddle

We could have foreseen the muddle that happened on the short wave bands between May 1 and 3. All the new schedules from Radio Moscow and the Soviet Peace and Progress station showed that they would be making their summer frequency changes on Wednesday May 4. Everyone else that planned to make adjustments did so on Sunday May 1. The first Sunday in May is traditionally the time to do this, but this year it coincided with the important May 1 celebration in the USSR. This must have been the reason for delaying frequency moves by three days, though at the expense of some terrible frequency clashes during that week.

TV5 — Poor Response

The French media report was highly critical of TV5, the consortium of francophone television stations which broadcast to Europe. TV5 isn't as successful as it was hoped suffering from a vague identity, a limited audience, and uncertain financing. The report estimates TV5's viewership in Europe at just 90000 people.

In other development, it was announced on Tuesday that SEPT, France's cultural channel for Europe, has joined the TV5 consortium. SEPT will officially begin transmitting as an independent station when the TDF1 DBS satellite is launched. However there will be no merger of TV5 and SEPT, and idea put forward in the media report. TV5's management has disclosed that a North American version of the channel will be launched in June.

The Moroccan government has granted a license for a private TV station which will broadcast to Morocco on the country's second network and to Africa and cable systems in Europe via satellite. Broadcasts will start next year in French and Arabic.

One part of the service will be unscrambled, mostly in the morning, with Arabic programmes for general audiences. The scrambled portion will consist of films, music and sport, and will be mostly in French. The station will see the Intelsat satellite network and plans to cover francophone West Africa, Arabic-speaking Africa, and Arabic-speaking communities in Europe via cable.

Financing will come from viewer subscription fees which enable one to unscramble the station's broadcasts. The channel will also have to invest about 38 million dollars to repair and extend Morocco's second TV network which isn't being used at the moment.

RDS On Show

The BBC will be holding a special exhibition in London this year at Earls Court between October 1 and 9. One of the highlights will be the official launch of the Radio Data System — a technical development which makes it possible for f.m. transmitters to carry additional information using a 57kHz subcarrier, and which can be decoded on a suitable receiver as a digital display. You might like to note that *SWM* will be there too.

French Report

Prime Minister Jacques Chirac recently announced that *Canal France* (which simply translates as "Channel France") would start broadcasting television programmes to Africa via satellite.

The project is being financed at an initial cost of £600000 by the French Ministry for Co-operation. It is designed to fill the gap in French programming in francophone Africa as well as to offer programmes to Africa's national TV networks which can either be inserted live or taped for later use. *Canal France* will replace France's current system of sending video cassettes to TV networks. Besides being a rather slow method of distribution, France only sends 5000 hours of cassettes to Africa a year, exclusively in French.

West Germany, on the other hand, supplies 12000 hours in five languages to the same continent, and the US Information Agency's *Worldnet* has been broadcasting via satellite to six African nations since October of last year.

Mr Chirac said *Canal France* will carry a variety of programmes, including films, cultural magazines, news and entertainment programmes, produced essentially by France's public television stations.

The Prime Minister also left open the possibility that programmes produced by African stations might be rebroadcast if they were of interest to other countries in the continent. He added that, in future, financial backing may also come from public and private stations in France, as well as African TV stations.

Initially it will broadcast eight hours a day via the last available channel on the Intelsat V satellite. Reception by home dishes isn't envisaged — it is mainly broadcasting stations that will have the necessary equipment.

The private French television channel, *Canal Plus*, has also showed an interest in broadcasting via satellite to Africa. It is investigating the prospects of broadcasting its so called *Canal Plus Afrique* programme via satellite as well as obtaining local partners in Africa to rebroadcast its transmission on local or national TV networks. The French Ministry for Co-operation has not ruled out that *Canal Plus* could use its satellite channel to transmit to major cities in Africa. However, the ministry hastened to add that this would only be on a temporary basis.

Canal Plus has another plan though. It has applied to use one of the four available channels on the TDF1 direct broadcast satellite, scheduled to be launched later this year, to broadcast a scrambled channel in German in conjunction with a West German group. This will try to rekindle the interest in individual home dishes which has been severely hit by the failure of the West German direct broadcast satellite a few months back.

Radio France International Cuts Back English

Meanwhile, a report was recently presented to the French government concerning France's foreign media policy. It congratulates Radio France Internationale France's external radio service, on the progress it has made since 1982. But it also levels criticism at RFI's technical backwardness and its limited audience outside Africa. It says RFI should be heard throughout the world as soon as possible, adding that its development strategy should focus on Asia.

RFI started broadcasting in Arabic to North Africa at the end of March, but has cut back in the number of English bulletins. Some early morning news broadcasts have been cut. You can now hear short news programmes at 0315 on 9.790, 11.700 and 11.670MHz (amongst other channels) and at 1245UTC on 21.645, 15.155 and 11.670MHz (amongst others). At 1600UTC "Paris Calling Africa" has been dropped as a title. The

new RFI schedule calls the 60 minute segment on 6.175MHz "Paris Calling the World", but they don't refer to this on the air.

RFI still get my award for "most confusing programme schedule". All the abbreviations on the charts are only in French. If you haven't got a dictionary, then, it appears, that is too bad!

I recall reading in the monthly journal of the World DX Club that an RFI listener in London received several hundred RFI programme schedules at once last year. All were individually sent through the post thanks to a computer error in Paris. I wonder if they solved the problem?

Sunspots Number Rising Faster Than Expected

Several reports have been circulating that the sunspot cycle is doing some strange things. The source of the news items turns out to be Patrick Macintosh of the US National Oceanographic and Atmospheric Administration. Dr. Macintosh feels that the new solar sunspot cycle is rising surprisingly fast and it might reach its maximum earlier than had been expected. He bases his findings on two primary considerations.

First, the average sunspot number, as well as the solar flux measured at 2800MHz, are rising much faster than most 11 year solar cycles observed this century. Dr. Macintosh has also been analysing the **rate** at which sunspots are increasing. This also appears to be moving up rather fast.

Second, there is some interesting data surrounding so-called solar filaments. These are masses of gas suspended above the sun's surface by magnetic fields, and from the earth they appear as dark thread-like structures on the solar disk. Solar filaments usually show a tendency to migrate to the poles of the sun as the solar cycle progresses towards the maximum, but this is currently happening more rapidly than would be expected at this point in the cycle.

Overall Macintosh believes that the rise to maximum has been advanced by at least a year. If he is right, then we should see the high sunspot figures appearing in the first quarter of 1990, and even as early as the end of next year.

There is similar thinking in Australia, though here in Europe many observatories are still putting the solar maximum around May of 1991. Short wave broadcast stations are following the developments closely. High solar activity means that the higher frequencies of 17 and 21MHz start to perform much better, and that in turn alleviates the chronic congestion on lower frequencies. There is a trade-off though. Higher sunspots usually leads to an increased chance of sudden ionospheric disturbances, where short wave reception can disappear without warning for several hours at a stretch. □

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THE SHUTTLE & NOAA-11

Peter Rouse GU1DKD

There is, as they say, good news and bad news. Luckily the good news is better than the bad. First the good news. The Shuttle programme is still on schedule for resumption in August and the new weather satellite, NOAA 11, is due for lift-off on July 16.

The bad news is that we are unlikely to see another amateur on board the shuttle in the foreseeable future. Although Tony England (W5LFL) thrilled the world-wide amateur fraternity with their 144MHz band contacts and slow-scan TV, the sad fact is that as the schedule stands there are no licensed amateurs currently on the roster for the next series of shuttle launches.

That aside, let's go back to the good news. The NASA staff at Kennedy Space Center, KSC, are "buzzing". Despite what the newspapers may say, the morale is high and everybody is getting excited about the programme continuing. The three shuttles, *Discovery*, *Atlantis* and *Columbia* are on the site being prepared and, barring hitches, *Discovery* will be the first to resume operation. At the time of writing, the newly designed O-rings have been successfully tested at Morton Thiokol's Wasatch facility at Utah and the planned date for the launch of mission STS-26 is August 4.

The mission will be commanded by Captain Frederick Hauck, he and the rest

On a recent visit to the States, Peter Rouse was fortunate enough to visit the Kennedy Space Center. This report was filed on his return.

of the crew have all flown before. They are Pilot Richard Covey and Mission specialists John Lounge, George Nelson and David Hilmers. The prime object of STS-26 will be not only to test the modified launcher and shuttle (the improved safety features such as escape hatches that can be detonated), but also to launch a new Tracking and Data Relay Satellite; TDRS-C.

Discovery will lift-off from Pad 39-B at Cape Canaveral and go into a 296km high, circular orbit inclined 28.5 degrees to the equator on a four-day mission. Dick Young at KSC's Press facility has confirmed that the two u.h.f. frequencies used for communication, 259.700 & 296.800MHz, remain unchanged. NASA is not the least bit concerned that these frequencies are published, nor that enthusiasts listen-in. Indeed, he seemed somewhat puzzled when I (as a Brit used to the attitude of the UK government) asked if they minded. The USA, of course, has a very different attitude to open government and anyone visiting KSC will be bowled over by the openness. Imagine

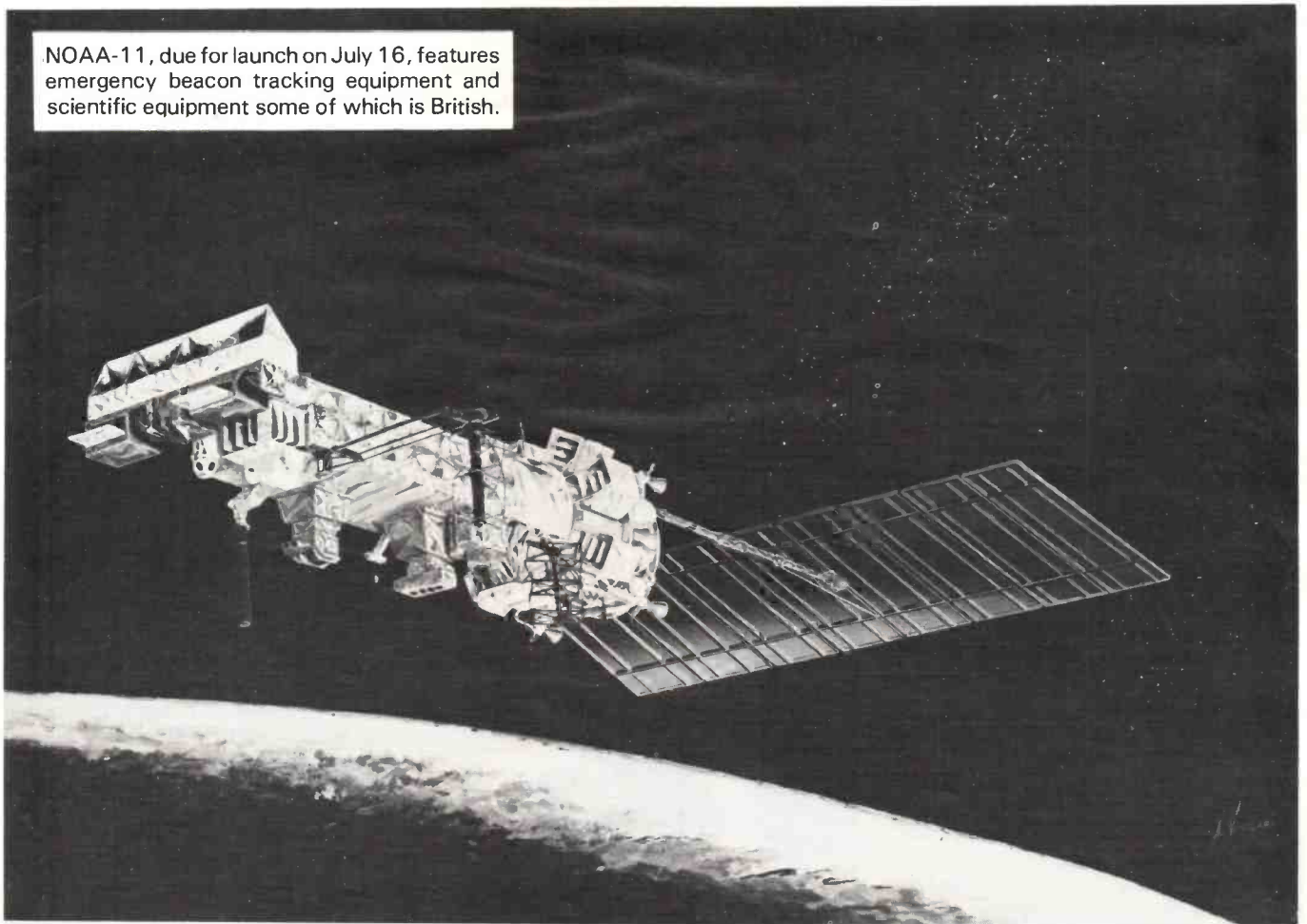
the British Government opening-up one of it's major scientific establishments to tourists. This is probably the best free show in Florida.

However, you are now faced with an interesting anomaly. NASA say by all means tune-in to the shuttle communications, the British Government via the Wireless Telegraphy Act say "don't you dare." It is just another example of how absurd the situation in Britain is and surely one must question whether the government has any legal or indeed moral right to stop anyone from listening to extra-terrestrial communications. For example, when my book, *Scanners 2*, came out, there were several raised eyebrows about the inclusion of the FLtSatcom (FleetSatCom) frequencies. These are a series of American Geostationary Military Communications satellites and the reason I was happy to publish was quite simply that the American Government themselves make no secret of the frequencies. Indeed NASA issued quite a detailed press release about the satellites on the 4 December 1986.

New Weather Satellite

Anyway, if you follow the advice in my series on getting started on weather satellites you will now be in a position to

NOAA-11, due for launch on July 16, features emergency beacon tracking equipment and scientific equipment some of which is British.



THE SHUTTLE & NOAA-11

tune-in and get ready for the new bird, NOAA-H (she only becomes NOAA-11 once she's successfully in orbit). NOAA-11 will replace the early morning/afternoon vehicle, NOAA-9 which now has problems showing up on some equipment particularly on the power supply and microwave sounder channels 1 & 2 which have both totally failed.

NOAA-11 will have a big advantage over NOAA-9 in that the overhead time will be earlier (1.40am and 1.40pm approximate equator crossing). Naturally, this should mean that better pictures are obtained in the winter because light levels will be better at this time of the day than they are in the middle of the afternoon. NOAA-11 will carry some British equipment and is due to be launched on May 18 using an Atlas-E ballistic missile modified for more peaceful applications from the Vandenberg Air Force Base in California.

In addition to the usual visible image and near-infra-red pictures, she will also carry equipment for SarSat/Cospas, the joint Emergency beacon locator system operated by the USA, France, Canada and Russia. NOAA-11 will join five existing satellites providing reception of signals on 121.5, 243.000 and 406.000MHz. These are the frequencies used by emergency locator beacons on aircraft and ships and include such devices as ELTs, EPIRBs and SARBEs. The reception of a signal on any of the frequencies causes an alert signal to be transmitted to a ground station with an approximate location. From then on, search aircraft using more localised d.f. methods can home-in on the beacon.

NOAA-11 also carries a number of scientific measuring instruments and although the data provided by these will not be of interest to most weather satellite enthusiasts, it is interesting to note that there is British participation. This consists of a three-channel sounding unit designed to measure the temperature of the stratosphere.

Communications and Data Handling

NOAA-11 will take up the frequency of 137.62MHz, which is currently used by NOAA-9. Recent NOAA bulletins have hinted that the satellite may simulcast on the NOAA-10 frequency of 137.50MHz as well. There is, of course, no reason why it should not, the two vehicles will be well separated by the earlier pass time that NOAA-11 is going to use. The big advantage will be that unmanned ground stations will no longer need to employ scanning receivers to record passes from both satellites.

S-Band real-time transmissions again take up frequencies vacated by NOAA-9; 1698MHz and 1707MHz.

The full list of both uplink and downlink frequencies are shown in Table 1. □



Behind all the scaffolding and covers, Columbia is readied for her next mission which will be in 1989.

Table 1: Communications & Data Handling

Link	Carrier Frequency	Information Signal	Baseband Bit Rate	Modulation	Sub-carrier Frequency
Command*	148.56MHz	Digital commands	1 kbps	Ternary frequency shift keyed (f.s.k./a.m.)	8, 10 & 12kHz
Beacon	137.770 & 136.77MHz	HIRS, SSU, MSU, SBUV/2 SEM, DCS data, spacecraft attitude data, time code, housekeeping telemetry, memory verification, all from TIP	8320bps	Split-phase phase-shift keyed p.s.k.	
VHF real time	137.500 & 136.620MHz	Medium-resolution video data from AVHRR	2kHz	a.m./f.m.	2.4kHz
S-band real time	1698 or 1707MHz	High-resolution AVHRR & TIP data	665.4kbps	Split-phase p.s.k.	
S-band playback	1698, 1702.5 or 1707MHz	High-resolution AVHRR data from MIRP, medium-resolution AVHRR data from MIRP; all TIP	2.6616Mbps	Randomised non-return-to-zero/p.s.k.	
Data collection (uplink)	401.65MHz	Earth-based platforms & balloons	400bps	Split-phase p.s.k.	
S-band playback to European ground stn	1698, 1702.5 or 1707MHz	TIP data recovered from tape recorders	332.7kbps	Split-phase p.s.k.	
S-band contingency & launch	2247.5MHz	Boost during ascent & real-time TIP in orbit	Boost 16.64kbps TIP in orbit 8.32kbps	Split-phase p.c.m./b.p.s.k.	1024MHz
SAR L-band downlink	1544.5MHz	Data transmission from SARR & SARP to ground LUTs	300kHz (video)	p.m. 2 rad peak	
SAR uplinks	SARR - 121.5, 243.0, 406.05MHz SARP - 406.025MHz	From ground ELT/EPIRBs to spacecraft	(video) 25kHz for 121.5MHz 45kHz for 243MHz 400bps for 406MHz	a.m. for 123.5/243MHz. p.m. for 406MHz	

* Uplink to the satellite

WEATHER SATELLITE RECEPTION

Peter Rouse

Practical Problems

The standard crossed dipole arrangement has been published many times and although the antenna is adequate, it does present several problems both in terms of matching to standard cable and in the sheer mechanics of assembling a lightweight and robust antenna from materials that are easy to obtain. For serious weather satellite reception a masthead pre-amplifier is essential and so the design presented here integrates the antenna and pre-amplifier and in doing so does away with the clumsy matching that is usually employed. It also uses readily available materials and excluding the electronics and cable, all the parts for the prototype were bought new for less than £6. Even so, the finished product is a very professional looking antenna.

The reason we need to use a crossed dipole is that signals from the satellites are phased for circular polarisation; right-hand in the case of the weather satellites, left-hand for the UoSATs. This is to overcome the polarisation problem that can occur as the satellite makes a pass, in other words the polarisation of the satellite's antenna will change in relationship to the polarisation of your own antenna during the course of a pass.

Antenna and Circuit Description

The antenna is a standard crossed dipole, often referred to as a "Turnstile". It is omni-directional (not evenly distributed gain though, as the response tends more towards a square with rounded corners) and has circular polarisation. To achieve this polarisation, the first set of dipoles are fed with a signal from a second dipole. This signal has to have a phase difference of 90° and this is achieved by using a feeder section that consists of 75Ω cable. The length of this cable is calculated by taking a quarter wavelength and multiplying it by the velocity factor of the cable. A typical velocity factor for solid dielectric cable (v.h.f. f.m. radio type) is 0.66 and by multiplying the true quarter wave by this figure (note that the figure shown for the antenna itself includes what is known as the correction factor) we arrive at the length for the phasing section. Because of the rather cramped confines of the conduit box used in construction you will need to use the thinner v.h.f. type cable rather than the thicker u.h.f. low-loss type.

The resulting feed point impedance is around 35Ω and usually a quarter wave section of 50Ω cable is normally used to provide a 85Ω feed point which is considered near enough a match for a 75Ω feed cable. In this instance, no matching section is required as the necessary match is provided by the input to the pre-amplifier and standard 50Ω cable is used for the feed.

The pre-amplifier is a conventional

This time we look at a crossed dipole with integrated line-powered amplifier which not only provides good reception of the v.h.f. weather satellite signals but, with only slight adjustments, can also be used for UoSAT.

arrangement consisting of a BF981 m.o.s.f.e.t. with input/output matching and direct connection to the first pair of dipoles. The transistor was chosen for its very low noise characteristic at v.h.f. and the two transformers are pre-wound Toko types (MC111 4.25t + 1.25t). The 12 volt d.c. for the pre-amplifier is fed up the coaxial cable and the two chokes L1, L2 provide the d.c. path to the circuit whilst ensuring that the output v.s.w.r. is not unduly affected. These chokes simply consist of 4 turns of pvc covered wire on a small ferrite ring.

In most instances it should be possible to power the pre-amplifier with just a simple modification to the receiver. If the connection between the antenna socket and receiver circuitry is broken into and a capacitor inserted to isolate d.c. from the receiver circuitry, then the receiver's d.c. supply can be fed to the antenna input socket via a $1\mu\text{H}$ choke with de-coupling capacitor. Alternatively a simple power supply could be used and this can be

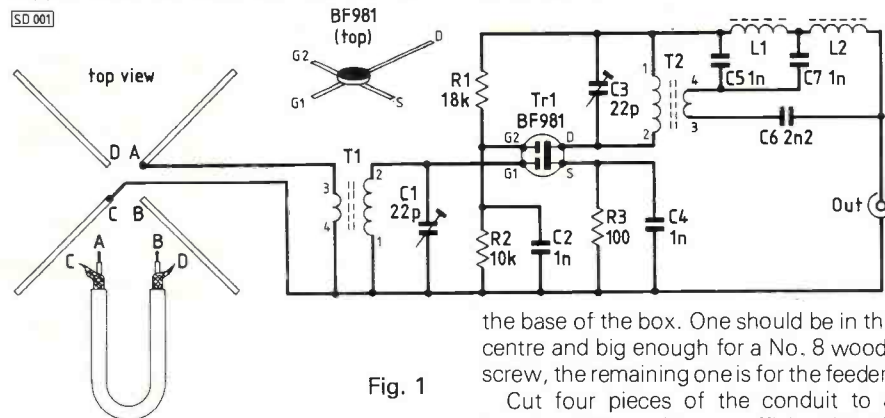


Fig. 1

housed in a small case with input/output sockets.

The p.c.b. is double sided, not only to ensure stability but pads are provided on the top side for connection to the antenna elements. Note that holes are provided for through-connections to connect the pads with the track-side of the circuit board. Where possible the components connected to ground should be soldered both sides of the board.

Antenna Construction

One point that is rarely mentioned in articles dealing with crossed dipoles is that ideally a non-metallic boom should be used to obtain the near-perfect circular polarisation. The easiest way to overcome this it to use a section of standard pvc electrical conduit. It is readily available and

is inexpensive. However, it is not very rigid and so some form of stiffening is required. The easiest way to overcome this is to reinforce it with a piece of dowelling of the same length. It could be argued that just the dowelling could be used for the boom but the problem with wooden booms is that they need to be heavily varnished and the varnish needs to be recoated at regular intervals to protect the wood and keep out moisture. There is a standard 20mm size in round conduit and its internal bore is a fraction over 16mm. Quite by coincidence, a standard size for wooden dowelling is 16mm and the dowel fits nicely inside the conduit. All that is needed is a liberal coating of impact adhesive on the wood before it is inserted. The ends should be sealed up to keep rainwater out and this can be done with any suitable sealant, even car body filler paste. It is worth noting by the way that this type of boom is also excellent for other antennas needing non-metallic booms, helical types being just one example.

For the actual antenna you will need to obtain a pvc, 4-way, surface, junction box with lid and rubber gasket and at least five metres of round conduit and these can be obtained from electrical suppliers or the bigger d.i.y. stores (the conduit is usually sold in 8-metre sections). However, one word of caution, you must use white conduit. Boxes and conduit are made in black, but the graphite used to dye the pvc can affect the characteristics of the antenna. You will need to drill two holes in

the base of the box. One should be in the centre and big enough for a No. 8 wood-screw, the remaining one is for the feeder.

Cut four pieces of the conduit to a length of 560mm (this is sufficient length even for the airband version), and then glue them with pvc adhesive into the junction box outlets. Smear a liberal amount of impact adhesive onto the top of the boom and screw the junction box into place. The glue, when set, provides a seal to keep water out of the wood and also stops the box from spinning loose.

For ease of manufacture, the p.c.b. is etched in the square shape shown. However, to fit into the conduit box it has to be trimmed and filed to shape with corners cut off and cut-outs for the conduit box screw pillars (see photograph). You will need four lengths of stiff wire (preferably silver coated or tinned copper wire), these must be cut so that when they are soldered to the pads on the p.c.b. they give the required dipole length.

WEATHER SATELLITE RECEPTION

Part 3

The braid from the phasing section must be insulated so that when the cable is soldered to the lower side of the p.c.b., it cannot come into contact with the tracks. With the feeder cable threaded through the junction box and connected, the phasing section is inserted into the conduit carrying element "C". The element wires are now inserted into each conduit and the ends soldered to the top pads on the p.c.b.

Once the antenna has been tested and the pre-amp tuned-up, the ends of the conduit will have to be sealed and this can be done either with corks or rubber bungs. It will also be necessary to use some kind of sealant such as mastic, silicone rubber, glue or even Blu-Tack on the cable entry points, the box lid and the screws that hold it down.

Alignment and Tuning for Other Bands

The input/output matching circuits are simply tuned for best signal-to-noise ratio prior to installing the antenna. Rough tuning can be done with the two trimmer capacitors and the coil slugs can be used for final trimming and both circuits should be re-peaked until no further improvement can be made. In the case of the weather satellites, if a signal source is available then optimise the circuitry for 137.5MHz. For UoSAT reception you will need to swap over connections B and D and peak the circuit for 145.825MHz. Tuning should be done with the antenna well away from any metallic objects and ideally should be done outdoors and not in the shack. It is also best to tune-up with the antenna connected to the full length of feeder that is going to be used.

In all instances there should not be any sharp nulls when the antenna is rotated. If this is the case, then the phasing section is not the correct length and you may need to trim-it (do note the earlier comments though that gain is not exactly the same in all directions). If the velocity factor of the cable is not known, then it is probably a good idea to start with a longer than estimated length and cut by a few millimetres at a time until all nulls disappear. It is worth noting by the way that by deliberately mis-phasing it is

possible to create a highly accurate d.f. antenna. Careful pruning of the phasing section can produce an antenna with one very sharp null in only one direction (there will be a less pronounced null opposite).

If the circuit shows any signs of instability (oscillation) then two cures are possible. The first is to screen the two tuning coils (old i.f. coil cans will do and can be soldered direct to the top ground plane), the second stage is to include an interstage screen between the transistor and output tuned circuit (a piece of p.c.b. is ideal). In an extreme case, gain can be reduced by progressively reducing the value of the resistor R2 between G2 and ground.

YOU WILL NEED

Resistors

Carbon film 1/8W 5%

100Ω 1 R3
18kΩ 2 R1, 2

Capacitors

Disc Ceramic

1nF 4 C2, 4, 5, 7
2.2nF 1 C6

Foil Trimmers

22pF 2 C1, 2

Semiconductors

Transistors

BF981 1 Tr1

Sundries

L1,2 4 turns pvc coated solid wire on 10mm ferrite ring (Cirkit part number 55-03712); T1,2 1.25/4.25 transformer (Cirkit part number 35-11158); p.c.b.; Round electrical pvc conduit (must be white); 4-way conduit box with lid and gasket; pvc glue; sealant, etc. (Additional parts may be required for power supply stages.)

Finally

The antenna should be mounted in a good high spot well away from any metal that can upset the polarisation pattern. Normal TV antenna mounting hardware can be used but remember not to put too much pressure on the boom as it is not as strong as aluminium. □

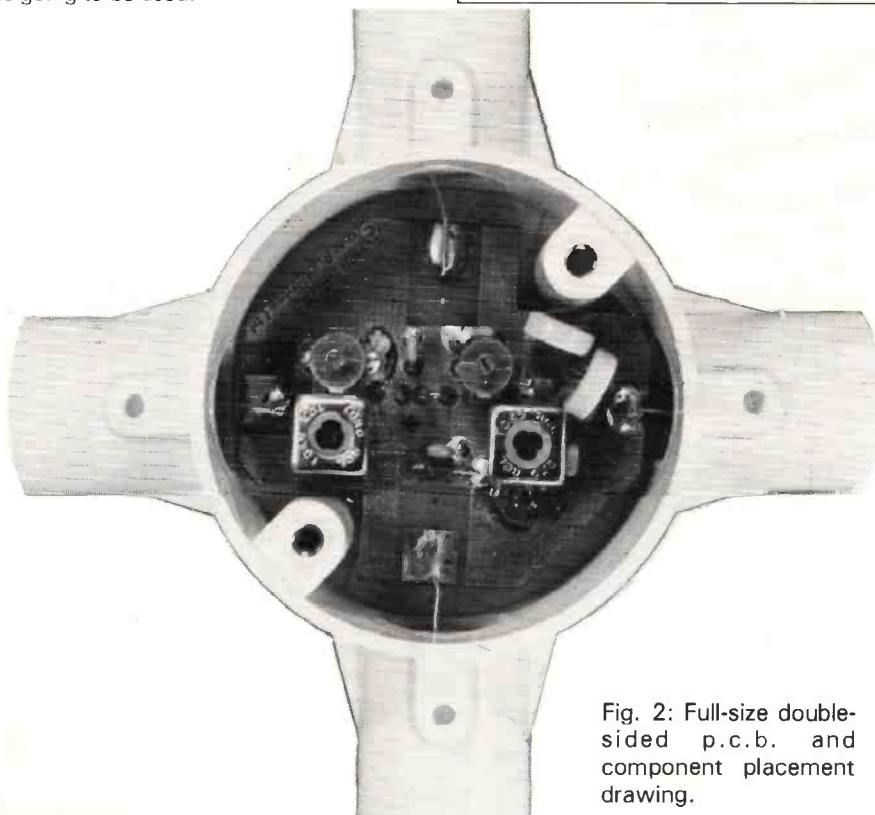
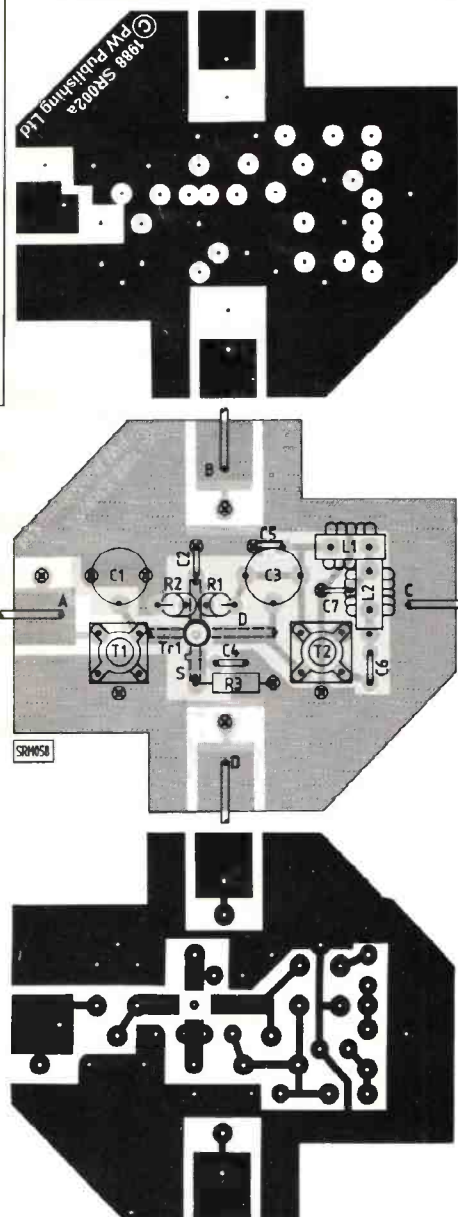


Fig. 2: Full-size double-sided p.c.b. and component placement drawing.



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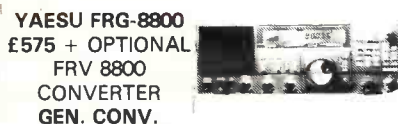
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SCANNING

Alan Gardener

Mystery Signals

Reader **John Davis** of York wrote to me asking if I could help to clear up a problem he has been experiencing whilst scanning across the u.h.f. airband. Every so often the scanner would stop on what John describes as bursts of noise. At first he thought this must just be local electrical interference, but after a while he realised that they occurred at regular intervals across the band and were present 24 hours a day. The mystery deepened when he found that a friend in London could also hear the same signals. Together they tried to trace the direction the signals were coming from but could not seem to make sense of the results they obtained.

Well John, when I tell you where they originate from I think you may be even more intrigued. They are in fact downlinks from American Military Satellites. These are parked in geostationary orbits at over 35200km away from earth and, I think you would agree, are one of the most distant signals you are likely to receive on a scanner.

You may think that I am sticking my neck out by mentioning such things in this column, but as nearly all the traffic being carried by these satellites is digitally encrypted I don't think that I am giving too much away. In fact I am certain that the US Government has made sure that very few other countries would have the resources available to be able to de-encrypt any of the information.

Some of the American magazines devoted to scanning have at various times included articles on military satellites and from these it is clear that occasionally plain speech is used. One example of this was the 9-day non-stop flight by "Voyager" just over a year ago. During this world record attempt several different communications systems were in use including a Motorola lightweight u.h.f. transceiver which, when combined with a hand-held antenna, provided the satellite link from the aircraft.

The satellites themselves are just like large repeater stations, receiving signals and then converting them for re-transmission at a higher power level on another set of frequencies. This is a linear transposition, which means that the re-transmitted signal is for some part dependent upon the strength of the received signal. So in order to be able to receive the weakest signals large antenna systems are used by the main control stations. Another factor to consider is that the power available to the satellite is limited. So if a lot of channels are in use at once the available power per channel is reduced, resulting in lower signal levels at the ground station.

For details of the main satellite up/down link frequencies I recommend the book *Communications Satellites* by Larry Van Horn. This is an excellent book if you are at all interested in satellites or space communications, and includes a very large

This month's column starts by looking at some of the more exotic signals you may come across whilst using a scanning receiver.

frequency listing giving details of just about every transmission ever connected with space exploration.

The signals themselves are not particularly strong but it is possible to detect some using just a discone and a reasonably sensitive scanner set to n.b.f.m. Obviously the higher the gain of the antenna you use the better the results you will achieve. I have been told that f.m. broadcast band or 144/430MHz amateur Yagis work quite well, but I suspect that they need to be tilted upwards by 30 degrees or so to achieve the best reception. It was also mentioned that the continuous data signals on fleet broadcast channels make a good beacon signal, and are useful when trying out new antennas. Well worth some experimentation I believe — let me know your results.

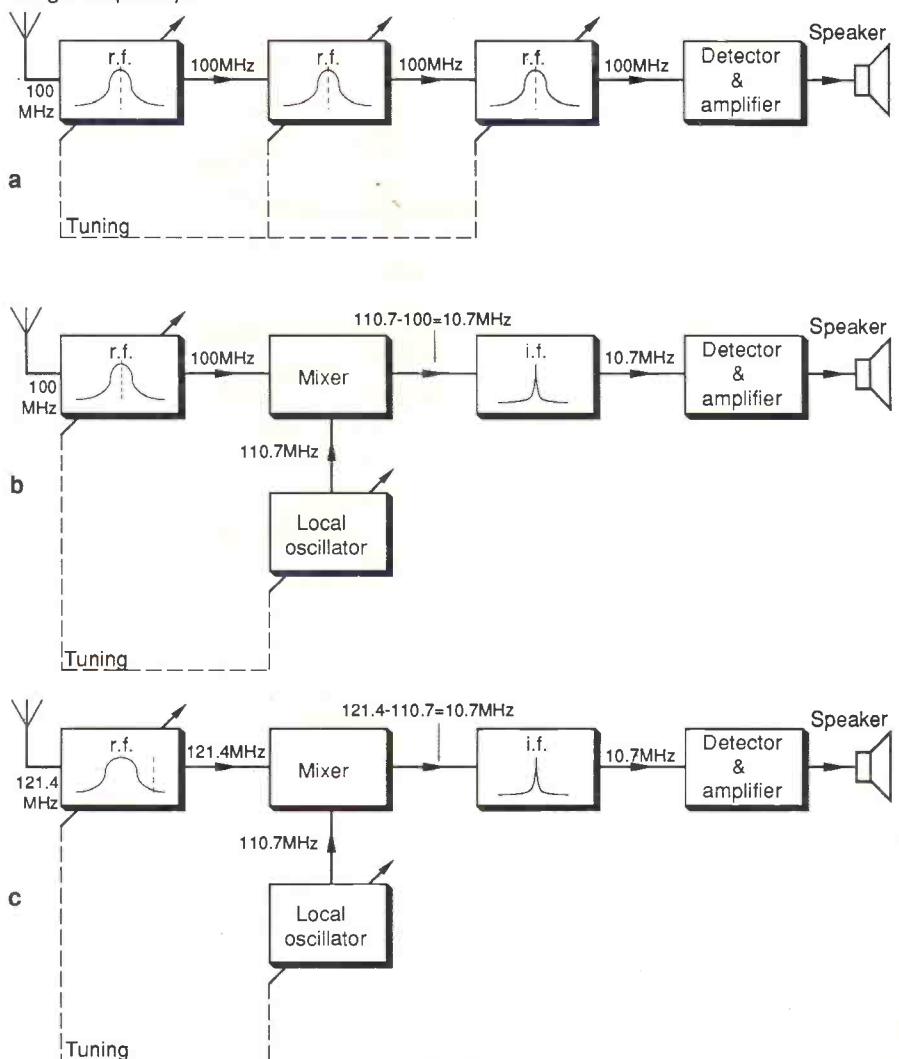
PRO Problems

Ron Beaumont of Norwich writes to me with a problem concerning his Realistic PRO 2004. Surprisingly it is causing him problems with TV reception — whenever the receiver is in use it produces patterning on his TV screen, some frequencies producing worse effects than others. He is worried that he may be causing interference to other TV sets in the area and wonders what he can do to either reduce or prevent the effect.

Before we look at ways of solving this problem it may be a good idea to look at what is actually causing it to happen in the first place. Let's examine the principle on which most modern receivers work, both scanners and short wave general coverage sets.

Back in the mists of time receivers used to use the tuned radio frequency (t.r.f.) principle of operation. In this system the wanted signal was selected by tuned circuits, amplified and demodulated at the original frequency. This had the drawback that if you wanted to change frequency then all of the stages had to be retuned. In

Fig. 1: (a) Basic tuned radio frequency (t.r.f.) receiver. (b) Basic superheterodyne receiver with wanted signal. (c) Basic superheterodyne receiver with a signal on the image frequency.



SCANNING

simple receivers this did not present too great a problem, but as designs got more sophisticated, and the number of stages increased it became clear that some other form of operation would have to be found.

The method adopted was to use circuits tuned to a single fixed frequency to provide the majority of receiver gain. These were called the Intermediate stages and so the frequency to which they were tuned was termed the Intermediate Frequency or i.f. Only the circuits responsible for selecting the wanted frequency (the radio frequency or r.f. stages), and converting it to the i.f. (the local oscillator or l.o. and mixer stages) now required tuning. This greatly reduced the complexity of circuit design, particularly where very large tuning ranges were required as in scanning receivers. See Fig. 1.

In most early types of scanning receiver the i.f. was chosen as 10.7MHz. So the r.f. stages were tuned to the wanted frequency, for example 1000MHz, then the l.o. would be tuned 10.7MHz higher in frequency at 110.7MHz.

The l.o. is in fact like a low power transmitter — it produces a signal which is used by the mixer to convert the r.f. signal (the wanted signal) to the i.f. The l.o. must therefore always maintain a difference of 10.7MHz between itself and the r.f. signal for the system to work.

If we now imagine that another signal is present, this time 10.7MHz above the l.o. frequency. Unless tuning of the r.f. stage is very selective the unwanted signal will be passed on to the mixer. As it is 10.7MHz away from the l.o. frequency it will be accepted by the i.f. as a wanted signal. With scanning receivers this tends to be worse at higher frequencies, with some models giving practically no rejection at u.h.f.

If you hear something which you think should not be on the frequency to which you are tuned it is always worthwhile doing a bit of maths and checking if it is on the so called Image Frequency.

To do this find the i.f. of your scanner from the user's handbook. Now add (or subtract in some cases) twice the i.f. to the frequency to which your scanner is tuned. This gives you the image frequency. Try retuning your scanner to this new frequency, you should hear the interfering signal. The difference in signal strength between being tuned to this new frequency and the desired one will give you an indication of the receiver image rejection.

Designers use two ways around this problem. One is to improve the selectivity of the r.f. stages, in order to reject unwanted signals. This is difficult in scanning receivers as a very large tuning range is required and it is tricky to get all the stages to track each other across the various frequency bands.

The other method is to use a higher i.f. and if this is above the highest frequency to be received it is possible to replace the



r.f. tuned circuits with just a low-pass filter, greatly simplifying the design. For this reason modern general coverage receivers use an i.f. of around 45MHz (for reception of 500kHz-30MHz), and the later designs of scanning receiver use around 600-750MHz (for reception of 25MHz-550MHz).

The Realistic PRO 2004 uses a first i.f. of 610MHz this means that to tune the range 25-520 MHz the l.o. has to operate over the range 635-1130MHz. This is in part the frequency range used by u.h.f. TV broadcast stations and is the key to Ron's problem. Although the l.o. is very low in power it can still produce a signal level comparable to that of a TV station if it is in close proximity to a TV receiver or antenna.

To help prevent this from causing problems it is necessary to determine just how the l.o. signal is escaping from the receiver. Try unplugging the antenna lead from the scanner. Does this stop the problem? If it does, try repositioning your antenna and connecting cable to move it further away from TV antennas and down-leads. If this doesn't work then the only solution may be a filter in the scanning receiver antenna lead, designed to reject the u.h.f. TV band, and so prevent the l.o. signal from escaping via the antenna. Alternatively a wide band pre-amplifier in the scanner antenna lead may provide an extra degree of isolation, but care must be taken to prevent it from overloading the receiver.

If the problem is still present with the scanner antenna lead unplugged then the l.o. signal must be leaking out directly from the receiver. Try repositioning the scanner, this may improve the situation. In really bad cases it may be necessary to try screening the case of the receiver. Several aerosols are available for this purpose, but



I would strongly recommend contacting the receiver manufacturers before undertaking any major surgery, as they may well have come across the problem before and be able to offer a specific solution.

AOR Images

Gordon Foster of Southampton brings to light another interesting problem connected with the image response of receivers, in his case an AOR 2002. Gordon was trying to listen to his local airport d.m.e. beacon on 1041MHz but found he could also hear cellular telephones as he tuned across the band. This is because AOR had a problem to overcome when they added the 800-1300 MHz range to the 2001 to produce the 2002.

If they had used the same i.f. (750MHz) as that for the 25-550 MHz range it would have been necessary to make the l.o. tune over the range 1550-2050MHz. This is getting to be a bit tricky with conventional circuit layouts and would have required a major redesign of the l.o. stage. AOR got around this by using one of the other i.f. stages in the receiver (at around 45MHz). This relaxed the design of the l.o. as it now only has to tune over 755-1255MHz, not too far removed from the existing range of 775-1300MHz. The problem in doing this is that the image frequency is now only 90MHz (2x45MHz) away from the wanted frequency. When the receiver is tuned to 1030MHz for example, the image frequency is 940MHz, right in the middle of the cellular telephone band. The only way around this is to place some form of filter in the antenna lead designed to reject signals at the image frequency. This approach has its drawbacks particularly when changing frequencies and is only worthwhile considering when the interfering signals become a real problem. For the most part you just have to live with it. The AOR is no worse than many other receivers in this respect and in some cases is actually better.

Well that's the end of another column, keep your letters coming in to the usual address, PO Box 1000, Eastleigh, Hants, SO5 5HB. If you require items returning please enclose an s.a.e. Until next month — Goodlistening. □

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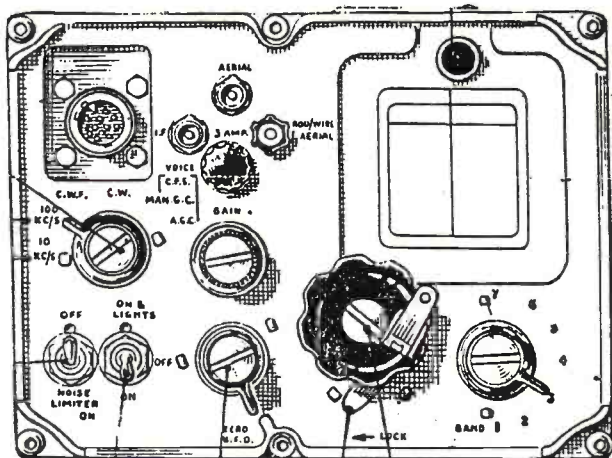
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AR2002 £487.30



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

LOWE HF-125 £375.00



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SEEN & HEARD

AMATEUR BANDS ROUND-UP

Justin Cooper

PO Box 4, Newtown SY16 1ZZ

What is the best receiver with which to make a start? For most of us, it is the cheapest one, whatever its shortcomings may be. Yet, once you make a serious start, in a fairly short time your interests will polarise. Perhaps you start with the broadcast bands and find your way on to the amateur bands — or maybe start on 14MHz and end up chasing TVDX. Whatever the way of it, it seems pointless to spend big money at the start. These thoughts were sparked-off when I extracted an old Heathkit GC1-U from out of the dust and junk in the loft, with intent to use it as part of a talk on servicing at the local club. In the process of satisfying myself that it still worked I had a whale of a time on the bands, and re-learned some long-forgotten listening arts too! So you don't need to start with an all singing dancing radio.

Contest

David A. Whitaker (Harrogate) mentions the White Rose Mid-Summer SWL Contest. Listen on June 19 as follows: on 28MHz between 0900-1100UTC; on 21MHz between noon and 1400UTC; on 14MHz between 1500-1700UTC; on 7MHz between 1800-2000UTC and on 3.5MHz between 2100-2300UTC. Log as many stations and countries as you can in each two-hour period. Stations can only score points if they are in actual contact with another station (e.g. CQ, QRZ and suchlike calls don't score. Score one point for each station heard on each band. On each band, multiply the points by the number of countries heard on that band. Add the total so obtained for each of the five bands together. That is your final score. Countries as defined in ARRL Countries List. Logs to show:

Date, Time (UTC), Station Heard, station being worked, report at SWL QTH, points claimed. Logs to arrive at: D. A. Whitaker, 57 Green Lane, Harrogate, N. Yorks. HG2 9LN, no later than July 31. Certificates of Merit will be awarded by the White Rose Club at their discretion, and the club's decision shall be final.

The Mail

Let's start with the letter from **Jim Mowat** (Luton) who runs an Icom R71 receiver into dipoles up in the loft — the dipoles seem less prone to pick up noise from nearby TV sets. Jim says that some DX stations are on so regularly that he is beginning to recognise their voices.

Neil Melville (London N18) clicked with his first KL7 since 1981 in KL7GU; March 23 was a very good day with a pile-up at 0830 under which there was a DX station, about the nearest Neil could get to his call sign was something vaguely like "T2VU" and a mention that the temperature wherever he was was up at 30 degrees C! A little later YK1AO popped up and after an useless CQ JA call changed his tactic to calling them by call numbers. Thus the Melville log received 27 JA calls in 27 minutes, four of them new ones!

Simon Burgess (Stockport) adds 27 new ones to his list. One of them of considerable interest was G3RKC/W1 an old friend of mine from years ago.

D. McGlone (Limerick) has been putting up antennas at the work QTH, and listening on 28MHz, without, alas, any success. Really, at this stage in the sunspot cycle, the only way to success on 28MHz is to check the band quickly at the start and end of every operating session, before shifting to another band. It is also a

good thing to take a peek at 28MHz at "odd" times, in the hopes of picking up on an opening of some sort. Stick at it, Dave!

Next we have a new entrant in **R. E. Webb** (Ashford, Kent). Rod wonders whether stations he logged back in 1985 can be entered. Of course, just as soon as one has an entry to the All Time Ladder. The whole idea of the Annual Table is to give everyone making a start a chance to compete on equal terms while they "get the hang of" the game. Also, a 4X6 is genuine prefix. All the earlier calls were 4X4, then 4Z4, and more recently as these have been filled, calls in the 4X6 have been appearing. Rod uses a Lowe SRX30, fed from an inverted-V dipole, by way of an a.t.u.

On the subject of Ws, it must be recalled that they do not nowadays take on a new callsign if they change call area. Thus a W4 may, for example, move to California and continue using his existing call. However, if he is out on a /P trip in a different call area, he will sign with his W4 callsign suffixed by the call area in which the station is located: thus, for example W4WFL/6. To make it even clearer he may sign W4WFL/P6.

Now to **Peter Barnes** (Blackpool) who says he is getting better at winking them out on c.w. and comments on how a good healthy pile-up can make the receiver sound quite ill. Just imagine then what it was like before s.s.b.

Now to **Basil Woodcock** (Leeds LS17) who has some hard things to say about the way Jim Smith seemed to be neglecting Europe from his Baker/Howland Is DX-pedition. One must admit to some feeling of surprise at the way they chose to look for Europe at times when there was no propagation

and look for, say, Ws when the band was open to Europe.

Next we turn to **Ron Shilvoek** (Halesowen) who offers, among others, UP4A in a recent contest as his first ever prefix entered as a result of listening on this band.

Ted Robinson (Felixstowe) mentions hearing a very self-possessed YL operator, UZ3AZO, in Moscow showing the older hands just how good operating SHOULD be done; all the more surprising to hear Kate volunteer the information that she was just twelve years old!

Now we go north, to visit Bill Prior at Lochcarron. Bill sticks to his RTTY activity, when he isn't re-erecting antennas that have been knocked over by the breezes. Pick of the crop, undoubtedly, for him this time was 9M2CO, though I would have rated the VE7 pretty highly too.

Problems!

Someone — he shall be nameless — asked me just what to do when the receiver goes "on the blink". I would talk first to members of the local radio club, or get hold of the distributor or dealer. The latter chaps are required by the makers to have the servicing facilities, but don't like it if you have done modifications, particularly if they aren't well carried out. Perhaps this is the best reason for insurance of your rig; Amateur Radio Maintenance Service, in effect take your money each year, and pay the bill whatever it is when your rig had to "go to the doctor".

If the annual premium or the repair bill seems a bit steep, bear in mind that this is a rather complex lump of electronics, and must be up to the maker's spec before return to you. The realignment alone (and it must be called up

All-Time Post War HPX Ladder

Name	Phone Only	Prefixes	Name	Prefixes
B. Hughes (Harvington)		3379	CW Only	
E. M. Gauci (Malta)		3312	H. Scott (Rievaulx)	1396
E. W. Robinson (Felixstowe)		2739	N. Melville (Edmonton)	1281
M. Ribton (Gillingham)		2181	P. J. Barnes (Blackpool)	589
M. Rodgers (Bolton)		1828	M. Rodgers (Bolton)	380
R. Shilvoek (Halesowen)		1718	C. R. Eve (Jersey, C.I.)	342
N. Henbrey (Northiam)		1710		
B. Patchett (Sheffield)		1366	RTTY Only	
B. E. Woodcock (Leeds 17)		1226		
C. R. Eve (Jersey)		1165	W. J. Prior (Lochcarron)	577
A. Woodcock (Denmark)		1027	A. P. Lincoln (Aldershot)	551
R. G. Williams (Borehamwood)		908	C. R. Eve (Jersey, C.I.)	500
A. P. Lincoln (Aldershot)		898	D. R. Tanswell (Iver)	360
S. Burgess (Stockport)		803	N. Henbrey (Northiam)	345
L. Marcquardt (Hereford)		645	M. Rodgers (Harwood)	270
D. R. Tanswell (Iver)		628		
R. Gawan (Preston)		569		
N. K. Yule (Bengeo)		546		
P. McAllen (Southampton)		528		

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. E. Webb (Ashford Kent)	498
D. McGlone (Limerick)	421
C. R. Eve (Jersey)	361
D. B. Glover (Newton-le-Willows)	276
S. Myers (Liverpool 9)	275
D. Gilbert (Farnham)	223
J. Mowat (Luton)	221

200 Prefixes to have been heard since January 1, 1988 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 1988

E. M. Gauci (Malta) 276

Rules as for the Annual Listing. An entry for this listing must be in addition to any claim for the All Time Post War listing.

SEEN & HEARD

every time a service job is done if the returned receiver is to be satisfactory) takes, say, a couple of hours, the dismantling and reassembly to replace the faulty component an hour, and the

actual fault-finding say another hour. That's at least four hours' work on top of shipping costs and the cost of the replacement parts. Several of your letters ask for copies of the HPX Rules, they are

now available for an s.a.e. to this address.

Finale

Thanks for all the letters. Of

course, the more the merrier; and it's your comments and chuckles that make the column; if everyone just sent in an HPX Listing and no comments the column would soon die.

The next three deadlines are
June 21, July 19 and August 16.

DECODE

Mike Richards G4WNC

200 Christchurch Road, Ringwood, Hants BH24 3AS

Amateur Round-up

Subsequent to the BARTG Spring h.f. RTTY Contest I have received several interesting reports. The first is from **John Barber G4SKA** who is a very experienced contest operator. John managed to work some very good DX with the following being a sample of some of the best: TI2PI (Costa Rica), PT2BW (Brazil), 3C1MB (Malako Bioko Is. Equatorial Guinea).

John also reports hearing one particularly unusual call namely A15AC. Neither myself nor John knew the location for this call. Fortunately **Andy McClelland G0DKN/PA3EVB** wrote to me with all the details. Apparently A15 is the call for the Middle East territory of Abu Ail. If you heard this call you can count yourself very lucky as the country was only activated for a short period by a DXpedition! The call A15AC was actually operated by DJ6JC. Other calls in use during the DXpedition were:

A15AA (DJ6SI using c.w.)
A15AB (DK8CM using s.s.b.)

My thanks to both John and Andy for the information.

Ian Baxter has also reported some quite good DX this month with his best catch being 9Q5DA (Zaire).

One that I caught which is not so much DX as rare was SU1FN (Egypt) on 14MHz RTTY.

VHF Reports

I don't as a rule get any reports on v.h.f. activity, so I was particularly pleased when I recently received a report for 50MHz, 144MHz and 432MHz. The only snag was that the originator identified himself simply as Gerry G.I. with no address!

I would very much like to hear from Gerry as the list included some very interesting amateur stations with a fair number of Auroral contacts. So if you're reading this please drop me a line.

Unusual Modes

I received a very interesting letter from **Dominique Kremp**, Coutances, France. Dominique uses a fully expanded Poly-Electronic Pocom AFR-2010 automatic decoder to receive a variety of data modes. Dominique's problem is quite simple in that he is having some difficulty finding transmissions using the more advanced modes.

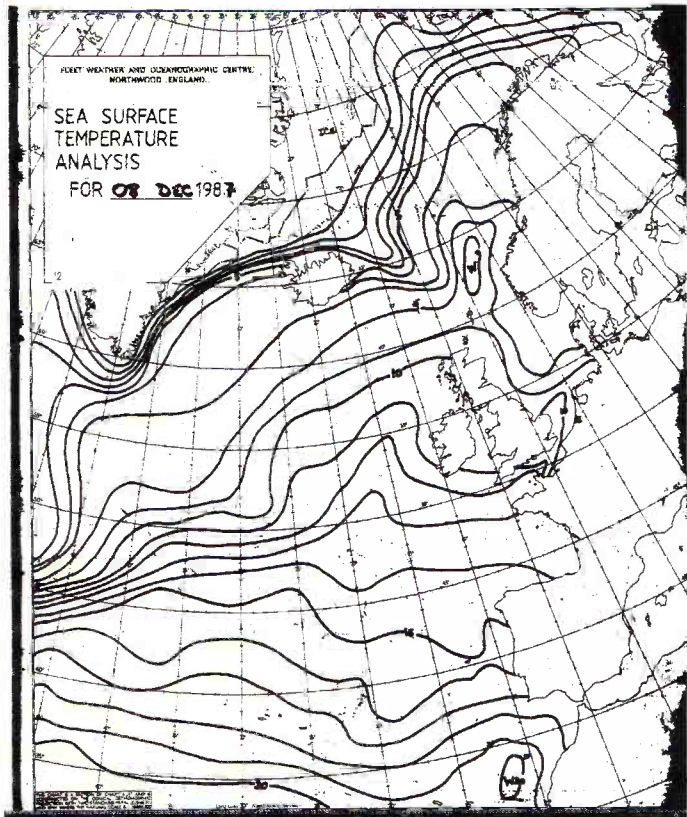
My own suggestion is to try some of the following frequencies:
8.096MHz TDM2 96 baud 425Hz shift.
10.754MHz TDM2 96 baud 425Hz shift.
11.434MHz TDM4 192 baud.
16.144MHz TDM2 96 baud 850Hz shift.

If you can identify these or perhaps know of some other frequencies and modes then please write and let me know.

Dominique would also like to correspond with other listeners who use the Pocom range of equipment. If you would like to contact him his address is: 18 Rue du Moulin de Haut, Lot. Ecluse-Chette, F-50200 Coutances, France.

Admiralty List of Radio Signals

I have received a plea for help from **E. Swan** of Eastbourne. After reading my comments about the *Admiralty List of Radio Signals* in the April issue, he has been having considerable trouble locating a supplier. Well, I obtained my copy from Kelvin Hughes at 19-23 Canute Road, Southampton SO1 1FJ. The price for *Volume Three* was £11 plus £2 handling. I found the company to be very helpful so I can personally recommend them. If you know of any other suppliers then I would be very pleased to hear from you.



Received at 1055UTC on 4.24776MHz, 120 lpm & 576IOC

Atari 800XL Computer

I have received two letters from listeners requesting information on how to use the Atari 800XL computer for RTTY. The listeners involved are **Joe Grima (Malta)** and **N. Ashby (Wembley)**. Unfortunately there appears to be no ready to run commercial software available to support RTTY.

On the bright side though **Pete Lewis G3EMF** informs me that Maplin Electronics supply a print-out of a RTTY program with their TU1000 terminal unit kit so it may be worth giving them a ring.

I have also noticed that Mike Bowthorpe G0CVZ has written an article in the BARTG magazine *Datacom* which lists all the published amateur software for the Atari 800XL. The issue concerned is Winter 1987 and I'm sure back issues will be available from BARTG.¹

BBC B User Groups

Bruce Marshall VK7MB (Australia) has contacted me requesting sources of public domain amateur software for the BBC B computer. Can anyone help? If so then please drop me a line and I will pass the details on to Bruce.

Readers' Stations

Jack Rosbotham Douglas I.O.M. uses the popular Pocom AFR-1000 for the automatic decoding of utility stations. The receivers in use comprise a Sony ICF-2001D and a Yaesu FRG-7700.

Jack asks if I publish a frequency list compiled from readers reports. As it happens I am rearranging my database into a form that could be used for publication but time is very much against me at the moment. If you would like to see such a list then

The next three dates
for your letters are:
June 21, July 19 and August 16.

SEEN & HEARD

please drop me a line.

Mr W. H. Licence of Batley uses a very simple station comprising a Microwave Modules MM-2001 decoder and a Yaesu FRG-8800 receiver. The MM-2001 decoder produces an output which can be directly connected to a standard television set. Unfortunately Mr Licence is having only limited success at the moment. My advice is to start with signals of a known format i.e. amateur RTTY on 14.080-14.100MHz. The majority of these signals use a speed of 45.45 bauds with a 170Hz shift which should be well within the capabilities of the MM-2001. Once you have gained experience tuning-in amateur signals you can then move on to commercial stations which use a similar speed and shift. If any other readers are using the MM-2001 decoder and can offer some operating tips, please let me know.

DX Tips

"The early bird catches the worm" is an appropriate saying for this month's tip! Being a bit of an early bird myself, I have been doing a spot of early morning

monitoring. My main aim was to try and catch some of the long path amateur DX on 14MHz. I've had a fair amount of success with both Australia and New Zealand logged. The signals were not too strong but quite readable. The best time appears to be between 0600 and 0800UTC at the moment but the phenomena is linked to the sun rise so this is the important element.

Although I was looking for amateur transmissions there is plenty of commercial DX to be had between 12MHz and 15MHz in the early hours.

According to a recent report from **Chris Kirby** the higher frequencies are starting to live-up with good activity between 18MHz and 20MHz.

If you have discovered any time or bands that appear to be particularly good, drop me a line and I will pass on the details.

RTTY Frequency List

Regular readers will recall that in the April issue I printed some unidentified signals in the frequency list. So far I have received information on only one of the frequencies. **Ian Baxter**

monitored the station on 3.318MHz for some time before finally receiving the letters EDZG. As the station sends coded weather reports, Ian thinks the station could be Berlin Templehof. Referring to the *Air and Meteor Code Manual* by Kligenfuss, I have found EDZG is the locational code for Oldenburg in the Federal Republic of Germany. This seems to be a military meteorological station but it is almost certainly not the transmitter site. Does anyone have any further suggestions?

I have received quite a good selection of RTTY reports this month and a few samples are printed here using the normal format of frequency/mode/speed/callsign:

2.716MHz SITOR A Frigg Oilfield traffic.
5.457MHz RTTY 50/R LZA BTA News Sophia.
5.702MHz RTTY 50/R ESCR Swedish Air Force.
7.972MHz RTTY 50/N XVH70 Ho Chi Minh City.
8.050MHz RTTY 50/R IRNA news.

8.210MHz RTTY 50/N Khafji Oilfield Saudi.
9.114MHz RTTY 50/N HGG31 Budapest news.
9.231MHz RTTY 50/N 9KT27 Kuwait news.
9.430MHz RTTY 50/N ZAT Tirana news.
12.212MHz RTTY 40/R YZ07 Tanjug news.

Your Views

I would be very grateful for some feedback on your views regarding the development of *Decode*. The column is at present limited to about one and a quarter pages, so it's a question of making best use of the available space. So here are a few questions for you.

What do you think of the present format? Would you like to see the frequency list expanded?

Do you want more or less readers' stations?

Do you want some tutorials?

All constructive comments will be very welcome.

(1) Pat & John Beedie, Ffynnonlas, Salem, Llandeilo, Wales SA19 7NP. Tel: 0558-822286.

INFO IN ORBIT

Pat Gowen G3IOR

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

What a Drag!

The now rapidly elevating solar flux has been giving severe attenuation to the weather satellites, with sudden dramatic short periods of "fade outs" during passes. **Bill Brennan G3CQE** of Crewkerne in Somerset reports that signals from all the orbiters were often deep in the noise on northerly parts of a pass during the late March and early April auroral conditions. This was partly due to dense ion production in the path, giving severe attenuation, and partly to magnetic pole ion noise. To compensate, signals are now being heard with satellites below horizon and antipodeal reception is likely to re-occur as sunspot numbers rise.

Dr. Patrick McIntosh, Director of Solar Physics at NOAA's Space Environment Laboratory at Boulder, Colorado, states that the peak of the cycle may occur as early as late 1988. He has based this on studies of the total sunspot and cluster number, the rate of increase of 3000MHz solar noise and the migration of loops of intense magnetic activity to the solar poles.

When solar flux escalates, the atmospheric expansion resultant acts as a brake to earth orbiting satellites and considerable

increases in the drag factor (orbit decay) occur that can bring the lower orbiting satellites down. In studying the phenomena, solar observation satellites are essential, and the very points that are being studied may bring the main satellite tool itself to atmospheric burn-out if the present trend continues. Rumour has it that the USSR is carefully studying the currently non-manned SALYUT-7 to ensure that it can be de-orbited with safety should its orbit decay. Satellites such as UoSAT-1 (OSCAR-9) are jeopardised and an interesting project is raised for those who may wish to plot the orbital period against solar flux or sunspot numbers as its orbit decays. This study is already underway by **Peter Cleall G8AFN**, who has definite correlations to show the effect. We shall certainly find that our long term satellite predictions for the low earth orbiters will stray from accuracy, as we cannot predict the solar flux and hence the drag for weeks ahead.

Project Nordski Comm

The British polar expedition having its communications handled by Laurence Howell GM4DMA/VEB, has unfortunately had to terminate after 100km due to severe conditions giving

Fig. 1

CQ CQ CQ DE EXOKP EXOKP EXOKP
TO WHOM IT MAY CONCERN:
INFO TO ALL ARS. POLAR BASE STATION JOINT USSR-NORTH
POLE-CANADA SKI EXPEDITION EXOKP STARTED ITS WORK. THE
TARGET OF THE EXPEDITION IS TO CROSS THE ARCTIC OCEAN
ON FOOT, BY SKI, FROM THE COAST OF THE SOVIET UNION TO THAT
OF CANADA.
THE LENGTH OF THE ROUTE IS ABOUT 2000 KM. ALL THE NECESSARY
EQUIPMENT WILL BE CARRIED BY THE PARTICIPANTS OF THE EXPEDI-
TION IN THEIR RUCKSACKS.
THE GROUP CONSISTS OF 13 MEMBERS. 4 CANADIAN AND 9 SOVIET
PARTICIPANTS.
THE TREK STARTED ON MARCH 3, 1988 AND WILL TAKE 90-100 DAYS.
RADIO COMMUNICATION IS BY THE AMATEUR RADIO SYSTEM.
PORTABLE HF 10 WATT TRANCEIVER AND INVERTED-V ANTENNA ON
SKI POLES FOR MOVING GROUP AND NORMAL STATION EQUIPMENT
AT BASE SITES. ALSO SATELLITES RS10/11, UOSAT2 VOICE MODE
OPERATION AND SEARCH-AND-RESCUE SATELLITE SYSTEM KOSPAS-
SARSAT ARE USED.
EXOKP IS THE MAIN SOVIET BASE STATION LOCATED ON
SEVERNAYA ZEMLIA, ZONE 18, 7933N 9013E. IOTA RS42.
THIS EXPEDITION IN THE ARCTIC IS AN EXAMPLE OF PEACEFUL
COOPERATION OF TWO COUNTRIES AND WILL CONTRIBUTE TO THE
CAUSE OF PEACE AND MUTUAL APPROACHMENT OF THE PEOPLES.
A TEMPORARY THIRD PARTY AND RECIPROCAL OPERATING AGREEMENT
HAS BEEN SIGNED BETWEEN USSR AND CANADA, EXPIRING AT THE
CONCLUSION OF THE EXPEDITION. THIS HISTORIC DOCUMENT IS
ALREADY IN USE: DURING THE TRAINING MISSION IN THE
CANADIAN NORTH IN NOV-DEC 1987, THE USSR AMATEURS WERE
WORKING UNDER UA3CR/VEB, RM3DR/VEB, UA3AOC/VEB AND UA3AJH/VEB.
DURING THEIR STAY IN MOSCOW, THE CANADIANS USED VE3CDH/UA3
AND VE3CDX/UA3. VOISA/UA3 IS NOW SIGNING /UO FROM SHREDNIY
ISLAND. THE SUPPORT STATIONS PLAN TO MAKE MANY QSO'S DURING
THE EXPEDITION. QSL FOR EXOKP AND EXOCR VIA P.O. BOX 82, 10100 MOSCOW.
NOTE: AN ACCOUNT IS OPENED IN VNESHNECONOMBANK USSR MOSCOW,
"POLAR BRIDGE". ANY CONTRIBUTIONS APPRECIATED.
73 DE EXOKP AND EXOCR.

frostbitten toes to the leader. The melting ice caps, brought about by the man-made "greenhouse effect", methane and carbon dioxide atmospheric elevations, CFCs and earth warming by lack of energy conservation has given conditions never before experienced. Large areas of open water exist, high ice walls at junctioning floes, and temperatures varying from -17 to -47°C.

Despite these problems, the joint Canadian-Russian amateur radio based expedition press on

and are already beyond 86 degrees north. They have passed 500km and are all in good spirits, Fig. 1 is the text of a packet radio message from Leonid Labutin UA3CR as EXOCR to GO/PA3BHF at the University of Surrey, which was placed on the UoSAT-2/OSCAR-11 bulletin board. The updated position, relayed from

The deadlines are
June 21, July 19
and August 16

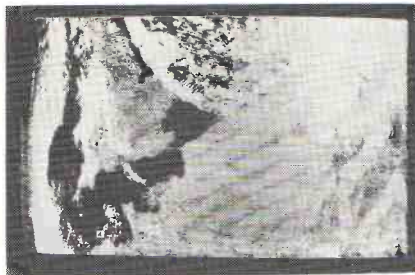


Fig. 2

EXOCR via G3IOR to GO/PA3BHF is now on the Digitaler daily, and is being followed by thousands of students around the world.

Help Line

In last month's column **Howard Barnes** of Wivenhoe showed us his satellite station and gave us some good tips. One of his pictures from MET-30 showed Denmark, north-west Germany and Holland exhibiting a characteristic distortion from the raw unprocessed radiometer image. It made it appear that the frame was merged by two observation cameras on the satellite back to back, each looking at opposite horizons.

A further example is given by Fig. 2, a photograph of the English Channel, with the dark patch in East Anglia showing the Brecklands and Thetford Forest, but with a worrying ninety degree "bend" running from north to south across central England. If one believes in the adage that, "the camera cannot lie", then knowing that the camera is singular, one might be led to believe that Britain had finally been annexed from across the Atlantic, or that a major geological catastrophe had struck.

The explanation of the strange effect comes from Howard. "The problem with the line display is radio interference from the microprocessor, which leaks from any exposed ribbon cable, and gets into the receiver via the antenna, probably picked up by the braid". These semi-synchronised pulses that do the

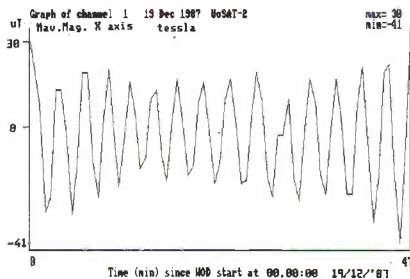


Fig. 3

damage to the pictures are similar to the problems given by the r.f. generated by ones computer when attempting to run the receiver in close proximity to the computer for generated RTTY and SSTV, etc.

The only answer is to completely screen the computer or microprocessor in a metal box, or to line it out with bonded grounded aluminium foil (alternatively, spray the interior of the housing with one of the available conductive metallic sprays being very careful to avoid the housed components). This will cure the direct radiation, which will be a waste if power supply and inter-connection leads are carrying the interfering signals, so these must be filtered and screened also.

If, despite the attenuation provided, any problem still remains, then it is likely that the down lead from the antenna is acting as part of the antenna capture. A good match to the antenna, using good quality coaxial cable is essential. Distancing and separating the antenna system is also important. Interference, external, adjacent channel and home-brewed is a major general problem, particularly on weathersats. I would be interested in hearing from other readers who have experienced problems from whatever source, and their ideas and input on how they deal with it.

Centre Ground Stations

Lawrence Harris writes in from Plymouth to tell us some of his

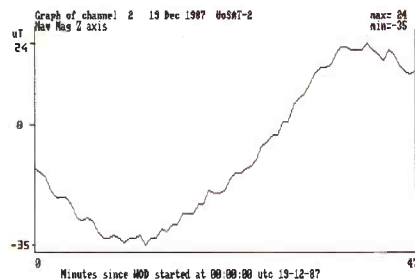


Fig. 4

findings on the satellite scene, firstly with the USSR Meteor weathersats. Lawrence says, "the latest talking point among the weather satellite enthusiasts is the new MET 2/17 which was launched on January 30. It is particularly interesting because they have gone back to their 'old' frequency of 137.300MHz, which has not been used for a very long time. The new satellite is in a north to south orbit, and the selection of frequency means that it will not interfere with any other Meteor weathersats". Lawrence was fortunate to pick the new signals up only two days after launch during a routine scan.

He further tells us that Meteor 2/14, on 137.850MHz, is currently in a south to north orbit each morning, whilst Meteor 2/15 is in a southbound orbit during the middle of the day. Meteor 2/16 is a morning southbound satellite. He points out that all the Meteor birds can be heard on the following day some 20 minutes later, e.g. if the pass commenced at 1000 one day, then it will be 1020 on the following day, until the sequence stops when the pass is below our western horizon, and a new one comes in from the east.

"Those using YU3DMV or similar frame stores will know that Meteor 2/14 has aperture troubles," says Lawrence, "resulting in a sudden opening of the lens aperture and consequent saturation of the white levels. This effect can be compensated for by using the modifications published in specialist magazines". Meteor 2/17 gave our correspondent

some spectacular views of Labrador and Baffin Island recently, as he is fortunate enough to have a superb western horizon from Plymouth, getting good pictures down to one degree of elevation.

He is finding that Meteor 1/30 on 137.010MHz continues to provide good land detail. For this one, set your receiver to look from 1030UTC and you will get it before 1258 on any day. Each successive day it will appear two minutes later than the previous, until 1258. During the dark winter days it is always travelling north to south, and it can be heard to switch on its carrier for a few seconds before the picture modulation commences as it comes out of eclipse over Norway.

Lawrence continues to observe the NOAA-9 and 10 APT on 137.620 and 137.500MHz respectively, as NOAA-9 passes northbound between 1300 and 1530, southbound 12 hours later, whilst NOAA-10 performs similarly but northbound 1700 to 2100, and southbound 0500 to 0930, and on continuously. He is also looking at the all-British UK-6 satellite on 136.560/137.560MHz, which can be heard for some five consecutive orbits each day due to its inclination. "This satellite brings many happy memories back to me", says Lawrence, "since I used to command it. I am considering the possibility of decoding the data again, but using my home computer instead of the PDP 8 system that I used some eight years ago!"

BAND II DX

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

"WHAT ARE THE ADVANTAGES OF VHF? There are three main ones, and they are important: (1) almost complete freedom from interference from foreign stations; (2) the reduction and in most cases complete elimination of interference from electrical appliances; and (3) greatly improved quality of reception which adds realism to all programmes and is a real boon

when listening to music."

I found this paragraph among my archives in a 4-page pull-out supplement to the *Radio Times* of 24 January 1958. The centre pages of this supplement are devoted to a map of the UK showing the areas covered by the BBC in those pioneering days of v.h.f. broadcasting. Transmitters for England were sited at Wrotham to serve London and the

South-East, Norwich and Sutton Coldfield for East-Anglia and the Midlands, Holme Moss and Pontop Pike for the North and North Hessary Tor, Rowridge and Wenvoe for the West. Stations intended mainly for Northern Ireland, Scotland and Wales were installed at Divis, Meldrum and Kirk O'Shotts and Blaen-Plwyf.

In those days Band II extended from 88 to 100MHz and the

stations previously mentioned transmitted the Light, Third and Home programmes (now BBC Radios 2, 3 and 4) on frequencies, which varied with area, between 88 and 90MHz, 90 and 92.3MHz and 92.7 to 94.5MHz respectively. Wireless collectors will see this scribed on the dials of Band II receivers and converters manufactured in the late 50s and early 60s.

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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.

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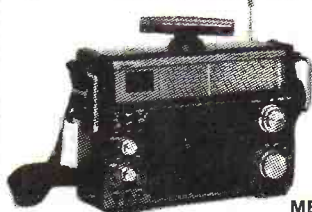
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Assembled PCB Module: £22.50.

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To add extra performance to the "front end" of the receiver, the CTU30 is the kit to choose. A high quality unit with air-spaced tuning capacitors, specially developed inductor design, broad band 4:1 balun, the CTU30 will optimise the transfer of signal energy from your antenna to the receiver by providing an impedance match. Long wire, coax or open wire fed antennas can all be used with this unit. It can also be used for transmitting on all bands from 160 to 10M at up to 30W RF (this indicates the performance level, most RX ATUs can't do this). The high-pass filter nature of the "T" match network helps eliminate many spurious response problems in the popular general coverage receivers (ie strong broadcast signals frequency doubling into the 20M band due to receiver overload). All components are PCB mounted in this novel design. It has been reviewed in most of the radio magazines, and we feel it really is the best choice in ATUs for HF reception. You could spend a lot more on a factory built item, and get less performance!

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73 from Dave G4KQH,
Technical Manager.



HELPING TO BUILD YOUR STATION

The past 30 years have seen set design change from the use of thermionic valves to a wide variety of semi-conductors, almost 100 per cent national coverage by the BBC's transmitter network, the creation of local radio stations by the BBC and the IBA (see current issues of *Radio Times* and *TV Times* for your area). This greatly increased the demand for frequency space and resulted in the extension of the band to 108MHz in recent years.

The introduction of stereophonic sound to v.h.f. broadcast receivers, including car-radios and portables, was another giant step forward and the "improved quality of reception" mentioned in the supplement has been maintained throughout.

This great advance in broadcasting technology is now extensively used around the world and although signals in the v.h.f. bands have a limited range, much careful planning by international bodies was required before stations could share the same frequency without interfering with each other.

However, it soon became known that under certain atmospheric conditions, v.h.f. signals can increase their range considerably and are often heard in neighbouring countries until the cause subsides.

These improved conditions, known as **openings**, are enjoyed by radio enthusiasts of all ages and the youngest contributor to date is 15-year-old **Neil Oakley**

(Whitstable). He uses a Vega Selena B210 receiver with an indoor telescopic antenna.

Don't forget to watch your household barometer Neil, or keep an eye on the television weather charts for changes in atmospheric pressure. When it is high, carefully tune from 88 to 108MHz and you should hear local radio stations from a greater distance, plus some continentals.

Ken Lancaster feeds his Band II equipment with antennas built by Datong and Sandpiper Communications, mounted on the roof of his home in Rotherham and is pleased with their performance, Fig. 1. Although antennas are a broad subject they are an important part of any wireless station. Ken now receives many stations at S9 that were only S2 before he changed to his present system. "I am now receiving Radios Manchester, Tees, Humberside and Stoke in stereo with only a slight hiss," said Ken, adding, "I've mentioned these as they were impossible before and if you saw my location you'd see why, as I am in a dip between two hills surrounded by trees and a lot more houses."

Portable DXing

On the subject of car radios, whenever **Simon Hamer** (New Radnor) takes his TV gear on a DXpedition to one of his favourite high spots in mid-Wales he also tunes through Band II and usually logs BBC Radios Cornwall and Devon and Ireland's TRE 1, 2 and 3.

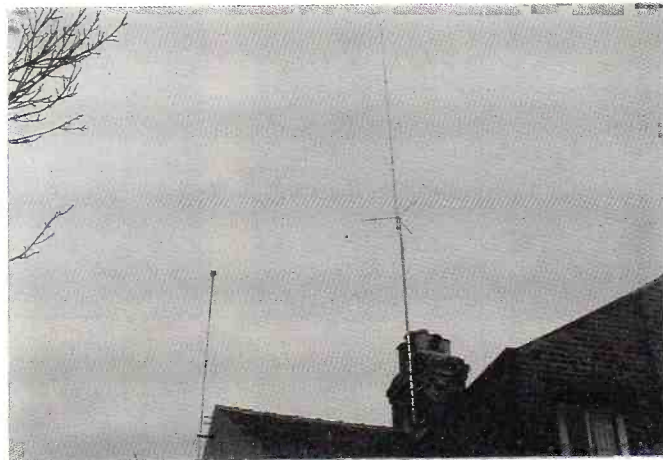


Fig. 1: The antennas mounted on the roof of Ken Lancaster's home.

The same goes for **George Garden** in Edinburgh who wrote, "With the very high pressure (30.5in), a lot of f.m. signals were received in Band II". In early April, George logged Radio Forth, on his Sharp car-radio while, on low ground, in the village of Fordoun and on the 4th, he drove to Cairn O' Mounth, a local high spot and at midday heard BBC Radio York and reported "very strong" signals from BBC Radios Cumbria and Newcastle.

Reports

In Gloucester, **Paul Paintin**, using a Philips D999 receiver and a 4-element antenna, logged French stations around 1800 on March 31 and April 1 at the high end of Band II. He tells me that his

local station, Severn Sound, now has a transmitter at Stroud on 103MHz in addition to its spot on 102.4MHz.

From my home in Sussex, I heard the news and adverts for the Northampton area from Chiltern Radio at 1000 on April 3 and several French stations, at good strength, around 0950 on the 4th.

During the Easter holiday at Laurencekirk, George Garden, using a Sony receiver and outside antenna, logged BBC Radio 4 from Sandale and Radio Tay from Dundee.

The deadlines are
June 21, July 19
and August 16.

TELEVISION

Ron Ham

Faraday, Greyfriars, Storrington, West Sussex RH20 4HE

A piece in the press, a love of football and a bit of television detective work and **David Glenday** from Arbroath enters the fascinating world of DXTV.

After reading a newspaper article about live English football matches being viewed on Sunday afternoons in Carnoustie and knowing that the Scottish IBA companies and BBC Scotland, do not cover these matches live, David decided that this was a case for TVDXing. David's home is only 10km north of Carnoustie and hoping to enjoy live soccer, took his first steps as a TVDXer.

During the afternoon of March 27, using a standard Philips colour set and a couple of horizontal rooftop antennas facing the transmitters at Angus and Craigkelly, he found two new stations. Neither came from Grampian or STV as both displayed different commercials," said David. He suspected that the first was Tyne Tees, but it faded before he could determine its channel number.

"The second was on channel 23 and later that evening, prior to *News at Ten*, the Border Television logo appeared," explained David. He realised that this signal was coming from a vertically polarised 2kw relay station at Eyemouth, some 80km away. He also logged signals from the BBC 1 transmitter at Chatton on Ch. 39. He remarked, "It was easy to tell this was not from a local source as the programmes were different and the BBC-1 Globe appeared on Ch. 39 while on BBC-1 Scotland, a different caption was shown."

Conditions were even better up to around 2000 on the 27th, when he received good colour pictures from BBC-1 and 2, CH4 and Border TV from Eyemouth and the BBC, CH4 and Tyne Tees TV from Chatton. The bottom line is that David now plans to look deeper into the south by trying a variety of antennas and I will be pleased to report further about his experiments.

Band I

"Conditions were useless", remarked **Simon Hamer** (New Radnor), in his report for the month prior to April 10. However, either by meteor scatter or short bursts of Sporadic-E, he caught glimpses of test cards from Sweden (SVT), Czechoslovakia (RS-KH) and Poland (TVP) on March 20, 21 and 23 respectively. He saw a subtitled film from Norway (NRK) on April 10.

Pictures from Scandinavia are often seen in the UK during the main Sporadic-E season as **Noel Smythe** (Caerphilly) found last year when among his catches from Norway were the test cards scribed Gulen (Fig. 1) and NRK (Fig. 2).

After their first Sporadic-E season, TV enthusiasts should have logged pictures from Finland, Spain and the USSR. To prove this point, veteran DXer **Bob Brooks** (Great Sutton) sent Figs. 3, 4 and 5 which are typical examples from his photographic archives.

Between March 13 and April 7, **Edwina and Tony Mancini** (Belper) identified bursts of test cards from Czechoslovakia (CST RS-KH), Denmark (DR), Finland (YLE-TV1), Holland (PTT NED 1), Norway (Norg-NRK) and the regionals Bremanger and Konsberg, Spain (TVE-1) and Sweden (SVT Kanal-1). It is interesting to note that apart from the signal from Czechoslovakia on Ch. R1 (49.75MHz) on March 28, the rest were at the higher end of the band on Chs. E3, R2 and E4 which, in frequency terms, means 55.25MHz, 59.25MHz and 62.25MHz respectively.

In Bedford, **John Raleigh** also received pictures at the top end from Belgium and Holland on 6 and 16 days respectively during the month prior to April 13 with best results coming from Holland around 2330 on April 12.

Tropospheric

In India, at 0700 on December 11, Lt. Col. **Rana Roy** (Meerut)

SEEN & HEARD

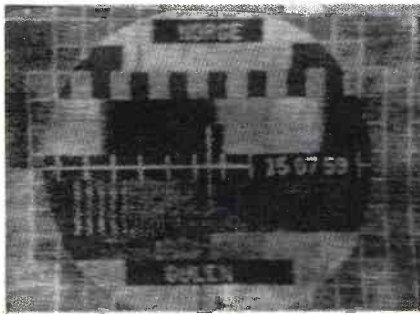


Fig. 1: Norway

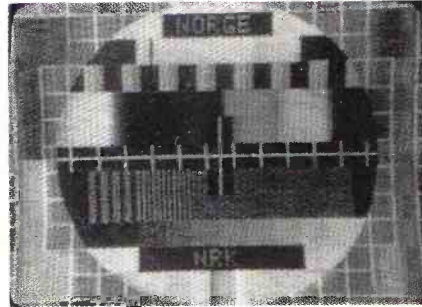


Fig. 2: Norway

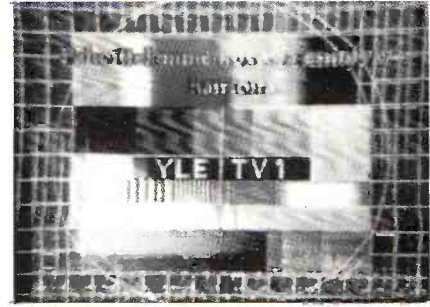


Fig. 3: Finland



Fig. 4: Spain



Fig. 5: USSR



Fig. 6: Scotland



Fig. 7: Bathinda



Fig. 8: Bathinda

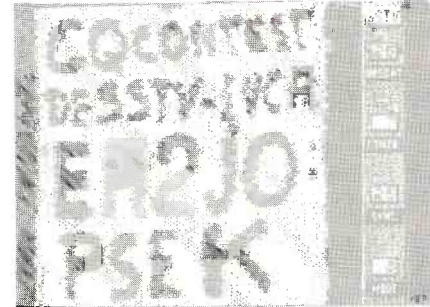


Fig. 9: Czechoslovakia SSTV



Fig. 10: Spain SSTV



Fig. 11: Poland SSTV



Fig. 12: Sweden SSTV

received a very clear test card from the low power transmitter at Bathinda on Ch. 12, followed by breakfast TV at 0730, Rana used his camera to record Fig. 7. During an excellent tropo-opening early on the 22nd, Rana logged breakfast TV from the transmitters in Agra and Jalandhar on Ch. 9, Amritsar on Ch. 7, Bathinda on Ch. 12, and Kasauli on Ch. 6.

With a slight tropo-opening in progress on April 4, Simon Hamer received pictures in Band III from Belgium (BRT-1 and RTBF-1), France (TDF), Holland (PTT NED-1) and Ireland (RTE-1 and 2) and in the UHF band from France and Ireland.

Although sometimes spasmodic, the Mancinis logged Band III signals, from France (Canal +)

on 14 of the 25 days between March 13 and April 7 and, mainly test cards from Ireland's RTE-1 and 2 on March 14, 16, 17, 18, 23, 28 and RTE-1 on April 2 and 7.

"The 24-hour TV from a few ITV regions when the other channels are closed down makes the airways open for us as a DXers paradise with possibilities not available before," wrote **George Garden** from Edinburgh. It only needs a hint of a lift for George to take his gear to Cairn O'Mounth and see what extra signals are about on the u.h.f. band. On April 4 he logged strong colour pictures from the BBC at Darvel in Ayrshire. In the small hours of the 5th, at his QTH in Laurencekirk with a 48-element indoor antenna, he received a good Scottish TV signal

from Black Hill and, at 0150, logged pictures from the transmitter at Craigkelly. Later, around 0900, he was still receiving pictures from the BBC at Black Hill, Fig. 6.

John Raleigh, kept a regular watch, around 1200, on Band III and logged pictures from France (Canal +) on Chs. L5 and 9 on 11 days a Belgium (RTBF-1) on Ch. E8 on 16 days between March 17 and April 13 and BRT on Ch. E10 on March 17, 18, 19, 20 and 21 and April 3.

Amateur Television (fast scan)

On March 12 and 13, the newly formed **Sevenside Television Group** (formerly Bristol FM TV Group) entered the Spring Vision

contest using Paul Green's very distinctive call sign G7ATV/P. This was their first entry as a group chalking up 26 contacts on 432MHz and 10 on 1296MHz from their location some 203m a.s.l. Their best DX was 234km and 58km respectively.

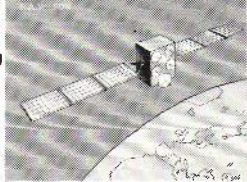
"As a Group we will be pooling our resources to enter TV contests and promote TV activity on all available bands. Our members with camcorders will be out filming, to produce some good quality programming for transmission on the bands," wrote Group Secretary **Shaun O'Sullivan G8VPG**. Members of this group are responsible for the 1296MHz f.m. TV repeater (GB3ZZ) which has regular viewers for some distance either side of the River

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SEEN & HEARD

Severn. "Our recent increase in power output to the full legal limit has brought high quality colour f.m. TV signals to an even wider area," said Paul. He reports that the best recorded DX for the repeater, under lift conditions, is High Wycombe. If any of you know different, do let Paul know because this is important for their records and future planning.

SSTV

With increasing numbers of sunspots there should be more activity and DX on the 14, 21 and 28MHz bands, which is good news for the slow-scan television

enthusiasts. Any reader with a good communications receiver, one of the popular computers, appropriate software and a vision monitor, (see our advertisers) can receive slow-scan pictures on the dedicated spots within the h.f. amateur bands.

One of the popular areas is around 14.230MHz and between 1800 and 1900 on April 9, **Leslie Sargent** (Runcorn) received contest pictures, from Czechoslovakia Fig. 9, Hungary, Spain Fig. 10, Sweden and Yugoslavia. Leslie's Yaesu FRG-7700 receiver is fed by an inverted "V" antenna coupled to a FRA-7700 active

a.t.u. and his SSTV is decoded by a Sinclair Spectrum computer with G1FTU software and his hard-copy pictures, Figs. 9 and 10, are produced, from the computer by an Alphacom-32 printer.

A bit earlier on the same band, **Ray Gilchrist**, (Millom), using a

Sony ICF2001D and long wire antenna, logged SSTV signals from Poland, Fig. 11, Portugal and Sweden, Fig. 12. Ray's station also includes a Panasonic RF4900 receiver, a 3-element beam and he is awaiting SSTV software for his Commodore 64 computer.

The next three deadlines
for your letters are:
June 21, July 19
and August 16

LONG MEDIUM & SHORT

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

Long days and short nights may be ideal for those who enjoy the outdoor life, but dedicated long and medium wave DXers are unlikely to find them conducive to their hobby! The reception of the more distant signals on those bands depends upon sky wave paths which only become evident after dark when certain reflective regions of the ionosphere become exposed. The long hours of daylight therefore leave little time for DXing.

Although the arrival of the longest day in June will herald the start of shorter days and longer nights, it will be some time before DXers benefit from these changes. Meanwhile, this may be a good time to build a loop antenna in readiness for the next DX season!

Long Wave DX

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

Although Radio Monte Carlo did not comply with the second stage of the new l.w. band plan when it was implemented last February, their Roumoules transmitter has now been changed to 216kHz in accordance with the plan. While monitoring their broadcasts in Newcastle-upon-Tyne, **Glen Glen-Davison** noted good reception during daylight, but co-channel interference with Norway's Programme 1 from Oslo arises after dark, which makes reception poor.

Another 2kHz heterodyne has been spotted on this band by **Philip Rambaut** in Macclesfield. It seems that Morocco have not yet complied with the new plan, their transmission via Azilal on 209 is beating with DLF's broadcast via Munich, W. Germany on 207.

Reporting from Bristol, **Tim Shirley** finds the reception of BBC Droitwich on 198 very bad around midnight due to co-channel interference from Leningrad, USSR. Using a BlauPunkt Turin car radio

in London, **Phil Townsend** logged Kaliningrad, USSR for the first time during daylight.

Some DXers will be wondering if l.w. broadcasters welcome reception reports — the answer is yes. In fact, **Howard Newell** has just received QSL cards from Allouis (162); Saarlouis (183); Roumoules and Junglinster (234) to confirm his reception of their broadcasts in Great Missenden.

MW Transatlantic DX

From Tunbridge Wells, **Darran Taplin** says, "as you can see from my logs, I have at long last managed to pick up some stations on the other side of the Atlantic". He used an Eddystone 680X communications receiver with a 25m random wire antenna. He heard CJYQ in St. John's, NF 930 three times during the month, once at SINPO 24433 at 2347.

Despite the longer daylight hours just now, Tim Shirley found conditions to be quite good. He logged WYDE in Birmingham, AL on 850 around dawn. His latest report mentions WZAP Boston, VA 690 and WBIX Jacksonville Beach, FL 1010 which are only permitted to operate between local sunrise and local sunset — see chart. He has received a QSL letter from WZAP to confirm his reception of their broadcast at 2100, but his log entry of WBIX at 0330 may not be confirmed as this station should have been off the air well before then.

A QSL card from KHEY in El Paso, TX has confirmed their broadcast on 690. Tim also received a QSL from WTIK in New Orleans, LA on 690, they are celebrating 40 years of broadcasting this year and sent Fig. 1.

Listening in New Radnor, **Simon Hamer** picked up Greenlands Radio, Gopdthab, this is seldom mentioned by DXers. It could well be one to add to your DX list!

Following his reception in

Freq kHz	Station	Country	Power (kW)	DXer
153	Brasov	Romania	1200	C*,E
153	DLF Donebach	W. Germany	500	A,C,E,F
162	Allouis	France	2000	A,C,F,G*
171	Kaliningrad	USSR	1000	C,E*,F,G*
171	Medi 1-Nador	Morocco	1200	A,C*,E*,F
177	Oranienburg	E. Germany	750	A,C,E,G*
183	Saarlouis	W. Germany	2000	A,C,F
189	Motala	Sweden	300	C,E
188	BBC Droitwich	UK	400	A,C,E,F,G*
198	Leningrad	USSR	150	E*
207	DLF Munich	W. Germany	500	C
209	Azilal	Morocco	800	D
216	Oslo	Norway	200	C*,E,G*
216	Roumoules	Monaco	1400	A,B,C,D,F,G*
225	Konstantinow	Poland	2000	A*,C,G*
234	Junglinster	Luxembourg	2000	A,C,F
245	Kalundborg	Denmark	300	A*,C,F
254	Tipaza	Algeria	1500	A*,C,F,G*
254	Lahti	Finland	200	C
263	Burg	E. Germany	200	C,F
263	Moscow	USSR	2000	E*
272	Topolna	Czechoslovakia	1500	A*,C,F,G*

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

DXers:

- (A) Ian Baxter, Blackburn
- (B) G. Glen-Davison, Newcastle-upon-Tyne.
- (C) Howard Newell, Great Missenden.
- (D) Philip Rambaut, Macclesfield.
- (E) Tim Shirley, Bristol.
- (F) Phil Townsend, London.
- (G) N. Wheatley, Newcastle-on-Tyne.

Grimsby of a programme about Grimsby, Ontario broadcast by CKOC in Hamilton on 1150, **Jim Willett** has now received a QSL card and tourist information about Grimsby from CKOC along with a request for postcards of Grimsby UK!

Other MW DX

Listening in Sunderland, **Leo Barr** picked up Beograd, Yugoslavia 684 (2000kW) at 2043, weak but little fading or noise was present. Positively identifying the broadcasts from Rome, Italy on 846 (540kW) proved difficult as severe fading occurred every 8 to 10 seconds, but he finally logged them at 2020. Leo also heard Vatican Radio, Rome 1530 (150/450kW) at 2156, but much noise and interference was present there too.

In contrast, the broadcasts from Milan, Italy 900 (600kW) seem to reach Edinburgh well after dark. **Robert Taylor** rated them as SIO 434. Other sky wave signals noted stemmed from Pori, Finland 963 (600kW); Hamburg, W.

Germany 972 (300kW); Kvitsoy, Norway 1314 (1200kW); Nancy, France 1350 (100kW); RBI Berlin, E. Germany 1359 (250/100kW); Manx Radio via Foxdale, Isle of Man 1368 (20kW) and Lille, France 1377 (300kW).

One other distant broadcaster was noted by **Sheila Hughes** in Morden, Radio Tirana, Albania. The signal from their 1000kW transmitter in Lushnje on 1395 rated as SINPO 32332 at 2130. Sheila now uses a m.w. loop with her Vega 206 portable and rated the religious broadcasts from Radio Monte-Carlo, Monaco 1467 (1000/400kW) as 44444 at 2230.

Using a Matsui MR4099 portable in Newhaven, **Martin Andrews** logged Radio Algiers, Algeria 981 (600/300kW). This broadcast is in parallel with their l.w. transmission on 254kHz via

SEEN & HEARD

Tipiza. Darran Taplin picked up their broadcast in Arabic on 891 (600/300kW) rated as 5444 at 1936. He heard Tunis, Tunisia (200kW) on 963, as 54544 at 1941.

Two broadcasts in Arabic were received by **John Nash** in Brighton via sky wave paths after dark. These stemmed from Ain Beida, Algeria 531 (300kW) and Sidi Bennour, Morocco 540 (600kW). John also heard three stations in Portugal, RRE via Muge 594 (100kW); Prog. 1 via Lisbon 666 (135kW) and Prog. 3 via Lisbon 1035 (120kW). A number of the lower power stations in Spain were noted, Madrid 657 (20kW); R. Savilla 792 (20kW); R. Barcelona 828 (20kW); R. Popular, Sevilla 837 (10kW); R. Intercontinental, Madrid 918 (20kW); R. Espana, Madrid 954 (20kW); R. Bilbao 990 (10kW); R. Popular, Madrid 999 (20kW); R. San Sebastian 1260 (10kW) and RCE Pamplona 1503 (2kW), also heard on 1584 (2kW).

A basket-ball commentary by the American Forces Network (AFN) via Frankfurt, W. Germany 873 (150kW) attracted **Cyril Kellam** in Sheffield at 2200.

AFN broadcasts also reach the Shetland Islands at night. Using a Trio 9R59D receiver with an MFJ 901B a.t.u. and a random wire antenna in Baltasound, **Paul**

Donovan logged them as SIO 344 at 2250.

Howard Newell noted many W. German signals after dark, they were DLF Beyreuth 549 (200kW); Hessischer RF, Frankfurt 594 (400kW); DLF Braunschweig 756 (800/200kW); Bayerischer RF, Munich 801 (402kW); R. Bremen 936 (100kW); AFN Munich 1107 (40kW); VOA via Munich 1197 (300kW); DLF Neuminster 1269 (600kW); DFL Mainflingen 1539 (700kW) and Westdeutscher RF, Langenberg 1593 (400/800kW). He also heard Radio Berlin International, E. Germany 1359 (250/100kW).

Some daylight ground wave signals were noted in the reports. Using an HMV valve receiver with a 30m random wire antenna in Portsmouth around noon, **John Stringer** logged Flevoland, Holland 747 (400kW); RTE-2 via Cork, S. Ireland 1278 (10kW); BBC Radio Ulster, via Lisnagarvey, N. Ireland 1341 (100kW) and Marnach, Luxembourg 1440 (1200kW).

In Wootton, Isle of Wight, **George Millmore** heard Les Trembles, Algeria 549 (600kW) at 1700. At times he can hear BBC Radio Scotland during daylight, their transmitters at Westerglen (100kW), Burghhead (100kW) and Redmoss (5kW) all operate on 810. From time to time he can

Freq MHz	Station	Location	Time (UTC)	DXer
690	WTIX	USA	0230	C
850	WYDE	New Orleans, LA	0630	C
1010	WBIX	Birmingham, ALA	0330	C
1010	WINS	Jacksonville Bch FL	0214	C,D
1020	KDKA	Pittsburg, PA	0130	C
1030	WBZ	Boston, MA	0030	C
1050	WFAN	New York, NY	0106	D
590	VOCM	CANADA	0310	B,D
930	CJYQ	St John's, NF	2347	B,D
1570	Atlantic Beacon	C AMERICA & CARIBBEAN	0320	B
1610	Caribbean Beacon	Turks & Caicos IIs	0215	B
650	Greenlands R	OTHER AREAS	0130	A
720	Greenlands R	Godthab, Greenland	0130	A
		Simiutaq, Greenland		

DXers

- A Simon Hamer, New Radnor.
- B Howard Newell, Great Missenden.
- C Tim Shirley, Bristol.
- D Darran Taplin, Tunbridge Wells.

hear the broadcasts on 810 from SER in Spain during daylight, their 20kW transmitter in Madrid is some 800km from Wootton!

The broadcasts in Gaelic from Radio Na Gaeltachta in S. Ireland are seldom mentioned in the reports from DXers. Robert Taylor picked up their broadcast via Conamara (2kW) at 1316, but their signal was only SIO 222.

MW Local Radio DX

A Steepleton MBR7 portable was used by Leo Barr to compile his first list for the chart. He connects an attic mounted rectangular wire antenna 3 x 2.9m to his set via a length of TV coaxial cable. Although this antenna makes little difference to the stronger signals,

the previously un-noticed weak signals "spring to life"!

A visit to Chichester enabled **John Evans** to explore the local radio scene there with his Vega 206 portable — see chart. The majority of his log was compiled at his home in Shawforth using a Lowe SRX 30 receiver.

"My prime catches this month were Pennine Radio 1278, Radio Northampton 1107 and DevonAir Radio 666," writes Howard Newell. Sheila Hughes added several new ones to her list of DX, logging Radio Devon 990; Saxon Radio 1251; Red Dragon Radio 1305; GWR 1260 and Radio Stoke on Trent 1503 for the first time.

A Grundig Satellit 3400 portable was used by **Dale Rout** in Colchester to compile his first log for the chart. He says that from time to time the signals from some of the east coast local radio stations reach him well at night.

Short Wave DX

It is surprising that there is still no sign of any additional broadcast activity on the **25MHz (11m)** band, because the propagation conditions prevailing on the higher 28MHz (10m) amateur band indicate that good use could be made of 11m. The daily transmission to S. Africa by Radio Norway International continue on 25.730 (Norwegian, English, Spanish 1200-1345) and often reach their target at SINPO 55555 — just like a local station!

local radio chart

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

DXers:

- A: Leo Barr, Sunderland
- B: Alan Curry, Stockton-on-Tees
- C: John Evans, Shawforth
- D: Bill Eyre, Stockport
- E: Sheila Hughes, Morden
- F: G. Millmore, Wootton, IOW
- G: John Nash, Brighton
- H: Howard Newell, Great Missenden
- I: Dale Rout, Colchester
- J: Tim Shirley, Bristol
- K: John String, Portsmouth
- L: Darran Taplin, Tunbridge Wells
- M: Robert Taylor, Edinburgh
- X: John Evans, Chichester

Freq kHz	Station	ILR BBC	Power in kW	DXer
585	R. Solway	B	2.00	A,M*
603	Invicta Sound	I	0.10	F,H,K,L
630	R. Bedfordshire	B	0.30	F,H,K,L
630	R. Cornwall	B	2.00	J
657	R. Clwyd	B	2.00	C,F,H,L
666	DevonAir R.	I	0.34	F,H,L
666	R. York	B	0.50	A*,B,H,I,L,M
729	BBC Essex	B	0.10	F,H,L
756	R. Cumbria	B	1.00	A,C,M
756	R. Shropshire	B	1.00	C,H
765	BBC Essex	B	0.50	F,G*,H,L
774	R. Kent	B	0.70	F,K,L
774	R. Leeds	B	1.00	A,B,C
774	Severn Sound	I	0.14	H
792	Chiltern R.	I	0.27	F,H,K,L,M*
792	R. Foyle	B	1.00	M*
801	R. Devon	B	2.00	F,H,L
828	2CR	I	0.27	F,K
828	R. Aire	I	0.12	A,B,C
828	Chiltern R.	I	0.20	E,H,L
837	R. Cumbria	B	1.00	A,C,M*
837	R. Furness	B	1.00	M
837	R. Leicester	B	0.70	E,H,I,K,L
855	R. Devon	B	1.00	F,J
855	R. Norfolk	B	1.00	E,H,L
855	R. Lancashire	B	1.00	A,C
873	R. Norfolk	B	0.25	E,H,L
936	GWR	I	0.18	F,H,K,L
945	R. Trent	I	?	F,H,L
954	DevonAir R.	I	0.32	F,K
954	R. Wyvern	I	0.16	H,L
990	R. Aberdeen	B	1.00	A,M
990	R. Devon	B	1.00	E,F
990	Beacon R.	I	0.09	H
990	Hallam R.	I	0.25	C,I
999	Red Rose R.	I	0.80	B,C
999	R. Solent	B	1.00	E,F,H,J,L,X
1026	R. Cambridgeshire	B	0.50	E,H,L
1026	R. Jersey	B	1.00	F,K
1035	R. Kent	B	1.00	F,H,L
1035	Northsound R.	I	0.78	A
1035	R. Sheffield	B	1.00	C
1035	West Sound	I	0.32	M*
1107	R. Northampton	B	0.50	F,H,L
1116	R. Derby	B	0.50	C,H
1116	R. Guernsey	B	0.50	F,K,L
1152	LBC	I	2.50	F,H,L,X

Freq kHz	Station	ILR BBC	Power in kW	DXer
1152	Metro R.	I	1.80	A
1152	Picadilly R.	I	1.50	C
1161	R. Bedfordshire	B	0.08	H
1161	R. Sussex	B	1.00	F,H,L,X
1161	R. Tay	I	0.70	M
1161	Viking R.	I	0.35	C
1170	R. Orwell	I	0.28	G,H,L
1170	R. Tees	I	0.32	A
1170	Ocean Sound	I	0.12	F,H,X
1242	Invicta Sound	I	0.32	F,H,K
1251	Saxon R.	I	0.76	E,F,H,L,M*
1260	GWR	I	1.60	E,F,H,K
1260	Marcher Sound	I	0.64	H
1260	Leicester Sound	I	0.29	L
1260	R. York	B	0.50	C,J
1278	Pennine R.	I	0.43	C,F,H
1305	Red Dragon R.	I	0.20	E,F,H,K
1323	R. Bristol	B	1.00	F,H
1323	Southern Sound	I	0.50	E,F,H,I,K,L
1332	Hereward R.	I	0.60	F,H,L
1359	Essex R.	I	0.28	H,L
1359	Red Dragon R.	I	0.20	K
1359	R. Solent	B	0.25	F,K,X
1368	R. Sussex	B	0.50	F,H,I,K,L,X
1431	Essex R.	I	0.35	G,L
1431	Radio 210	I	0.14	E,F,G,H,K
1449	R. Cambridgeshire	B	0.15	F,H,L
1458	R. Devon	B	1.00	F
1458	R. London	B	5.00	D*,F,H,K,L,M*,X
1458	R. Newcastle	B	2.00	A
1458	R. Manchester	B	5.00	C
1458	Radio WM	B	5.00	J
1476	County Sound	I	0.50	F,H,K,L
1485	R. Sussex	B	1.00	F,H,K,L
1503	R. Stoke-on-Trent	B	0.50	E,F,H,L
1521	R. Mercury	I	0.64	F,H,K,L
1580	R. Essex	B	0.10	E,H,L
1580	R. Wyvern	I	0.52	F,H
1548	Capital R.	I	97.50	F,H,K,L
1548	R. Cleveland	B	1.00	A,I*
1557	Hereward R	I	?	L
1557	Northants 96	I	0.76	H
1557	Ocean Sound	I	0.50	F,H
1584	R. Nottingham	B	1.00	C,H
1584	R. Shropshire	B	0.30	H
1602	R. Kent	B	0.25	F,H,K,L



Fig. 1: QSL from WTIX sent to Tim Shirley

UK listeners are likely to get a false impression of the conditions prevailing on 11m because the reception of the broadcasts from Radio Norway is generally poor here. **Leslie Hollis** has been monitoring their signals in Grantham and rated them as SINPO 35533 at 1310.

Although there are daily variations in the conditions prevailing on the **21MHz (13m)** band, many potent signals reach the UK during the day. Some improvement in the level of jamming has been noted during recent weeks.

The broadcasts from radio Japan in Tokyo are relayed to Europe on 13m via Moyabi, Gabon. Their wide-ranging programmes are in English and Japanese. Their early morning transmission may be heard on 21.695 at 0700, but reception here is not always good at that time. The 32222 rating noted by **Alan Curry** in Stockton-on-Tees is typical. They also beam towards Europe via Gabon on 21.700 at 1500 and reception at that time is generally a good deal better, **Ken Whayman** noted their signal in Bexleyheath as 45444 at 1525.

UAE Radio Dubai broadcast direct to Europe on 21.605 from 0615 until 1400. Mainly in Arabic, there are some segments in English including news bulletins, local weather reports and an interesting cultural series. Their UK reception is generally good with very little fading or interference present. Using a Vega 206 portable with the built-in telescopic whip antenna, Sheila Hughes rated them as 44444 at 1030.

The direct broadcasts to Europe from Radio RSA in Johannesburg, S. Africa 21.590 attract the attention of many UK listeners. **Colin Godwin** rated their signal in Malvern as 43334 at 1400.

Some of the broadcasters in the USA beam their programmes towards Europe during the afternoon. WHRI in South Bend, Indiana 21.700 was logged by **Alf Gray** in Birmingham at 1625. WYFR was heard via Okeechobee, Florida on 21.615 by **Kenneth Buck** at 1745, he rated them in Edinburgh as SIO 454.

The better conditions has enabled DXers to log many broadcasts to areas other than Europe. Several were noted by Philip Rambaut, SRI via Schwarzenburg, Switzerland 21.695 (It., Eng., Ger., Fr. to S. Asia) rated as SIO 222 at 0950; Radio Sweden, Stockholm 21.690 (Sw., Fr., to Middle East) 211 at 1112; Radio Moscow, USSR 21.450 (World Service to E. Africa) 434 at 1520; RFI via Issoudun, France 21.685 (Fr. to E. Africa) 222 at 1527; VOA via Monrovia, Liberia 21.485 (Eng. to C. Africa) 211 at 1800; WYFR via Okeechobee, Florida 21.525

(Eng. to W. Africa) 222 at 1805; VOA via Dixon, California 21.560 (Sp. to S. America) 111 at 1805; also VOA via Bethany, Ohio 21.590 (Sp. to S. America) 111 at 1808.

Several more were noted by other DXers. Kenneth Buck heard REE via Noblejas, Spain 21.575 (Sp. to Middle East), noting SIO 243 in his log at 1030. Darran Taplin logged Radio Budapest, Hungary 21.525 (Hung., Eng. to Australia) SINPO 25534 at 1034; RBI via Nauen, GDR 21.540 (Hind., Eng. to S.E. Asia) 34443 at 1359; Radio DW Cologne 21.600 (Swa., Eng., Fr. to E. Africa) 34433 at 1500; also Radio Sweden via Varberg (s.s.b.) 21.555 (Sw. to Africa) 44444 at 1506. Howard Newell picked up WCSN in Boston at 1745 on 21.640 (Eng. to S. Africa) and rated their signal as 34433.

Many broadcasts on the **17MHz (16m)** band are beamed towards Europe during the day. In order to cater for the wide listening audience the programmes are often repeated in a variety of European languages.

In the broadcasts from Radio Pakistan, Islamabad on 17.660 the main language used is Urdu, although there are some items in English, especially when the cricket test matches take place in Pakistan! Their English news bulletins at 1100 have attracted **Edward Broadsmith's** attention in Worcester, they are read at dictation speed. UAE Radio Dubai 17.865 use Arabic as the main language, but there are some segments in English. Kenneth Buck is a regular listener to their news bulletins and weather reports in English, he rated their signal as SIO 344 at 1030.

A transmitter at Okeechobee, Florida is used by WYFR in Oakland California to beam their programmes in Spanish, Arabic, Italian and English to Europe on 17.845 from 1600 until 1945. Kenneth Buck rated their signal at 1935 as SIO 444. Using a Tatum TMR 7602 portable in Coventry, **John Chown** listened to radio RSA in Johannesburg, S. Africa 17.880, broadcasting in English to Europe at 1810. At 2134 he picked up Radio HCJB in Quito, Ecuador on 17.790, their programmes for European listeners are in Czech, German, Norwegian, French, English and Spanish. At 2145 he logged the Voice of Free China, Taiwan via Okeechobee, Florida 17.750 with programmes in Chinese, French and German for Europe.

Some early morning broadcasts to other areas were logged by DXers. FEBA Radio, Seychells 17.855 (Eng. to Middle East) rated as 35553 at 0650 by **David Edwardson** in Wallsend; Radio Australia via Carnarvon, W. Australia 17.715 (Eng. to E. Asia)

rated as 21322 at 0810 by Howard Newell; Radio Bucharest, Romania 17.790/17.805 (Eng. to Australia) both transmissions were rated as SIO 444 by **John Berridge** in Cardiff at 0645.

Afternoon DXers noted AWR via Moyabi, Gabon 17.890 (Eng. to W. Africa) rated as SINPO 22522 at 1215 by Leslie Hollis; Radio Cairo, Egypt 17.670 (Ara. to N. Africa) noted as 44444 at 1312 by Darran Taplin; WYFR via Okeechobee, Florida 17.612 (Sp. to S. America) logged at 1610 by Philip Rambaut as SIO 333; RTM Rabat, Morocco 17.595 (Ar. to Middle East) rated as 444 at 1600 by Robert Taylor. At 1625 John Nash picked up VOA via Monrovia, Liberia 17.870 (Eng. to C. Africa) at SINPO 43433 and VOA via Greenville, N. Carolina 17.785 (Eng. to W. Africa) at 35333.

Evening DXers logged KUSW Salt Lake City, Utah 17.715 (Eng. to NE America) heard at 1900 by Tim Shirley; Radio DW Cologne via Kigali, Rwanda 17.860 (Ger. to W. Africa) logged by **Colin Diffell** in Corsham at 1934; Radio Netherlands via Bonaire, Ned. Antilles 17.605 (Ar., Eng., Fr., Du. to W. Africa) noted by **John Sadler** in Bishops Stortford at 2000; RCI Montreal, Canada 17.820 (Eng., Fr. to Africa) rated as SIO 454 at 2100 by Kenneth Buck.

Although frequent changes in propagation take place in the **15Mhz (19m)** band, the reception from many areas has been good recently and a number of long distance paths have been open, including those from Australia and New Zealand. Using a Sony ICF 2001 portable in Gillingham, **Michael Anthony** picked up Radio Australia via Shepparton, S. E. Australia on 15.240 at 2300 noting their signal as 54454. Their transmissions on this frequency are beamed towards the S. Pacific area and S. E. Asia!

The broadcasts from Radio New Zealand, Wellington 15.150 attracted Cyril Kellam at 2045. Their transmission is intended for listeners in the S. Pacific area and extends from 1830 until 2115. Their broadcasts were logged several times during the month by

Kenneth Reece in Prenton. Although he heard their signal on one occasion at 2020 Ken found the best reception occurred between 1900 and 2000.

Many of the broadcasts on this band are intended for listeners in Europe. Some heard during the daytime were VOIRI Tehran, Iran 15.085 (Sp. Farsi) rated as SINPO 33222 at 0825 by Howard Newell; Radio Pakistan, Islamabad 15.605 (Urdu, Eng.) noted as 54545 at 1115 by Ken Whayman; Radio Bangladesh, Dhaka 15.525 (Eng.) logged by Sheila Hughes at 1230 as 33323 at 1230; UAE Radio Dubai 15.435 (Ar., Eng.) rated as 42223 at 1345 by Colin Godwin; Radio Kuwait, Kuwait 15.505 (Ar.) noted as SIO 433 at 1555 by Robert Taylor.

Many more were received during the evening, including RNB Brasilia, Brazil 15.265 (Eng., Ger.) rated as SINPO 22222 by Alan Curry at 1800; RTM Rabat, Morocco 15.335 (Ar.) logged by Colin Diffell at 1841; Radio Korea Seoul, S. Korea 15.575 (Port., Eng., Ger., Sp.) noted by Leslie Hollis as 44533 at 2030; WRNO New Orleans, USA 15.420 (Eng., Fr.) rated by **John Parry** in Northwich as SIO 343 at 2055; RCI via Sackville, E. Canada 15.325 (Fr., Eng., Russ.) notes as 45544 at 2110 by David Edwardson; Radio HCJB Quito, Ecuador 15.270 (Eng., Norw., Fr., Ger., Sp.) logged by Martin Andrews as SIO 433 at 2130; VOFC Taiwan via Okeechobee, Florida 15.440 (Chin., Ger., Fr., Eng.) rated as 34533 at 2200 by Leslie Hollis.

This band is the hub of listening activity for many DXers, consequently their reports detailed many of the broadcasts to several continents. Some of those heard during the daytime were the Voice of Israel, Jerusalem 15.640 (Eng., Fr. to Australia) noted by Philip Rambaut as SIO 444 at 1110; WYFR relayed via Taipei, Taiwan 15.055 (Eng. to S. Asia) rated as 44544 at 1405 by Ken Whayman; Radio Netherlands via Talata Volon, Madagascar 15.570 (Eng. to E. Africa) logged by Sheila Hughes as 44433 at 1630; BBC via Ascension Island

SEEN & HEARD

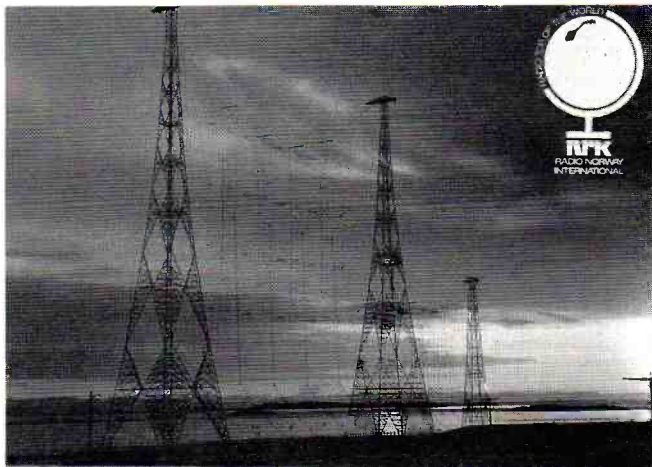


Fig. 2: QSL from Radio Norway sent to Robert Taylor

15.400 (Eng. to Africa) rated as 33333 at 1752 by Ian Curry in Stockton-on-Tees.

Many more were logged during the evening including Radio Sophia, Bulgaria 15.310 (Eng.,

Port., Fr. to Africa) heard by Colin Diffell at 1826; Africa No. 1, Gabon 15.475 (Fr., Eng. to W. Africa) logged by Martin Andrews at 1855; AIR via Bombay, W. India 15.360 (Eng. to

E. Africa) heard by John Sadler at 1900; Radio RSA Johannesburg, S. Africa 15.225 (Eng. to W. Africa) rated as SIO 444 at 1900 by Bob Isaacs in Peterborough; VOA via Greenville, N. Carolina 15.205 (Eng. to N. Africa) noted as SIO 555 at 1904 by Kenneth Buck; RCI via Sackville, E. Canada 15.260 (Eng., Fr. to W. Africa) heard at 1920 by John Chown; REE via Noblejas, Spain 15.375 (Eng., Fr. to Africa) rated as SIO 333 at 1921 by Julian Wood in Buckie; Radio DW via Antigua, W. Indies 15.105 (Port., Sp. to S. America) logged as SIO 444 at 2130 by John Parry; Radio Corp. Chile 15.140 (Sp. to S. America) and KGEI San Francisco, California 15.280 (Sp., Port. to S. America) both rated as SIO 111 by Philip Rambaut at 2325.

The 13MHz (22m) band has attracted another broadcaster, Radio Liberty. They have opted to use 13.690, which is one of the many frequencies adopted by

Radio Moscow. Their broadcasts in Russian from 0700 until 1400 have resulted in jamming being heard for the first time on this band.

There are a number of broadcasts to Europe during the day. Those noted in the reports stemmed from Radio Moscow, USSR 13.790 (Eng.) rated as 54444 at 1400 by Colin Godwin; WCSN Boston, USA 13.760 (Eng.) rated as SIO 444 at 1555 by John Parry; WHRI South Bend,

DXers

- (A) Ian Baxter, Blackburn.
- (B) Alan Curry, Stockton-on-Tees.
- (C) David Edwardson, Wallsend.
- (D) Simon Hamer, New Radnor.
- (E) Davy Hossack, Fremantle, W. Australia.
- (F) George Millmore, Wootton, IOW.
- (G) John Nash, Brighton.
- (H) Howard Newell, Great Missenden.
- (I) Fred Pallant, Storrington.
- (J) Christain Pritchard, Cambridge.
- (K) Ronald Proudfoot, Newcastle-upon-Tyne.
- (L) Philip Rambaut, Macclesfield.
- (M) Kenneth Reece, Prenton.
- (N) Tim Shirley, Bristol.
- (O) Darran Taplin, Tunbridge Wells.
- (P) Robert Taylor, Edinburgh.

Freq MHz	Station	Country	UTC	DXer
2.310	ABC Alice Springs	Australia	2215	D,N
2325	ABC Tennant Creek	Australia	2215	D
2340	R Itacoatiara	Brazil	2300	N
2390	R Huayacocotla	Mexico	0100	N
2470	R Cacique	Brazil	2230	N
2485	ABC Katherine	Australia	2215	D
3205	R Ribeirao	Brazil	2300	N
3210	R Mozambique	Mozambique	1818	A
3215	R San Salvador	Bolivia	0100	N
3215	R Orange	S Africa	0414	M
3222	R Togo, Lome	Togo	0630	N
3225	R Clube Lins	Brazil	????	N
3230	R ElSol Los Andes	Peru	????	N
3300	R Cultural	Guatemala	0445	K,M
3320	R Orion	S Africa	2319	O
3325	FRCN Lagos	Nigeria	0517	M
3330	R Kigali	Rwanda	0550	A,M
3365	GBC Radio 2	Ghana	2240	J,M
3395	R Zaracay	Ecuador	0300	K,M
3905	AIR Delhi	India	2320	H
3915	BBC Kranji	Singapore	2129	G,H
3930	R Capital	Transkei	2315	D
3955	BBC Daventry	England	2015	F,H,J,M,O,P
3965	RFI Paris	France	2010	B,F,H,J,M
3975	BBC Skelton	England	2030	F,H
3980	VOA Munich	W Germany	2359	O
3985	R Beijing, China	via SRI Berne	2205	H
3985	SRI Berne	Switzerland	1750	F,H,M,O
3990	PBS Xinjiang	China	0100	E
3995	DW Cologne	W Germany	1945	H,J
4005	R Difusora Grau	Peru	0230	N
4040	R Marginal, Tocache	Peru	0330	N
4050	R Frunze	USSR	0102	M
4060	R Moscow Kharkov	USSR	2000	F,G,H,J,M
4080	R Ulan Bator	Mongolia	2200	N
4190	R Uchiza	Peru	0300	N
4220	PBS Xinjiang	China	0117	C
4635	R Dushanbe Tadzhi	USSR	0108	M
4650	R Santa Ana	Bolivia	0022	A
4680	R NacEspejo	Ecuador	0345	K,M
4735	Xinjiang	China	2345	C,M
4740	R Afghanistan	via USSR	1925	F,H,I
4760	ELWA Monrovia	Liberia	0623	M
4760	R Afghanistan	via USSR	1900	J
4765	R Moscow	via Cuba	0529	M
4770	Ondas del Ulva	Honduras	0124	M
4770	FRCN Kaduna	Nigeria	2130	H,I,J,M
4770	R Mundial, Bolivar	Venezuela	0112	C,M
4780	R Super, Medellin	Columbia	2100	N
4780	V Carabobo	Venezuela	0019	A
4783	RTM Bamako	Mali	2135	G,H,M
4785	R Caiari, Pto Velho	Brazil	0100	N
4790	R Atlantida	Peru	0115	C,K,M
4795	R Douala	Cameroon	1855	I
4795	R Moscow	USSR	2250	J
4800	LNBS Lesotho	Maseru	1915	H,J
4805	R NacAmazonas	Brazil	0045	A,C,M
4810	R Yerevan	USSR	2020	A,H,I,J
4815	R diff TV Burkina	Ouagadougou	2139	G,H,I,M

Freq MHz	Station	Country	UTC	DXer
4820	R Botswana	Botswana	2010	H,I,K
4820	Khanty-Mansiyak	USSR	2357	M
4825	R Ashkhabad	USSR	2045	H
4830	Africa No 1	Gabon	2035	B,G,H,I,J,M,O
4832	R Reloj	Costa Rica	0605	M
4830	R Tachira	Venezuela	0330	C,K,M,O
4840	R Valera, Trujillo	Venezuela	0351	M
4845	R Nacional, Manaus	Brazil	0035	C,M
4845	ORTM Nouakchott	Mauritania	2050	H,I,M
4850	R Tashkent	USSR	0008	M
4850	R Yaounde	Cameroon	2130	A,B,I,L,M,O
4850	R Capital, Caracas	Venezuela	0606	M
4855	R Mauritius	Mauritius	1830	E
4860	Kalinin	USSR	2040	H
4870	R Cotonou	Benin	2130	A,G,H,I,L,M
4880	SABC Radio 5	S Africa	2104	G,H,I,J,M
4890	RFI Paris	via Gabon	0442	M
4890	ORTS Dhaka	Senegal	2130	H,I,L,M
4895	R Ashkabad	USSR	2125	H
4895	R Moscow, Kalinin	USSR	2137	B,L,M
4905	R Nat'N'djamena	Chad	2000	G,H,I
4910	Voz dMosquitia	Honduras	0215	K
4910	R Zambia, Lusaka	Zambia	1845	H
4915	R Ghana, Accra	Ghana	2130	H,I,M
4920	R Quito	Ecuador	0107	A
4930	R Moscow, Ashkhabad	USSR	2130	F,G,H,I
4930	SWABC Windhoek	SW Africa	0710	M
4930	R Moscow, Tbilisi	USSR	0451	M
4940	R Abidjan	Ivory Coast	0624	M
4940	R Kiev	USSR	2130	F,G,H,I,M
4945	Caracol, Neiva	Columbia	0541	M
4955	R Marajoara, Belem	Brazil	0129	A
4970	R Rumbos, Caracas	Venezuela	0140	M,O
4975	R Uganda, Kampala	Uganda	1928	F,H,I,M
4980	Ecos del Torbes	Venezuela	2305	H,M,O
4985	R Brazil Central	Brazil	0006	A,C
4990	AIR New Delhi	India	2359	O
4990	VOIRI Tehran	Iran	1735	F,H,O
4990	FRCN Lagos	Nigeria	2115	A,H,J,M,O
4990	R Yerevan	USSR	2000	I
5005	R Nacional, Bata	Eq Guinea	2124	A,H,I,M
5010	R Garoua	Cameroon	2124	G,H,I,M
5015	R Moscow Arkhangelsk	USSR	0420	M
5020	ORTN Niamey	Niger	2140	H,M
5025	RJI-Purana	Brazil	0016	C
5025	R Uganda, Kampala	Uganda	2045	I,M
5030	R impactu	Costa Rica	0315	K
5035	R Alma Ata	USSR	2000	M
5035	R Bangui	C Africa	2135	H,I
5040	Vos del Upano, Macas	Ecuador	0055	A
5040	R Tbilisi	USSR	0424	H,M
5045	R Cultura do Para	Brazil	0037	A,M
5045	R Togo, Lome	Togo	2045	H,I,M
5057	R Tirana Gjrokaster	Albania	2135	G,H,I,M
5065	R Candip, Bunia	Zaire	1905	A,I
5075	R Beijing	China	2205	G
5090	R Beijing	China	2125	H
5095	R Sutatenza, Bogota	Columbia	0049	M

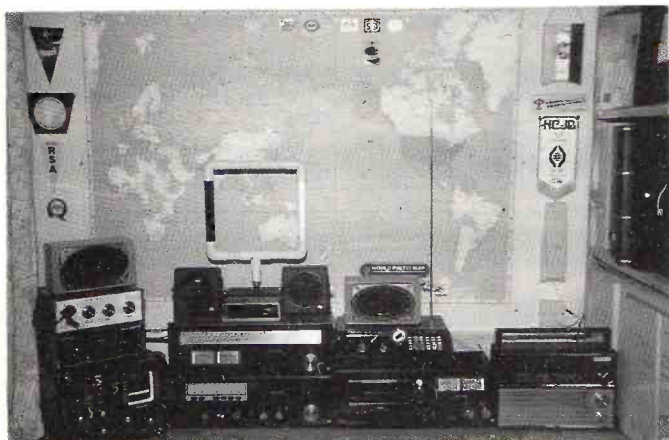


Fig. 3: The listening post of John Evans

USA 13.760 (Eng.) noted as SIO 343 at 2043 by Kenneth Buck; WRNO New Orleans, USA 13.760 (Eng. to Europe) rated as 45444 at 2100 by **Ronald Proudfoot** in Newcastle-upon-Tyne.

Three of the broadcasts to other areas were noted by Howard Newell, Radio Nederlands, Flevoland 13.770 (Eng. to S. Asia) rated as 23222 at 1430; Radio Prague, Czechoslovakia 13.715 (Eng., Cz. to S. Asia) 43444 at 1445 and Radio DW via Wertachtal, W. Germany 13.790 (Eng., Hausa to Africa) 24322 at 1800. Noted by other DXers were Radio Moscow, USSR 13.625 (Eng., Russ., Farsi, Ar. to Middle East) logged by Colin Diffell at 2014; WYFR via Okeechobee, Florida 13.695 (Fr., Eng. to E. USA) rated as SIO 343 by Kenneth Buck at 2040.

Good long distance reception has been noted on the **11MHz (25m)** band recently. The paths from Australia have frequently been open and during some nights the signals from Radio New

Zealand have reached the UK. A few of the broadcasts to Europe heard during the evening were Radio Kuwait, Kuwait 11.665 (Ar., Eng.) logged at 1900 by **Matthew Clarke** in Birmingham as SIO 444; WYFR via Okeechobee, Florida 11.905 (Eng.) noted as 433 at 2100 by Bob Isaacs; Radio Japan via Moyabi, Gabon 11.800 (Jap., Eng.) rated as 223 at 2300 by John Berridge.

DXers logs mentioned many broadcasts to other areas at night including RAE Buenos Aires, Argentina 11.710 (Eng., Sp. to N. America) rated as SINPO 22222 at 2200 by **Christian Pritchard** in Cambridge; Radio Australia via Shepparton 11.720 (Eng. to C. Pacific) logged by John Berridge as SIO 333 at 2300; Radio Globo, Brazil 11.805 (Port.) noted as 35543 at 0007 by David Edwardson; Radio Bandeirantes, Brazil 11.925 (Port.) rated as 34333 at 0146 by **Ian Baxter** in Blackburn; Radio New Zealand 11.780 (Eng. to Pacific) logged by Kenneth Reece as 22332 at 0421.

Some of the interesting broadcasts noted on the 9MHz (31m) band include Radio Australia via Shepparton 9.655 (Eng. to Europe) rated as SIO 434 at 0700 by **George Hewlett** in Torquay; also via Carnarvon 9.770 (Eng. to S.E. Asia) peaking 444 at 1000; TWR Guam, Pacific 9.820 (Jap., Chin. to E. Asia) logged by Philip Rambaut as 322 at 1240; RAI Rome, Italy 9.575 (Eng. to Europe) rated as 33323 at 1935 by Christian Pritchard; Radio Baghdad, Iraq 9.770 noted as 333 at 2000 by Phil Townsend; Radio Cairo, Egypt 9.900 heard at 2115 by Cyril Kellam.

Radio Japan via Moyabi, Gabon 9.570; Radio RSA Johannesburg, S. Africa 9.580; RHC Habana, Cuba 9.670 and many others were logged by **Arthur Bolton** in Birmingham using a home built two transistor s.w. receiver.

Despite the overcrowding, the **7MHz (41m)** band attracts many listeners. Their reports included RTBF Belgium 7.140 (Fr., Ger. to Europe) rated as SIO 434 at 1100 by John Evans; GDR 7.185 (Dan., Sw. to Europe) noted as 343 at 1655 by Paul Donovan; Radio Australia via Carnarvon 7.205 (Eng. to S. Asia) heard by **Jason Ingram** in Gainsbrough at 1740; Radio Beijing, China 7.800 (Chin., Fr. to Europe) logged at 1948 by John Nash as 45343; Voice of Turkey, Ankara 7.215 (Ger., Eng., Fr. to Europe) rated as 35432 at 2130 by Glen Glen-Davison; WRNO New Orleans, USA 7.355 (Eng., Fr. to N. America) heard by Martin Andrews at 0001 as 322; Radio Tirana, Albania 7.065 (Eng. to N. America) rated as 55554 by Christian Pritchard at 0330.

At his new home in Fremantle,

W. Australia **Davy Hossack** picked up Radio Luanda, Angola 7.245 (Port., Sp., Eng., Fr.) 434 at 2330; also FEBA Radio, Seychelles 7.275 (Tamil), Telugu to S. Asia) 444 at 0130.

The **6MHz (49m)** band is also congested and adjacent channel interference often spoils a wanted broadcast. Noted in the reports were Radio Polonia, Warsaw 6.135 (Eng., Fr., Ger., Pol. to Europe) rated as 222 by Julian Wood at 1722; Radio Bangladesh, Dhaka 6.240 (Eng., Beng. to Europe) logged by Ian Curry as 32333 at 1822; Radio Mediterran, Malta 6.110 (Fr., Eng. to N. Africa) noted as 322 at 2230 by Martin Andrews; AIR Srinagar, India 6.110 heard by Michael Anthony at 0130.

Using a Philips D 1835 portable with whip antenna in Molepolole, Botswana, **P. Guruprasad** logged the Voice of Zimbabwe 6.045 as 45444 at 1015; also AIR via Madras, India 6.115 as 44433 at 1540. At 1600 he picked up Radio Australia via Carnarvon 6.035 for the first time, rating signal as 43143. In contrast, **Stewart Russell** has found their signal to be generally poor in Forfar, Scotland.

Station Addresses

BBC Radio Cumbria, Hilltop Heights, London Road, Carlisle CA1 2NA.

ILR Leicester Sound, Granville House, Leicester LE1 7RW.

Faroe Islands Broadcasting Service, P.O. Box 128, Torshavn, Faroe Islands.

Trans World Radio, Box CC, Agana, 96910, Guam (US Pacific).

Voice of Kenya, P.O. Box 30456, Nairobi, Kenya.

Africa No. 1, Boite Postale 1, Libreville, Rep. Gabon.

LISTEN OUT FOR

GB75RPP: Trowbridge & District ARC will be operating this station between June 18-19 from North Townsend Farm, Melksham, Wilts using 144 and 430MHz. They are being sponsored to raise money for Rotary Polio Plus, a two-year worldwide programme to eliminate polio and five other children's diseases. Special QSL cards will be issued.

Ian GOGRI
Tel: (0380) 830383.

GB75MAL: This callsign will be used by the Scarborough Special Event Group on July 3 and 9 to celebrate the 50th Anniversary of the world record breaking 126mph run by steam locomotive *Mallard*. On these two days, the famous engine will run from London to Scarborough. Operation will be around 3.725, 7.055 and 144MHz. Special QSL cards will be available.

Roy Clayton G4SSH
QTHR

GB0SMC: This callsign will be run from St Mary's Church Hall, Barham, Ipswich on June 3/4. The station will be sponsored by local people for every call received in aid of church funds. They will be on the air from 9am to 6pm each day, but I'm not sure on which bands.

E.W. Stannard
17 Ely Road, Barham, Ipswich
Tel: (0473) 830147.

GB2ACO: Between July 2 and 8, this special event will be established at an International Girl Guide Camp at Aikerness, Evie, Orkney. Operation will be on h.f. s.s.b. using 3.5, 7, 14 and hopefully 21MHz primarily in the evening when the girls will be in the camp. There will be QSL cards available and the WAB is HY32. More details from:

Anne GM6WPA or Bill GM3IBU
QTHR.

GB0TAC: The Weston-s-Mare Radio Society will be operating special event stations on h.f., 144 and 430MHz at Brea, Somerset on the occasion of the laying of the new transatlantic fibre-optic cable from Brea to Manasquan, New Jersey, USA with a link to Bermuda. The station will be operating from 1400GMT on Wednesday 22 June to 1400GMT 23 June. Special QSL cards will be available.

G1DJW
QTHR

GB2WAD: The Weston-s-Mare Radio Society will be operating a special event station on July 27 & 28 from the Beach Lawns, Weston-s-Mare for the Great Weston Air Days an annual event in aid of local charities. On h.f., 144 and 430MHz from 1000 to 1800. Visitors are welcome.

G1DJW
QTHR

G2VF LOOP ANTENNAS COMPLETE WITH ATU FOR HIGH FREQUENCY HAMBAND TRANSMISSION (SWR One to One 40, 15 and 10 and One Point Five to One 80 and 20) AND SWLs AND LONG AND MEDIUM WAVE BANDS FOR BCLs. Loops 21 inches square or triangle. D.I.Y. projects. No special skills required. Circuits, Parts Lists with sources of supply and full assembly data. **HIGH FREQUENCY LOOP 80 to 10 Metres £5. LONG AND MEDIUM WAVE LOOP FOR BCLs £3. LONG WAVE MEDIUM WAVE AND SHORT WAVE LOOP 1500 to 10 METRES FOR THE BCL AND SWL £8. SHORT WAVE ATU FOR USE WITH LOOP OR LONG WIRE £4. FIELD STRENGTH METER £2. MORSE CODE PRACTICE UNIT £2. PHOTO COPY HRO MANUAL £4. SAE for details: F. G. Rylands, 39 Parkside Avenue, Millbrook, Southampton SO1 9AF. Tel: (0703) 775064.**

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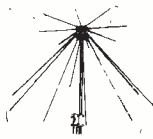
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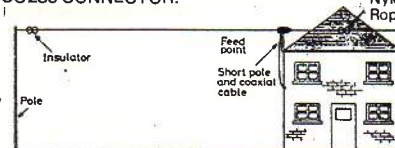


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**Loxe SRX30D
Communications Receiver**



- **COVERAGE:** 500–30MHz
- **MODES:** a.m., s.s.b. (u.s.b. & l.s.b.)
- **SENSITIVITY:** 10dB (S + N)/N for an input of 0.3μ on s.s.b. 1μV on a.m.
- **RESOLUTION:**
- **SELECTIVITY:** s.s.b./c.w. 8kHz and 4kHz at –6dB respectively
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:**
- **AUDIO OUTPUT:** speaker plus 60mV into 5kΩ for a recorder
- **IF STAGE:** 45MHz, 2–3MHz tunable, 455kHz
- **FEATURES:**
- **REVIEWED:** Practical Wireless April 1982
- **PRICE:** Available on the second-hand market

**Icom IC-R70
Communications Receiver**



- **COVERAGE:** 100kHz–30MHz
- **MODES:** a.m., f.m., s.s.b., RTTY, c.w.
- **SENSITIVITY:** Input for 10dB (S + N)/N, s.s.b./c.w./RTTY 1μV <1.6MHz 0.15μV >1.6MHz, a.m. 3μV <1.6MHz 0.5μV >1.6MHz, f.m. 0.3μV for 12dB SINAD >1.6MHz
- **RESOLUTION:** 10Hz, 100Hz & 1kHz
- **SELECTIVITY:** Width control at maximum, s.s.b./c.w./RTTY 2.3kHz at –6dB, 4.2kHz at –60dB; c.w. (N)/RTTY(N) 500Hz at –6dB, 1.5kHz at –60dB; a.m. 6kHz at –6dB, 18kHz at –60dB; f.m. 15kHz at –6dB, 25kHz at –60dB
- **IMAGE REJECTION:** Better than 79dB
- **IF REJECTION:** At 29.01MHz better than 76dB
- **SPURIOUS REJECTION:** More than 60dB
- **FREQUENCY STABILITY:**
- **AUDIO OUTPUT:** More than 2W in 8Ω
- **IF STAGE:** 70.451MHz, 9.0115MHz & 455kHz
- **FEATURES:** Optional f.m. modules, independent digital v.f.o.s
- **REVIEWED:** Practical Wireless April 1984
- **PRICE:** Available on second-hand market

**Kenwood R-2000
Communications Receiver**



- **COVERAGE:** 150kHz to 30MHz
- **MODES:** a.m., f.m., c.w., s.s.b. (u.s.b. & l.s.b.)
- **SENSITIVITY:** 150kHz to 2MHz s.s.b./c.w., <2μV; 2MHz to 30MHz a.m., <4μV
- **RESOLUTION:** 50Hz, 500Hz, 5kHz
- **SELECTIVITY:** a.m. wide 6kHz at –6dB, 18kHz at –50dB; s.s.b./c.w. 2.7kHz at –6dB, 5kHz at –50dB
- **IMAGE REJECTION:** >70dB
- **IF REJECTION:** >70dB
- **SPURIOUS REJECTION:** >60dB
- **FREQUENCY STABILITY:** ±300Hz for first hour, ±50Hz after
- **AUDIO OUTPUT:** 1.5W at 8Ω and 10% distortion
- **IF STAGE:** Triple conversion: 48.85MHz, 9.85MHz and 455kHz
- **FEATURES:** 50Hz step digital v.f.o., 10 memory freqs., memory scan, programmable band scan, lithium battery memory backup, fluorescent band digital display, dual 24hr quartz clocks, 3 built-in i.f. filters, all-mode squelch circuit, noise blanker, r.f. step attenuator, S-meter
- **REVIEWED:**
- **PRICE:** £595

**Trio R-1000
Communications Receiver**



- **COVERAGE:** 200kHz–30MHz
- **MODES:** a.m., s.s.b. (u.s.b. & l.s.b.), c.w.
- **SENSITIVITY:** Below 2MHz – 5μV s.s.b., 50μV a.m. Above 2MHz – 0.5μV s.s.b., 5μV a.m.
- **RESOLUTION:**
- **SELECTIVITY:** a.m. (wide); 12kHz at –6dB, 25kHz at –50dB. a.m. (narrow); 6kHz at –6dB, 18kHz at –50dB
- **IMAGE REJECTION:** Better than 60dB
- **IF REJECTION:** Better than 70dB
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** ±2kHz max from 1 to 60 minutes after switch-on, ±300Hz max in any subsequent 30 minutes
- **AUDIO OUTPUT:** 1.5W min into 8Ω for 10% distortion
- **IF STAGE:** 48.055MHz & 455kHz
- **FEATURES:**
- **REVIEWED:** Practical Wireless May 1980
- **PRICE:** Available on the second-hand market

**Yaesu FRG-8800
General Coverage Receiver**



- **COVERAGE:** 150kHz to 29.999MHz
- **MODES:** a.m., c.w., s.s.b. (u.s.b., l.s.b.), f.m. narrow
- **SENSITIVITY:** 150kHz to 1.6MHz a.m., 30μV/50Ω; 1.6 to 29.999MHz s.s.b., c.w., 0.4μV/50Ω
- **RESOLUTION:** 100Hz
- **SELECTIVITY:** a.m., 6kHz at –6dB, 15kHz at –50dB; s.s.b., c.w., 2.7kHz
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** ±300Hz during first ½hr, <50Hz during any 30min period after warm-up
- **AUDIO OUTPUT:** 1.4W at 8Ω and 10% distortion
- **IF STAGE:** 47.055MHz, 455kHz
- **FEATURES:** 8-bit c.p.u., keypad for digital freq. entry, 12 internal memories, multi-function scanner, noise blanking, dual 24hr clocks, all-mode squelch, tone and attenuation
- **REVIEWED:**
- **PRICE:** £639

**Icom IC-R7000
Communications Receiver**



- **COVERAGE:** 25 to 2000MHz continuous
- **MODES:** f.m. wide/f.m. narrow/a.m. upper/s.s.b. lower
- **SENSITIVITY:** f.m., <0.5μV for 12dB SINAD; f.m. narrow, <0.5μV for 12dB SINAD; f.m. wide, <1.0μV for 12dB SINAD; s.s.b., <0.3μV for 10dB SINAD; a.m., <1.0μV for 10dB SINAD
- **RESOLUTION:** 0.1, 1, 5, 10, 12.5 and 25kHz
- **SELECTIVITY:** f.m. narrow, 6kHz at –6dB; f.m./a.m., 15kHz at –6dB; f.m. wide, 150kHz at –6dB; s.s.b., 2.8kHz at –6dB
- **IMAGE REJECTION:** >60dB
- **IF REJECTION:** >60dB
- **SPURIOUS REJECTION:** >60dB
- **FREQUENCY STABILITY:** ±5 p.p.m. at 0°C to +50°C
- **AUDIO OUTPUT:** 2.5W at 8Ω at 10% distortion
- **IF STAGE:** Multiple i.f.s between 455kHz and 9MHz depending on mode
- **FEATURES:** dual-colour fluorescent display, dial lock, noise blanker, attenuator, display dimmer, S-meter
- **REVIEWED:**
- **PRICE:** about £960

**Yaesu FRG-7700
Communications Receiver**



- **COVERAGE:** 150kHz–30MHz
- **MODES:** a.m., f.m., s.s.b. (u.s.b. & l.s.b.)
- **SENSITIVITY:** Below 300kHz; 30μV a.m., 3μV s.s.b./c.w.; 300kHz–2MHz; 25μV a.m., 2μV s.s.b./c.w.; Above 2MHz; 5μV a.m., 0.5μV s.s.b./c.w., 1μV n.b.f.m. for 10dB S + N/N or better
- **RESOLUTION:** 1kHz
- **SELECTIVITY:** a.m. (wide); 12kHz at –6dB, 25kHz at –50dB; a.m. (medium); 6kHz at –6dB, 15kHz at –50dB; a.m. (narrow); 2.7kHz at –6dB, 8kHz at –50dB; s.s.b./c.w.; 2.7kHz at –6dB, 8kHz at –50dB; f.m.; 15kHz at –6dB, 30kHz at –40dB
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** less than ±1kHz 30 min, after 30 mins ±300Hz
- **AUDIO OUTPUT:** 1.5W into 8Ω for 10% distortion
- **IF STAGE:** 48.055MHz & 455kHz
- **FEATURES:** Clock, timer and sleep timer
- **REVIEWED:** Practical Wireless December 1980 & March 1981
- **PRICE:** £350

WHAT RECEIVER

What Receiver has been split into two sections. This part covers communications and general coverage receivers. The second section will deal with portable sets.

**Panasonic RFB600LB
Communications Receiver**



- **COVERAGE:** l.w.: 150–420kHz; m.w.: 520–1610kHz; s.w.: 1.611–29.9999MHz; f.m.: 87.5–108MHz
- **MODES:** a.m., f.m., s.s.b.
- **SENSITIVITY:** l.w.: S/N 6dB 70μV/m (at 280kHz), S/N 26dB 600μV/m (at 280kHz); m.w.: S/N 6dB 35μV/m (at 1000kHz), S/N 26dB 400μV/m (at 1000kHz); s.w.: 400Hz 30% mod 50mW S/N 6dB 1.2μV (50Ω) at 6MHz, S/N 26dB 10μV (50Ω) at 6MHz; f.m.: 2.5μV/75Ω (–3dB limit sens), 2.5μV/75Ω (S/N 26dB)
- **RESOLUTION:**
- **SELECTIVITY:** l.w. (wide): ±3.5kHz (–6dB), ±7kHz (–60dB), (narrow): ±1.5kHz (–6dB), ±4kHz (–60dB); m.w. (wide): ±3.5kHz (–6dB), ±7kHz (–60dB), (narrow): ±1.5kHz (–6dB), ±4kHz (–60dB); s.w. (wide): ±3.5kHz (–6dB), ±7kHz (–60dB), (narrow): ±1.5kHz (–6dB), ±4kHz (–60dB)
- **IMAGE REJECTION:** l.w.: 35dB; m.w.: 40dB; s.w.: 50dB; f.m.: 30dB
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:** Within 50Hz during any 60 minutes after warm-up time
- **AUDIO OUTPUT:** 2W r.m.s. max
- **IF STAGE:** l.w., m.w.: 450kHz, s.w.: 39.9–40MHz, 450kHz, f.m.: 10.7MHz
- **FEATURES:**
- **REVIEWED:**
- **PRICE:** £499.95

WHAT RECEIVER

JRC NRD-525 General Coverage Receiver

- **COVERAGE:** 90kHz to 34MHz (optionally to 456MHz in steps)
- **MODES:** RTTY, FAX, c.w., s.s.b. (u.s.b., l.s.b.), a.m., f.m.
- **SENSITIVITY:** 1.6 to 34MHz c.w., 0.5µV; 1.6 to 34MHz a.m., 2µV
- **RESOLUTION:** 10Hz, 1kHz, 10kHz, 20kHz
- **SELECTIVITY:** wide bandwidth >4kHz at -6dB, <10kHz at -60dB
- **IMAGE REJECTION:** >76dB
- **IF REJECTION:** >76dB
- **SPURIOUS REJECTION:** >76dB
- **FREQUENCY STABILITY:** ±3 p.p.m.
- **AUDIO OUTPUT:** >0.5W at 4Ω and 10% distortion
- **IF STAGE:** IF2 - 455kHz
- **FEATURES:** scan and sweep, electronic tuning (via main control or key pad), noise blanker, S-meter, sidetone input, mute input, transmission monitor, squelch, dimmer, tone control, clock, timer, i.f. notch filter, passband shift
- **REVIEWED:** Practical Wireless June 1986
- **PRICE:** £1195

Eddystone Model 1650 Communications Receiver



- **COVERAGE:** 10kHz to 30MHz in synthesised steps of 5Hz
- **MODES:** (1650/1) a.m., c.w., u.s.b.; (1650/2) a.m., c.w., u.s.b., l.s.b.; (1650/3) a.m., c.w., u.s.b., l.s.b., i.s.b.
- **SENSITIVITY:** 12dB s/n on s.s.b. for 1µV input
- **RESOLUTION:** 5Hz
- **SELECTIVITY:** At -6dB: 400Hz, 1kHz, 2.4kHz, 3kHz, 8kHz, 14kHz
- **IMAGE REJECTION:** typically 100dB
- **IF REJECTION:** typically 100dB
- **SPURIOUS REJECTION:** typically 100dB
- **FREQUENCY STABILITY:** 10 p.p.m. above 1MHz
- **AUDIO OUTPUT:** line (600Ω) 10mW pre-set; loudspeaker 1W max. low/medium impedance
- **IF STAGE:** 1.4MHz
- **FEATURES:** remotely controllable, variable speed tuning, built-in r.f. front end pre-selector option, scan and sweep facility, 99 programmable memories
- **REVIEWED:**
- **PRICE:** On application to Lowe Electronics

Kenwood R-5000 Communications Receiver

- **COVERAGE:** 100kHz to 30MHz
- **MODES:** c.w., s.s.b., a.m., f.m., f.s.k.
- **SENSITIVITY:** 1.8 to 30MHz s.s.b., c.w., f.s.k., <0.25µV; 500kHz to 1.8MHz a.m. (30% mod.), <32µV
- **RESOLUTION:** 10Hz
- **SELECTIVITY:** s.s.b., c.w., f.s.k., 2.4kHz at -6dB, 4.4kHz at -60dB; a.m., 6kHz at -6dB; f.m., 25kHz at -50dB
- **IMAGE REJECTION:** 1.8 to 30MHz, >80dB
- **IF REJECTION:** 1.8 to 30MHz, >70dB
- **SPURIOUS REJECTION:** >80dB
- **FREQUENCY STABILITY:** ±10 p.p.m. or better
- **AUDIO OUTPUT:** 1.5W at 8Ω and 10% distortion
- **IF STAGE:** Double conversion: 58.1125 and 8.83MHz, Triple conversion on f.m.: 455kHz
- **FEATURES:** 10Hz step dual digital v.f.o.'s, micro controlled digital p.l.l., 100 memory channels, memory scroll, memory and programmable band scan, selectable i.f. filters, noise blanker, dual 24hr quartz clocks, r.f. attenuator, lithium battery memory backup, keyboard frequency selection
- **REVIEWED:** Short Wave magazine June 1987
- **PRICE:** £875

Icom IC-R71E General Coverage Receiver

- **COVERAGE:** 0.1MHz to 30MHz
- **MODES:** a.m./c.w./u.s.b./l.s.b./RTTY
- **SENSITIVITY:** s.s.b./c.w./RTTY, <0.15µV for 10dB s+n/n; a.m., <0.5µV; f.m. (optional), <0.3µV for 12dB SINAD
- **RESOLUTION:** 10Hz, 50Hz, 1kHz
- **SELECTIVITY:** s.s.b./c.w./RTTY, 2.3kHz at -6dB, 4.2kHz at -60dB; c.w. narrow/RTTY narrow, 500Hz at -6dB, 1.5kHz at -60dB; a.m., 6kHz at -6dB, 15kHz at -60dB; f.m. (optional), 15kHz at -6dB, 25kHz at -60dB
- **IMAGE REJECTION:** >60dB
- **IF REJECTION:** >60dB
- **SPURIOUS REJECTION:** >60dB
- **FREQUENCY STABILITY:** <200Hz after switch-on to 60 min., <30Hz after 1hr
- **AUDIO OUTPUT:** >2W
- **IF STAGE:** Multiple i.f.s. depending on mode. 70.45MHz, 9MHz and 455kHz
- **FEATURES:** f.m. (optional)
- **REVIEWED:**
- **PRICE:** £825

Touroport 220 Broadcast Receiver

- **COVERAGE:** 153 - 281kHz; 522 - 1611kHz; 2.3 - 4.215MHz; 4.540 - 6.455MHz; 7.1 - 7.735MHz; 9.500 - 10.135MHz; 11.585 - 12.215MHz; 15.100 - 15.735MHz; 17.500 - 18.135MHz; 21.340 - 21.975MHz; 25.500 - 26.135MHz; 87.5 - 108MHz
- **MODES:** a.m., f.m.
- **SENSITIVITY:** 3 - 4µV e.m.f. for 20dB S-N
- **RESOLUTION:** 1, 5, 9 & 50kHz
- **SELECTIVITY:**
- **IMAGE REJECTION:**
- **IF REJECTION:**
- **SPURIOUS REJECTION:**
- **FREQUENCY STABILITY:**
- **AUDIO OUTPUT:** 0.8W into 4Ω with 10% t.h.d.
- **IF STAGE:**
- **FEATURES:** 10-station memory; l.c.d. readout, clock (includes alarm facilities), mains, 6V d.c. or battery options
- **REVIEWED:** Practical Wireless June 1985
- **PRICE:** Available on second-hand market

Lowe HF-125 General Coverage Receiver



- **COVERAGE:** 30kHz to 30MHz continuous, optional 150kHz to 26.1MHz restricted coverage
- **MODES:** a.m., c.w., s.s.b. (u.s.b., l.s.b.), optional D-125 board adds n.b.f.m. and sync. a.m.
- **SENSITIVITY:** s.s.b., <0.3µV for 10dB s/n; a.m., <0.7µV for 10dB s/n at 70% mod
- **RESOLUTION:** 1kHz
- **SELECTIVITY:** At -6dB: 400Hz, 2.5kHz, 4kHz, 7kHz, 10kHz
- **IMAGE REJECTION:** >89dB
- **IF REJECTION:** >78dB
- **SPURIOUS REJECTION:** >75dB
- **FREQUENCY STABILITY:** +55kHz in first 15 mins., +25kHz in next hour
- **AUDIO OUTPUT:** 0.75W into int. speaker, 1.25W into ext. 4Ω speaker
- **IF STAGE:** IF1 → 45MHz, IF2 - 455MHz
- **FEATURES:** tuning step size increases with faster knob rotation, permanent in-circuit noise blanker
- **REVIEWED:** Practical Wireless March & April 1987
- **PRICE:** HF-125, £375; D-125, £59.50; K-125, £59.50; P-125 Portable Pack (internal NiCads, charger and active whip antenna), £69.50

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3. All letters asking for advice must be accompanied by a stamped, self-addressed envelope (or envelope plus international Reply Coupons for overseas readers).

4. Write to the Editor, "Short Wave Magazine", Enefco House, The Quay, Poole, Dorset BH15 1PP, giving a clear description of your problem.
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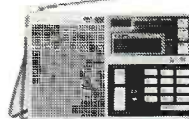
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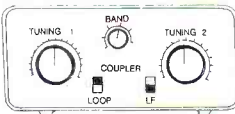
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